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ORAL PRESENTATIONS

CONFERENCE HALL 1

Actual Challenges of Healthcare Professions in an Ageing World

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Introduction: The current world population has reached 8.2 billion—an eightfold increase since the early 19th century. This extraordinary growth is largely attributed to major advances in medical care, technology, and public health systems, which have led to the effective control and treatment of infectious diseases, the management of pandemics, and significant improvements in living conditions and the equitable distribution of social welfare.

Material and Methods: These factors have considerably contributed to increased life expectancy. Coupled with a general decline in fertility rates, this has triggered a demographic shift in which the proportion of older adults is growing faster than that of younger generations. In 2020, for the first time in history, the number of people aged over 60 surpassed that of children under five. Between 2015 and 2050, the proportion of the global population over 60 is projected to nearly double—from 12% to 22%.

Discussion: Population aging is expected to become the leading global public health challenge of the future. Health systems must develop effective strategies to extend care and address the complex needs of older adults, particularly regarding chronic non-communicable diseases. Simultaneously, healthcare systems worldwide face significant workforce shortages, mainly due to the retirement of the "baby boomer" generation—many of whom are healthcare professionals—and the fact that people are now living longer than ever before.

Conclusion: Addressing these pressing healthcare challenges requires global cooperation that brings together governments, civil society, international organizations, healthcare professionals, academia, universities, healthcare researchers, and society as a whole. Only through collective action can we promote longer, healthier lives for future generations.

Keywords: Global population, demographic shift, life expectancy, fertility rates, older adults, public health challenges, workforce shortages, baby boomer generation, healthcare strategies, global cooperation, technological advancements, social welfare, pandemics.

Bridging the Silence: Building a Stronger Future for Mental Health

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Introduction: Mental health is increasingly recognized as a critical component of overall health across the life course. In recent years, Albania has made important steps toward mental health reform, including efforts to deinstitutionalize care and integrate mental health services into primary care. However, challenges remain in terms of workforce development, interdisciplinary collaboration, stigma, and community-based service availability. These gaps highlight the need for sustained and inclusive strategies that engage all sectors of the health system.

Materials and Methods: This plenary presentation draws on recent research and implementation insights, including data from the European Union–funded MENTBEST project, which focuses on community-based mental health interventions. The session introduces the Four-Level Intervention Model, a comprehensive approach implemented in 17 European countries and adapts it to the Albanian context.

Results: The Four-Level Approach includes: (1) training for primary care providers; (2) public awareness campaigns to reduce stigma; (3) targeted outreach to community facilitators such as educators and media professionals; and (4) support for high-risk groups and their families. This model offers a flexible, evidence-informed pathway for enhancing early identification, care coordination, and community resilience in Albania.

Conclusions: Albania is well positioned to build on its recent progress and develop a more integrated, stigma-free, and responsive mental health system. By engaging health professionals across disciplines, investing in training and research, and promoting community-based solutions, we can bridge the silence and advance mental wellbeing for all.

Keywords: Mental health, Albania, MENTBEST project, community-based interventions, Four-Level Intervention Model, primary care, stigma reduction, mental health reform, health system integration, public awareness, interdisciplinary collaboration.

COVID-19, five years later: Lessons we still need to learn

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Introduction: The COVID-19 pandemic represents one of the greatest challenges of the 21st century for health systems worldwide, including in Albania. During the five-year experience of managing the pandemic, it became evident that the main challenge was not only related to the clinical response but, especially, to the institutional response and the lessons learned for handling future health emergencies.

Materials and Methods: Through an analytical approach, it was observed that the Albanian health system, during and after the pandemic emergency, demonstrated an effort to strengthen human and infrastructure capacities, improve emergency management, implement preventive measures, involve health institutions actively, communicate risks to the public, and address the long-term impacts on public health. The system showed flexibility and sustainable evolution. The COVID-19 pandemic was not only a biological phenomenon but also a social one. It tested both strong and fragile systems, revealing obstacles, weaknesses, and deficiencies, while also guiding towards a clearer vision for the future.

Results: The importance of primary care, digitalization of services, transparency in communication, and inter-institutional cooperation emerged as key pillars in the effective management of the crisis. The experience with the vaccination process, monitoring and assessing psychosocial impacts, and the necessity of sustainable emergency plans were confirmed as crucial elements in improving the resilience of the health system. The lessons learned from this period represent a valuable opportunity for reforming and strengthening the health system in Albania. They reaffirmed the importance of preventing and controlling infectious diseases, the need for investments in health infrastructure and digitalization of services, as well as strengthening inter-institutional and international cooperation in dealing with future crises.

Conclusions: Finally, despite the unprecedented nature of the crisis, the Albanian health system managed to avoid collapse and successfully faced the challenges of the pandemic, thanks to the unwavering commitment of healthcare personnel, coordinated interventions by state institutions, and continuous international support.

Keywords: COVID-19 pandemic, Albania, global health crisis, health system challenges, institutional response, clinical response, pandemic preparedness, health emergencies.

Challenges and Opportunities in the Youth Mental Health in South-Eastern Europe

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Introduction: Mental health issues among young people in South-Eastern Europe have become an increasingly pressing concern, influenced by socio-economic challenges, stigma, and insufficient mental health services. This region, characterized by diverse historical backgrounds and economic disparities, faces unique obstacles in addressing adolescent mental health needs.

Materials and Methods: Recent data indicate that the most frequent mental health conditions among youth are depression, anxiety, and substance abuse, rooted in factors such as poverty, unemployment, and migration. Additionally, the effects of past conflicts and social instability specific to the region contribute to heightened stress levels among young individuals. Despite the growing recognition of its impact on mental health, access to specialized care remains limited due to a lack of trained professionals, underfunded healthcare systems, and persistent social stigma surrounding mental health conditions.

Results: However, progress is being made through various initiatives aimed at improving youth mental health, led by international organizations, regional collaborations, and local NGOs. Among their goals are implementing mental health awareness programs and integrating psychological support services into school curricula. Community-based interventions and peer support programs have also shown promising results in reducing stigma and encouraging help-seeking behaviors among adolescents.

Conclusion: To foster sustainable improvements, a multi-sectoral approach is necessary. Policymakers, educators, and healthcare professionals must collaborate to develop comprehensive mental health policies, increase funding for services, and enhance training for mental health professionals. By prioritizing youth mental health as a public health imperative, South-Eastern European countries can improve the overall well-being and resilience of their younger populations, ensuring a healthier and more productive future generation.

Keywords: Youth mental health, depression, anxiety, substance abuse, social stigma, education, healthcare services, awareness, psychological support.

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Deploying Precision Medicine Approaches in Oncology Clinical Studies to Identify Patients that Benefit from Novel Therapeutic Treatments

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Introduction: Personalized Medicine is an approach to medical treatment and healthcare that considers individual differences in patients' genes, environments, and lifestyles. Instead of using a one-size-fits-all approach, personalized medicine aims to tailor treatments, medications, and preventative measures to each person's unique biological makeup. Deploying personalized medicine in clinical studies involves integrating genetic, molecular, and environmental data to tailor treatments and interventions for individual patients. This approach requires a combination of advanced technologies, data collection methods, and personalized treatment strategies.

Materials and Methods: Examples of key steps to deploy personalized medicine in clinical studies include:

- Genomic and molecular profiling for patient recruitment
- Stratification of patients by genetic and/or molecular biomarkers
- Targeted therapies for precision treatment administration

Flare Therapeutics has developed FX-909, an inverse agonist of PPARG, which is the master regulator of luminal lineage in driving initiation and development of urothelial carcinoma (UC). FX-909 is being investigated in the clinical trial FX-909-CLINPRO-1 in patients with locally advanced and muscle-invasive UC (NCT05929235). This clinical study is a first-in-human, multicenter, open-label Phase 1 study to evaluate the safety and tolerability, pharmacokinetics (PK), pharmacodynamics (PD), and preliminary clinical activity of FX-909.

Results: Our Precision Medicine team at Flare Therapeutics has developed an Immunohistochemistry (IHC) assay to detect PPARG protein expression in formalin-fixed, paraffin-embedded (FFPE) UC tissue specimens. Our data show that this assay is sensitive and specific for the detection of PPARG expression in advanced UC, with utility to identify patients with potential to respond to FX-909.

Conclusion: In conclusion, the use of precision medicine in oncology clinical studies, such as the integration of molecular profiling and targeted therapies, offers significant potential to improve patient outcomes. The development of a PPARG biomarker assay and the ongoing clinical trial of FX-909 underscore the importance of personalized approaches in identifying patients who may benefit from novel therapeutic treatments.

Keywords: Personalized Medicine, Precision Medicine, Oncology, Urothelial Carcinoma, PPARG, FX-909, Biomarkers, Immunohistochemistry, Clinical Trials

Actual Challenges for Health Care Professionals in an Aging World

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Introduction: The world is experiencing rapid population aging, especially in countries like Albania and across Europe. This demographic shift presents new challenges for health care professionals who must address the complex health needs of older adults. Aging naturally causes physical changes such as loss of connective tissue, collagen, and muscle mass (sarcopenia), as well as a weakened immune system and increased inflammation.

Objective: This abstract aims to highlight the main challenges faced by health care providers in managing the health of the elderly population and to emphasize effective strategies to improve their care.

Materials and Methods: A review of current knowledge and clinical practices was conducted, focusing on physical activity, medication management, and the biological changes associated with aging. Guidelines such as the Beers List were considered for medication safety in older adults.

Results: Physical activity is crucial for older adults, as it helps reduce mortality rates, preserves muscle strength and bone density, lowers the risk of obesity, and prevents various diseases including cardiovascular conditions, diabetes, osteoporosis, colon cancer, and psychiatric disorders. Movement also reduces fall risk and improves sleep quality. Medication management requires careful attention: starting doses low and increasing slowly ("start low, go slow"), avoiding polypharmacy, and deprescribing unnecessary drugs. Tools like the Beers List guide clinicians in safely prescribing medications to the elderly.

Conclusion: Health care professionals face significant challenges in caring for an aging population, but with appropriate strategies focusing on physical activity and careful medication use, outcomes can improve. Above all, compassionate and personalized care remains the key to successful management of older patients.

Keywords: Aging population, geriatrics, physical activity

Bronchoalveolar Lymphocytes and the Prognosis of Patients with Fibrotic Hypersensitivity Pneumonitis

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Introduction: Bronchoalveolar lavage (BAL) plays a crucial role in differentiating fibrotic (chronic) hypersensitivity pneumonitis (fHP) from other forms of pulmonary fibrosis. However, the prognosis of fHP remains challenging to predict. This study aims to explore the relationship between the percentage of BAL lymphocytes and pulmonary function, providing a more accurate assessment of the prognosis for patients with fHP.

Materials and Methods: To investigate this relationship, we used data from patients with fHP, including pulmonary function measurements assessed by FVC, FEV1, Composite Physiologic Index (CPI), and TLCO. Additionally, the two components of DLCO, KCO and VA, were analyzed to assess the impact of BAL lymphocyte percentage on pulmonary function and patient prognosis.

Results: The results indicate that a higher percentage of BAL lymphocytes is associated with better-preserved lung function when assessed by FVC, FEV1, or CPI, but not by TLCO. However, when the two components of DLCO, KCO and VA, were analyzed separately, both showed significant linear correlations with the percentage of BAL lymphocytes—but in opposite directions: KCO decreased, while VA improved as the lymphocyte percentage increased.

Conclusions: It is important to note that KCO was not significantly associated with survival, while BAL lymphocytes, FVC, TLCO, and CPI were all significantly associated with better treatment response and survival. Thus, in addition to its diagnostic value, BAL also plays an important role in the prognostic evaluation of patients with fHP.

Keywords: Fibrotic hypersensitivity pneumonitis, bronchoalveolar lavage, lymphocytes, pulmonary function, prognosis, treatment.

Cardio-Reno-Metabolic Syndrome: A Multidisciplinary Treatment approach

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Introduction: Cardio-reno-metabolic syndrome (CRMS) is defined as a health disorder attributed to the links between obesity, diabetes mellitus (DM), chronic kidney disease (CKD), cardiovascular diseases, such as atrial fibrillation (AF), coronary artery disease (CAD), heart failure (HF), stroke, and peripheral artery disease. Today, about 60 million individuals worldwide suffer from HF; approximately 50% of patients with HF die within 5 years. CKD is present in 850 million individuals worldwide. Approximately 530 million individuals suffer from DM today; this figure will reach approximately 640 million in 2030.

Materials and Methods: This literature review will focus on the multidisciplinary treatment of CKD in all its stages, with the aim of reducing the progression of this syndrome, as well as decreasing its high morbidity and mortality. The review examines various clinical recommendations, including optimizing lifestyle, treating prediabetes, managing dyslipidemia, achieving target blood pressure values, and treating inflammation as an independent risk factor for atherosclerotic disease. Additionally, the treatment of type 2 DM, the use of antiplatelet and anticoagulant therapy in patients with more than two cardiovascular risk factors, prevention and treatment of atherosclerotic disease, and the management of both HF and CVD when present are all discussed.

Results: Some multidisciplinary clinical recommendations are: optimizing lifestyle, treating prediabetes, treating dyslipidemia, achieving target blood pressure values, treating inflammation as an independent risk for atherosclerotic disease, treating type 2 DM, antiplatelet and anticoagulant therapy in patients with more than two cardiovascular risk factors, preventing and treating atherosclerotic disease, treating HF, treating CVD, and treating both HF and CVD when they are present in an individual.

Conclusion: These integrated recommendations should be implemented for the complex patient both within primary care and among specialists who should collaborate with each other in order to reduce the morbidity and mortality of patients with CKD.

Keywords: Cardio-reno-metabolic syndrome, diabetes mellitus, dyslipidemia, arterial hypertension, heart failure, chronic kidney disease.

Diabetes in Albania

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Introduction: Diabetes mellitus (DM) has emerged as a significant public health challenge in Albania, with its prevalence steadily rising and placing considerable pressure on the healthcare system. A comprehensive understanding of the current situation is essential for the development of effective prevention and management strategies.

Objective: This review aims to evaluate the prevalence of diabetes in Albania, identify key risk factors, and assess the healthcare challenges associated with managing the disease.

Materials and Methods: Several studies were conducted, analyzing data from national health surveys, hospital records, and local healthcare providers. Prevalence, alongside diabetes diagnosis method, management, and complications were assessed. Key risk factors, including age, obesity, sedentary lifestyle, and diet, were explored.

Results: The findings reveal that approximately 8-10% of the adult Albanian population is affected by diabetes, with strong associations to obesity, sedentary behavior, and aging. Access to healthcare services, particularly in rural areas, remains limited, leading to delayed diagnoses and suboptimal disease management. Notably, 61% of cases were diagnosed through random blood tests, while 19% were identified only after the onset of complications. The average HbA1c level among individuals with diabetes was found to be 8.1% ± 1.4%. Additionally, there is a lack of comprehensive diabetes education that impact on the progression of the disease. The integration of technology in diabetes management is minimal, however, crucial for improving patient outcomes.

Conclusion: The increasing burden of diabetes in Albania necessitates immediate attention. To address the rising prevalence, public health interventions must focus on improving awareness, expanding healthcare infrastructure, and implementing preventive measures. Enhancing access to healthcare services and strengthening diabetes education programs will be essential in managing the growing diabetes epidemic.

Keywords: Diabetes mellitus, public health, Albania, disease burden, chronic disease, healthcare pressure, epidemiology, prevention strategies

Overview of Neuroinfections from an Infectiological Perspective

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Introduction: Central nervous system (CNS) infections, which present as meningitis, encephalitis, brain and epidural abscesses, subdural empyema, and ventriculitis, are commonly encountered in ICU settings and represent a significant cause of morbidity and mortality. Among these, infectious meningitis and encephalitis, regardless of whether they are community-acquired or healthcare-associated, often lead to dramatic consequences, including permanent brain damage and death. Due to the severity of these conditions and the acute risk of mortality, many of these patients are admitted to the ICU. Their management requires a thorough understanding of not only epidemiology and diagnostic procedures but also antimicrobial and adjunctive treatments.

Aim: The aim of this study is to provide an overview of neuroinfections in the Infectious Disease (ID) service.

Material and Methods: We analyzed 47 cases of adults aged 15–78 years treated for neuroinfections in the Infectious Disease service at UHC from 2021 to 2024. This study excludes cases of WNV encephalitis from the summer 2024 outbreak. Upon admission, the predominant diagnoses were suspected meningoencephalitis (27%), followed by confusion syndrome (10.8%), febrile state (10.8%), and suspected encephalitis (10.8%). Demographically, 37.8% of the patients were female, and 62.2% were male. The average age of women was 51.7 (20.2) years, while the average age of men was 59.8 (17.3) years. Early clinical manifestations included headache (89.2%), asthenia (94.6%), confusion (89.2%), stupor (73%), coma (37.8%), convulsions (29.2%), and vomiting (17.2%). The average Glasgow Coma Scale (GCS) value was 11 (3.3), with a range of 4–15 points. Microbiologically, lumbar cerebrospinal fluid (LCS) analysis was performed on 31 (83.8%) patients. Streptococcus pneumoniae was identified, followed by Listeria monocytogenes and Acinetobacter baumannii. Blood cultures were performed on 15 (40.5%) patients, identifying Streptococcus pneumoniae, Staphylococcus hominis, Listeria monocytogenes, and Sphingomonad paucimobilis. Serological data showed HIV in 4 cases, EBV in 1 case, HSV in 1 case, and VZV in 1 case.

Discussion: Meningitis and encephalitis are severe and often underrecognized causes of brain injury and mortality in ICU settings. ICU admission is often necessary to prevent or treat associated systemic and neurological complications.

Keywords: Neuroinfections, ID service, Adults, Infectious Diseases, Meningitis, Encephalitis, ICU

Opportunistic Infections: The Most Common and Most Deadly

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Introduction: Opportunistic infections exploit the weakened immune system of individuals infected with HIV, leading to increased morbidity and mortality. The decline in CD4+ T cell count damages both humoral and cell-mediated immunity, predisposing patients to a higher risk of diseases caused by viruses, bacteria, fungi, and protozoa.

Materials and Methods: Prevalence and Impact of the Most Common Opportunistic Infections. Tuberculosis (TB) remains one of the leading causes of death among HIV-infected individuals, particularly in resource-limited settings. The emergence of multidrug-resistant tuberculosis further complicates treatment. Pneumocystis carinii pneumonia (PCP) continues to be a common and often fatal opportunistic infection among children infected with HIV. Infants between the ages of three and six months are particularly vulnerable. Aspergillosis, though less frequent, is highly fatal among HIV-infected individuals, especially those with CD4+ counts below 50 cells/mm^3.

Discussion: Despite the availability of effective prophylactic regimens, preventing opportunistic infections in HIV/AIDS patients remains essential for reducing the disease burden and associated mortality. Although the introduction of combined antiretroviral therapies has significantly improved patient survival and reduced the incidence of HIV-related opportunistic infections, these infections continue to present significant challenges in managing HIV-infected patients.

Conclusion: While significant progress has been made in the fight against HIV, opportunistic infections remain a serious problem. It is essential that we remain vigilant, continually update prevention and treatment strategies, and ensure that advancements in healthcare are accessible to all affected individuals.

Keywords: HIV, opportunistic infections, CD4+ T cells, immunosuppression, humoral immunity, cell-mediated immunity, HIV-related morbidity, immune dysfunction.

When the Mentors of the Nation Laid the Foundations...

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Introduction: On September 22, 1952, the Higher Medical Institute (ILM) began its journey under the leadership of Dr. Aleko Bozo. Renowned surgeon Dr. Frederik Shiroka underscored the significance of this era, stating: "…I am writing the history of Albanian medicine with the tip of the scalpel…".

The objective of this study is to summarize the pivotal historical moments that led to the establishment and evolution of the Institute, subsequently recognized as the Faculty of Medicine, and currently as the University of Medicine, Tirana (UMT).

Materials and Methods: Methods employed includes historical analysis of archival documents, periodical publications, declassified documents, academic materials, historical photographs, and memoirs of key figures of the time.

Results: The analysis highlights the remarkable contributions of significant personalities such as Dr. Shiroka, Dr. Polena, Dr. Kalivopuli, Dr. Ashta, and professors Zyma, Gjata, Kristidhi, Hoxha, Kërçiku, Asllani, Cani, Gliozheni, Dibra, Ndroqi, Bekteshi, as well as subsequent generations including Prof. Basha, Dauti, Minga, Bitri, Paparisto, Popa and the others. Additionally, the valuable contributions of Russian professors during the early years of establishment are acknowledged.

Conclusions: Initially based at the Civil Hospital of Tirana, the institution has transformed today into an advanced medical and academic center. From an initial enrollment of 67 students in 1952, UMT now exceeds 700 students, reflecting significant developments and investments that have established it as one of Albania's most prestigious higher education institutions.

Keywords: The Higher Medical Institute (ILM), Faculty of Medicine, The History of Albanian Medicine, Prominent Professors

Emergency Care of Dento- Alveolar Trauma

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Introduction: Acute traumatic dento-alveolar injuries of permanent teeth predominantly occur in children, adolescents, and young adults. The most commonly used classification system for dental trauma is Andreasen's classification, which applies to both primary and permanent teeth. This system distinguishes between four types of fractures (crown fracture, crown-root fracture, root fracture, and alveolar process fracture) and six types of luxations, or dislocations.

Materials and Methods: Managing dental trauma involves proper diagnosis of the injury type, appropriate treatment techniques (including for immature teeth), prospective treatment planning, and follow-up. Avulsion, extrusion, intrusion, lateral luxation, and alveolar process fractures are the most severe injuries in permanent dentition and require prompt and correct emergency management.

Results: Soft tissue injuries of the face and oral cavity are frequently seen with traumatic dental injuries. These types of wounds can lead to scarring. Suturing of lip lacerations should only be performed after the urgent intraoral injuries have been treated, as failure to do so may make it difficult to access the oral cavity once edema begins to develop. The most common procedures used in managing dental trauma include surgical, endodontic, restorative, and orthodontic treatments.

Conclusions: In this lecture, emergency care for complex dental trauma will be discussed. The aim is to enhance knowledge of initial dental trauma treatment. Effective management of dento-alveolar trauma requires deep knowledge and a quick, accurate approach to prevent long-term consequences and ensure successful treatment outcomes for patients.

Keywords: Dental trauma, dento-alveolar injuries, Andreasen’s classification, permanent teeth, primary teeth, dental fractures, luxation injuries, pediatric dental trauma.

New Frontiers in the Cure of Allergies

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Introduction: Allergy constitutes a major health issue due to its large prevalence. The established therapeutic approaches (allergen avoidance, antihistamines, and corticosteroids) do not address the underlying causes of the pathology, highlighting the need for other long-term treatment options. Antigen-specific immunotherapy enables the long-term control of allergic diseases by promoting immunological tolerance to the allergen.

Materials and Methods: The driving mechanism behind such therapeutic strategies is the induction of allergen-specific regulatory subsets of T and B cells. However, efficacious immunotherapies are not available for all possible allergens, and the risk of undesired reactions during therapy remains a concern, especially in patients with severe allergic reactions.

Results: In this context, two types of therapeutic strategies appear especially promising for the future in the context of allergy: cell therapy and bio- or nano-material-based therapy. A potential combination of both strategies, employing biomaterials for exogenous cell delivery in tolerance-generating therapy in the context of allergy, remains largely unexplored, although some works have already been performed in other areas, such as autoimmune diseases and allogeneic transplantation.

Conclusion: This review discusses the main strategies developed so far in these two types of strategies, with several examples illustrating the different approaches.

Keywords: Allergy, immunotherapy, T and B cells, cell therapy, bio-materials, nano-materials, immunological tolerance, allergy treatment.

Challenges in the Diagnosis and Management of Hereditary Angioedema

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Introduction: Hereditary angioedema (HAE) is one of the rare forms of angioedema that can be caused by a deficiency or defect of the C1 inhibitor (C1 INH) or by other mutations. Acute and potentially fatal clinical manifestations, if not managed adequately, make this diagnosis often challenging for allergists and other physicians.

Objective: The aim of this presentation is to classify the different clinical forms of Hereditary Angioedema and to present the treatment algorithms proposed by international guidelines.

Materials and Methods: Data collection was carried out through a review of the literature from the past 10 years, including research from PubMed, EAACI Knowledge Hub, HAE Guidelines, etc.

Results: Hereditary angioedema is a rare genetic pathology characterized by recurrent episodes of cutaneous and mucosal edema, which can affect the skin and other organs. Clinically, it ranges from localized edema that may self-resolve to potentially fatal acute attacks, such as laryngeal edema. Hereditary angioedema has a very low prevalence in the general population, partly due to underdiagnosis. Both short-term and long-term management of angioedema attacks present a challenge for patients, their families, and the healthcare system. Recognizing clinical patterns, early diagnosis, and developing a personalized management plan are important steps in reducing life-threatening acute attacks in this patient group.

Conclusions: Hereditary angioedema is a complex condition and is often difficult to diagnose by healthcare professionals due to its low prevalence in the general population and clinical manifestations that are not always pathognomonic. Awareness of the clinical characteristics, pathophysiology, and management of this pathology is crucial.

Keywords: Hereditary angioedema (HAE), C1 inhibitor deficiency, genetic mutations, angioedema, acute manifestations, clinical diagnosis, allergists, physician challenges, rare diseases

Lipedema, Diagnostics, New Insights into Pathogenesis, and Treatment

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Introduction: Lipedema is a chronic disease characterized by bilateral increased circumference of the extremities, pain sensations, and bruising. It can be described as a painful lipodystrophy. The disease develops in females during or after puberty, often in conjunction with hormonal changes. It leads to disproportionate body shape. In contrast to lymphedema, lipedema leaves the most distal parts, such as hands and feet, unaffected (step-off sign or cuff sign). The Stemmer sign is negative in lipedema. The skin is hypothermic, and telangiectasias may develop later.

Objectives: Lipedema is often confused with obesity, as BMI increases due to the swollen extremities. However, the adipose tissue in lipedema is resistant to exercise or diet. Common symptoms of lipedema include spontaneous or pressure-induced pain, discomfort, tenderness, cold skin, and easy bruising. The major complaint is pain, which significantly impairs the quality of life and is correlated with depression in lipedema patients.

Materials and Methods: Treatment consists of manual lymph drainage, flat knitted compression garments, and skin care. Adjuvant modalities include sports, a healthy Mediterranean diet, and psychological support. The only available treatment that interrupts the progress of the disease and significantly decreases pain and discomfort is micro cannular liposuction in tumescent anesthesia.

Results: The prevalence of lipedema has been estimated to be as high as 10% in adult Caucasian women. Lipedema is often confused with obesity, as BMI increases due to the swollen extremities. The main symptoms include pain and easy bruising, which are closely linked to decreased quality of life and depression.

Conclusions: Lipedema is a chronic condition that is often overlooked and can lead to high pain sensitivity and decreased quality of life. Its treatment requires an integrated approach involving manual therapies, compression garments, and overall physical and psychological support. Micro liposuction is the only treatment shown to be effective in halting disease progression and relieving pain.

Keywords: Lipedema, diagnosis, pathogenesis, treatment, pain, liposuction, skin, telangiectasia, compression garments, lymphatic drainage.

Difficult to Diagnose Melanoma

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Introduction: Melanoma diagnosis can be challenging due to its capability to mimick benign lesions, variations in appearance, and the subjectivity of visual assessment, leading to potential misdiagnosis or delays in treatment.

Materials and Methods: When melanoma is misdiagned for benign tumors such as melanocytic nevi, seborrheic keratosis (SK), pigmented basal cell carcinoma and pigmented actinic keratosis, the challenge is that the lesion is not being excised or is being destructed by ablative approaches that do not include histopathology.
SK represents one of the most important diagnostic pitfall, since it is one of the most frequently observed benign skin tumors in clinical practice, not routinely biopsied and usually treated with destructive modalities. Varies cases will be presented and discussed with the audience.
Also other melanoma subtypes, such as melanoma desmoplastic melanoma, can be particularly difficult to diagnose due to their atypical clinical and dermoscopic features.

Results: Misdiagnosis or delay in diagnosis can have serious consequences for patients, potentially leading to advanced-stage disease and reduced survival rates.

Keywords: Melanoma diagnosis, Diagnostic pitfalls, Seborrheic keratosis (SK), Desmoplastic melanoma, Misdiagnosis consequences

Genetics in Chronic Kidney Diseases

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Introduction: Chronic kidney disease (CKD) encompasses a wide range of inherited and acquired conditions that ultimately affect kidney function. Genetic etiologies are increasingly recognized, with recent evidence showing that up to 50% of pediatric patients and 25% of adult patients with CKD have a hereditary cause.

Materials and Methods: Rapid advancements in genetic testing—such as next-generation sequencing and targeted gene panels—have significantly improved diagnostic accuracy. Accurate identification of a genetic basis for CKD allows for the development of patient-specific management strategies, which can include targeted pharmacotherapies and personalized surveillance protocols.

Results: A precise genetic diagnosis enables more effective counseling for affected individuals and their families, informing decisions on familial screening, reproductive planning, and long-term prognosis. As genetic knowledge and diagnostic technologies continue to evolve, recognizing the hereditary aspects of CKD represents an essential component of personalized kidney care and overall patient management.

Conclusion: Understanding the genetic aspects of CKD is crucial for successful patient management. By utilizing advanced genetic technologies, more effective treatment strategies can be created, enabling personalized treatment and better counseling for patients and their families.

Keywords: CKD, genetics, genetic testing, personalized treatment, diagnosis, counseling.

Bridging Healthcare Gaps and Crisis Response via Remote Care: The Sheba Beyond Concept

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Introduction: Global changes and healthcare challenges necessitate innovative solutions to improve access and quality of medical services. Sheba Beyond is a telemedicine model that leverages advanced technologies to deliver remote healthcare, overcoming infrastructure and resource limitations.

Objective: To examine the Sheba Beyond telemedicine model and its potential to bridge healthcare gaps, enhance crisis response, and optimize medical resource use.

Materials and Methods: Sheba Beyond combines AI, telemedicine platforms, and telecommunications tools for remote consultations, diagnostics, and treatments. Data from pilot programs and patient feedback were used to evaluate its effectiveness.

Results: Sheba Beyond has enhanced access to medical services in underserved areas, improved crisis response, and optimized healthcare resources. Early data indicate positive outcomes, with AI tools improving diagnostic accuracy.

Conclusion: Sheba Beyond offers a transformative approach to healthcare delivery, with significant potential to bridge healthcare gaps and improve global healthcare systems.

Keywords: Telemedicine, Remote healthcare, Artificial intelligence, Sheba Beyond

Treatment vs Prevention – Can Albanians Gain any More Years in Life Expectancy at Birth through Prevention and Should the Treatment of Chronic Diseases Become a Priority?

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Introduction: At the end of 2024, Albania's demographic regime is characterized by very low mortality and fertility rates. Life expectancy at birth for females is the highest in the Western Balkans at 81.0 years, and the male life expectancy is one of the highest at 77.6 years. While Albania has one of the lowest fertility rates in Europe (1.4 children per woman), this has been achieved through early marriage and early fertility, a paradoxical route to low fertility that still maintains traditional values. Migration has become the main demographic factor over the past 30 years, significantly affecting the population structure. Albania is often cited as achieving "good health at low cost," with high life expectancy relative to its level of economic development. However, with a rapidly aging population, the question arises: can Albania maintain its positive health trends, especially as chronic diseases increase with age?

Objective: This paper explores the potential for Albania to increase life expectancy further through prevention and whether the treatment of chronic diseases should become a priority moving forward.

Materials and Methods: Albania faces rapid population aging, with 20% of its population over 65 years old by 2024. The growing prevalence of chronic diseases associated with aging will likely have a significant impact on the quality of life and the health of the population. Given this, the paper examines the limits of prevention and discusses the need for Albania to shift its focus towards treating chronic diseases, including investment in tertiary healthcare.

Results: Albania has achieved high life expectancy with relatively low healthcare costs. However, the country may soon face major challenges, such as rising chronic disease treatment costs and the need for greater investments in healthcare services. While prevention has been successful, it is now possible that Albania has reached the limits of this approach and must begin focusing more on the treatment and management of chronic diseases to maintain high quality of life and life expectancy.

Conclusion: As Albania's population continues to age and chronic diseases increase, the focus must shift towards improving the treatment and management of these diseases. This adjustment is crucial to maintaining the country's high life expectancy and quality of life in the future.

Keywords: Prevention, chronic disease treatment, life expectancy, population aging, demographic challenges.

Clinical and Morphological Features of Idiopathic Diffuse Hyperplasia of Pulmonary Neuroendocrine Cells

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Introduction: Diffuse idiopathic pulmonary neuroendocrine cell hyperplasia (DIPNECH) is a rare, often underdiagnosed pulmonary disorder located at the benign end of the spectrum of neuroendocrine cell proliferation in preinvasive lung lesions. It is characterized by the hyperplasia of bronchiolar and bronchial pulmonary neuroendocrine cells. DIPNECH can be primary or reactive and is classified as a preneoplastic lesion in the WHO-IASLP classification of lung tumors. Histologically, DIPNECH presents as diffuse hyperplasia of neuroendocrine cells scattered throughout the lung tissue, with small nodules or linear proliferation in alveolar ducts and alveoli. Proliferations are generally confined to the bronchial and bronchiolar epithelium. If these proliferations extend beyond the basement membrane, nodules less than 5 mm in diameter are termed tumorlets, while those greater than 5 mm in diameter are classified as carcinoid tumors.

Objective: This study aims to present the clinical and morphological features of DIPNECH and the associated Aguayo-Miller syndrome in a cohort of patients. The goal is to better understand the pathophysiology and implications of DIPNECH in pulmonary health.

Materials and Methods: The study includes 14 cases diagnosed with DIPNECH and Aguayo-Miller syndrome, comprising 11 females and 3 males, with a mean age of 64 years (age range: 40–86 years). Ten patients were smokers. After surgery, lung specimens were examined morphologically, confirming the diagnosis of DIPNECH with features such as diffuse neuroendocrine cell hyperplasia, multiple tumor lets, one peripheral carcinoid, and obliterate bronchiolitis in the right middle pulmonary lobe.

Results: The morphological study revealed the following findings:

- Diffuse hyperplasia of neuroendocrine cells in the lungs.
- Multiple tumorlets with a diameter of less than 5 mm.
- One peripheral carcinoid tumor.
- Obliterative bronchiolitis in the right middle lung lobe.

According to the WHO classification, DIPNECH is defined purely by histology. While most patients experience a relatively uneventful clinical course, this condition can be associated with tumorlets, carcinoid tumors, and airway obstruction.

Conclusion: DIPNECH is a pulmonary condition that requires special attention in both diagnosis and management. Identifying this disease is crucial for preventing the development of potential tumors and for ensuring appropriate treatment for affected patients. This study provides valuable insights into the clinical and morphological characteristics of DIPNECH and its role in the development of other pulmonary pathologies.

Keywords: Pulmonary hyperplasia, neuroendocrine, DIPNECH, Aguayo-Miller syndrome, carcinoid tumors, proliferation, preinvasive lesions, histology, diagnosis, obliterative bronchiolitis, pulmonary disease.

The Importance of Prevention within Health Sciences: The EUPC Initiative as a Milestone in Advancing Prevention Science across Europe

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Introduction: Prevention science is a critical branch within health sciences that aims to reduce the burden of diseases, including drug addiction, by implementing evidence-based interventions. Despite significant progress in the development of quality standards and interventions for drug prevention, wide-scale implementation remains a challenge. The European Prevention Curriculum (EUPC) initiative has emerged as a significant milestone in the development of prevention science across Europe, serving as a framework for training professionals and influencing policy-making.

Materials and Methods: This presentation will analyze the current state of drug prevention science, focusing on key literature such as the European Drug Prevention Quality Standards and the United Nations International Standards on Drug Use Prevention. Through a review of these frameworks and other relevant research, the talk will examine the cost-effectiveness of prevention strategies, the evidence supporting their implementation, and the role of tools like the Xchange registry in informing decision-makers.

Results: The EUPC initiative has been adopted by various European countries for funding and training purposes, with positive results in promoting a standardized approach to prevention across the continent. The EUPC curriculum has shown substantial progress in enhancing the quality of prevention science education and fostering collaborations among stakeholders. However, challenges remain in the widespread implementation and integration of these methods into national healthcare systems.

Discussion: Although prevention science has achieved remarkable strides, such as the establishment of international quality standards, the broader dissemination of these methods is hindered by structural barriers and limited resources. This section will explore the barriers faced in translating scientific advancements into practice, particularly in the context of prevention science. It will also address how policy changes and continued professional development can overcome these challenges.

Conclusion: Focusing on prevention in public health not only leads to long-term cost savings but also significantly improves the health and well-being of individuals and communities. The EUPC initiative plays a pivotal role in shaping the future of prevention science in Europe, and its continued expansion and refinement will be essential for achieving sustainable health outcomes. Emphasizing prevention in public health policy is crucial to addressing the growing challenges posed by drug use and addiction across Europe.

Keywords: Prevention Science, Drug Prevention, EUPC, European Drug Prevention Quality

Standards, Health Policy, Public Health, Cost-Effectiveness, Evidence-Based Interventions, Addiction, Professional Training.

Quiescent Cancer Stem Cells in Colorectal Cancer

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Introduction: Quiescent/slow cycling cells have been identified in several tumors and correlated with therapy resistance. However, the features of chemoresistant populations and the molecular factors linking quiescence to chemoresistance are largely unknown.

Materials and Methods: A population of chemoresistant quiescent/slow cycling cells was isolated through PKH26 staining (which allows to separate cells on the basis of their proliferation rate) from colorectal cancer (CRC) xenografts and subjected to global gene expression and pathway activation analyses. Factors expressed by the quiescent/slow cycling population were analyzed through lentiviral overexpression approaches for their ability to induce a dormant chemoresistant state both in vitro and in mouse xenografts. The correlation between quiescence-associated factors, CRC consensus molecular subtype and cancer prognosis was analyzed in large patient datasets.

Results: Untreated colorectal tumors contain a population of quiescent/slow cycling cells with stem cell features (quiescent cancer stem cells, QCSCs) characterized by a predetermined mesenchymal-like chemoresistant phenotype. QCSCs expressed increased levels of ZEB2, a transcription factor involved in stem cell plasticity and epithelial-mesenchymal transition (EMT), and of antiapototic factors pCRAF and pASK1. ZEB2 overexpression upregulated pCRAF/pASK1 levels resulting in increased chemoresistance enrichment of cells with stemness/EMT traits and proliferative slowdown of tumor xenografts. In parallel, chemotherapy treatment of tumor xenografts induced the prevalence of QCSCs with a stemness/EMT phenotype and activation of the ZEB2/pCRAF/pASK1 axis, resulting in a chemotherapy-unresponsive state. In CRC patients, increased ZEB2 levels correlated with worse relapse-free survival and were strongly associated to the consensus molecular subtype 4 (CMS4) characterized by dismal prognosis, decreased proliferative rates and upregulation of EMT genes.

Conclusions: These results show that chemotherapy-naive tumors contain a cell population characterized by a coordinated program of chemoresistance quiescence, stemness and EMT. Such population becomes prevalent upon drug treatment and is responsible for chemotherapy resistance, thus representing a key target for more effective therapeutic approaches.

Keywords: Colorectal cancer, Chemotherapy resistance, Dormancy, Quiescence, Epithelial-to-mesenchymal transition, Cancer stem cells

From ABCD to Artificial Intelligence: A Pathologist's Perspective on Melanoma

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Introduction: The incidence of melanoma, the most aggressive form of skin cancer, continues to rise globally, particularly among fair-skinned populations (types I and II). Early detection is crucial for improving patient outcomes, and recent advancements in artificial intelligence (AI) have shown promise in enhancing the accuracy and efficiency of melanoma diagnosis and management.

Materials and Methods: This review examines the role of AI in skin lesion diagnostics, highlighting two main approaches: machine learning, particularly convolutional neural networks (CNNs), and expert systems. AI techniques have demonstrated high accuracy in classifying dermoscopic images, often matching or surpassing dermatologists' performance. Integrating AI into dermatology has improved tasks such as lesion classification, segmentation, and risk prediction, facilitating earlier and more accurate interventions.

Discussion: Despite these advancements, challenges remain, including biases in training data, interpretability issues, and integration of AI into clinical workflows. Ensuring diverse data representation and maintaining high standards of image quality are essential for reliable AI performance. Future directions involve the development of more sophisticated models, such as vision-language and multimodal models, and federated learning to address data privacy and generalizability concerns. Continuous validation and ethical integration of AI into clinical practice are vital for realizing its full potential for improving melanoma diagnosis and patient care.

Keywords: Convolutional neural networks, dermoscopy, artificial intelligence, machine learning, melanoma

Meningitis Today

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Introduction: Meningitis is one of the most important pediatric infections caused by bacteria, viruses, or other infectious and non-infectious agents. Given the significance of the infection and its impact on children's health, we analyzed children with meningitis admitted to our hospital over a ten-year period. The objective of this study is to analyze the epidemiological and etiological data of Acute Meningitis in the pediatric age group, admitted to the Pediatric Infectious Diseases Service of QSUT "Mother Teresa" during the last decade, in order to assess the natural trends of this infection and the factors that influenced their natural course. Additionally, we sought to determine the impact of the COVID-19 pandemic (if any) on the prevalence of this important invasive infection.

Materials and Methods: This is a retrospective cohort study covering the last 10 years (2014 – 2023) and includes children aged 1 month to 14 years, admitted to UNHMT and diagnosed with meningitis. The diagnosis was established by:

- Bacteria isolated from CSF obtained via LP, bacterial culture of CSF, molecular analysis of CSF (Polymerase Chain Reaction [PCR] or other nucleic acid amplification tests [NAAT]).
- Meningeal inflammation demonstrated by an increase in pleocytosis, elevated protein levels, and low glucose levels in the CSF.
  The data were analyzed using SPSS, and Chi-square and Mann-Whitney tests were applied. $P<0.05$ was considered significant.

Results: A total of 186 children with meningitis were identified. Of these, 105 cases were bacterial meningitis, 54 were viral, and a small group of 33 patients (with negative microbiology and unclear CSF findings) had an unconfirmed etiology. The age distribution was as follows: 37 patients (19.8%) were younger than 12 months, 43 patients (23.3%) were between 4 – 14 years, with a notable prevalence of cases over the age of 4. Most of the cases occurred in the fall, with 56 patients (30.2%), followed by summer with 44 patients (23.6%), and an equal number of cases in winter and spring with 43 patients (23.1%). Among the viral agents causing meningitis, we found that more than 60% were enterovirus, followed by varicella zoster virus, measles, herpes virus 6, West Nile virus, and SARS-CoV-2. The overall case fatality rate was 1%.

Conclusions: Bacterial meningitis remains a significant invasive infection in young children. However, the noticeable improvement in the vaccination schedule and the very high coverage (98%) among Albanian children have contributed to controlling its spread. Identifying the

causative agent and serotyping them remains a challenge for our pediatricians. The COVID-19 pandemic has altered the natural course of meningitis in children, as it has with other infections.

Keywords: Bacterial meningitis, vaccination coverage, serotyping, pediatric meningitis management, COVID-19 impact, vaccination schedule, invasive infections, childhood health, disease prevention.

Clinical Aspects of Corticosteroids in Pediatrics

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Introduction: The anti-inflammatory and immunosuppressive effects of corticosteroids are the basis for their clinical use, with numerous therapeutic indications across almost all pediatric specialties. Despite the widespread clinical experience, studies have shown that corticosteroids remain among the medications that should be used with extreme caution, always weighing the risk/benefit ratio.

Objectives: To discuss the key principles for the use of corticosteroids in pediatrics, as well as the clinical evidence and guidelines for their use in some of the most common pathologies encountered by pediatricians. The aim is not only to provide appropriate treatment but also to unify pediatric approaches to these conditions. The presentation is based on a comprehensive literature review.

Results: Extensive clinical evidence and guidelines clearly define the principles of corticosteroid use based on pathology, severity, potency, plasma half-life, route of administration, and duration of treatment. Corticosteroids have been shown to improve outcomes in croup by reducing the number of return visits and hospitalizations compared to placebo (Relative Risk [RR] 0.52, 95% Confidence Interval [CI] 0.36-0.75). A low dose of dexamethasone (0.15 mg/kg) and prednisolone (1 mg/kg) are safe and effective alternatives to dexamethasone (0.6 mg/kg) in the treatment of croup. According to the NAEPP guidelines, oral corticosteroids are preferred over intravenous corticosteroids for acute asthma because they provide similar results. Dexamethasone is now used as an alternative to prednisolone in children with acute asthma due to its longer half-life and similar efficacy.

Conclusions: Corticosteroids should only be used when there is published evidence of therapeutic benefit. Long-term use requires a very gradual discontinuation of the medication due to the suppression of the HPA axis. New studies are evaluating the proper use of corticosteroids in pediatric practice, but clear evidence supports the principles of their use in most pathologies.

Keywords: Pediatric Intensive Care Unit, University Hospital Center "Mother Teresa", corticosteroids, pediatrics, croup treatment, acute asthma, corticosteroid use

Comparative Analysis of WGS and WES for Genetic Diagnosis in a Albanian Pediatric Population

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Introduction: Rare diseases represent a significant diagnostic challenge in pediatric populations, with up to 60% of cases occurring within the first two years of life. Genomic medicine, particularly next-generation sequencing (NGS), has revolutionized the diagnostic landscape. Whole Exome Sequencing (WES) and Whole Genome Sequencing (WGS) are key tools, with WGS offering broader coverage, including both coding and non-coding regions, and providing higher diagnostic yield.

Objective: This study aims to compare the diagnostic efficiency of WGS and WES in detecting genetic disorders in a group of Albanian pediatric patients. We analyzed data from 72 Albanian pediatric patients with clinical suspicion of genetic disorders. Both WGS and WES were performed simultaneously in different laboratories. The diagnostic results were evaluated to determine the yield and clinical significance of each approach. WGS demonstrated a higher diagnostic yield and broader genomic coverage compared to WES, particularly in detecting non-coding variants, structural changes, and complex genomic rearrangements.

Discussion: This study highlights the critical role of WGS in early and accurate diagnosis, which can inform targeted interventions and improve patient outcomes. Despite higher costs and computational demands, WGS offers long-term cost-effectiveness and clinical benefits.

Keywords: Rare diseases, pediatric populations, diagnostic challenge, genomic medicine, next-generation sequencing (NGS), Whole Exome Sequencing (WES), Whole Genome Sequencing (WGS), genetic disorders, diagnostic yield, coding and non-coding regions.

New Insights into the Pathogenesis of Pediatric Neurological Diseases

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Introduction: Neurological disorders in pediatric age have so far been based on phenotypic and clinical findings. Developments in the field of genetics and possible genetic testing have shed light on a new spectrum of disorders, with significant therapeutic, management, and social-legal implications for these cases. This abstract presents clinical cases where the diagnosis was confirmed through genetic analysis, and the subsequent clinical approach was individualized. Similar phenotypic expressions may correspond to distinct diagnoses based on genotype.

Objective: To explore not only the clinical aspects but also the genetic data in pediatric neurological diseases.

Results: We present 10 clinical cases where genetic testing has provided solutions in diagnosing pediatric neurological disorders. WES (Whole Exome Sequencing) and WGS (Whole Genome Sequencing) examinations were used.

Conclusion: The information obtained from NGS (Next-Generation Sequencing) regarding genetic variants has provided a new perspective on understanding and approaching patients. The phenotypic data of the cases are enriched with information from genetic testing, leading to a better understanding of the etiopathogenetic mechanisms of neurological diseases and the phenotype-genotype relationship.

Keywords: Pediatric neurological diseases, genetics, genetic testing, WES analysis, WGS analysis, diagnosis, phenotype, genotype, NGS, etiopathogenetic mechanisms, individualized management.

Respiratory Infections in Preschool Age, Clinical Presentations, and Progression Towards Asthma

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Introduction: Cognitive impairment (CI) is a common issue among patients undergoing dialysis treatments. This phenomenon affects several areas of cognitive function, including memory, attention, and executive skills. Assessing cognitive function is essential for understanding the impact of dialysis on the mental health of patients and determining the potential benefits of kidney transplantation. This study aims to analyze changes in cognitive function in patients undergoing dialysis and kidney transplantation treatments in Albania.

Materials and Methods: This is a retrospective study involving 148 patients treated with renal replacement therapy and 143 healthy individuals as a comparative group. Cognitive function was assessed using the Montreal Cognitive Assessment (MOCA) test. Cognitive function results were compared using statistical tests such as the t-test and ANOVA to evaluate differences between the various groups, including dialysis patients, transplant patients, and healthy individuals.

Conclusions: The results showed that dialysis patients had lower cognitive performance compared to the healthy group, with a higher frequency of mild cognitive impairment. Kidney transplantation improved cognitive function, suggesting the potential benefits of this treatment. Ultimately, this study highlights the importance of early assessment and targeted interventions to improve the quality of life and cognitive function in dialysis patients.

Keywords: Cognitive impairment (CI), dialysis treatments, cognitive function, memory, attention, executive skills, mental health, kidney transplantation, Albania, changes in cognitive function.

CD34+ Expression and its Correlation with Blast Percentage in Myelodysplastic Syndromes

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Introduction: Myelodysplastic syndromes (MDS) are characterized by ineffective hematopoiesis, cytopenias, and an increased risk of progression to acute myeloid leukemia (AML).

Objective: To analyze the correlation between CD34 expression and blast percentage.

Materials and Methods: The study included 100 patients diagnosed with MDS according to the World Health Organization criteria, at the Hematology Service of QSUT. Laboratory methods: Blast percentage was determined by bone marrow aspiration (myelogram), while CD34 expression was assessed through flow cytometry. Statistical analysis was performed using the SPSS software package.

Results: The average age of patients was 68 years. Gender ratio: 60% male, 40% female. Average blast percentage: 10%. Average CD34 expression: 25%. A strong positive correlation was observed between CD34 expression and blast percentage ($r = 0.75$, $p < 0.001$). Patients with >10% blasts had significantly higher CD34 expression compared to those with lower blast counts. The sensitivity and specificity of CD34 were 88% and 82%, respectively. The ROC analysis showed an AUC (Area Under the Curve) above 0.85, indicating that CD34 has a high ability to distinguish patients with high versus low blast percentages.

Conclusions: CD34 expression assessed via flow cytometry is a valuable marker for evaluating blast percentage in MDS patients. The ROC analysis confirmed high AUC, indicating that CD34 has good sensitivity and specificity for identifying patients with high blast counts.

Keywords: Myelodysplastic syndromes (MDS), ineffective hematopoiesis, cytopenias, acute myeloid leukemia (AML), progression.

Multiple Sclerosis, a Journey

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Introduction: Multiple Sclerosis (MS) is a chronic, autoimmune disease that affects the central nervous system, characterized by inflammation, demyelination, and neuronal degeneration. Early descriptions of the disease date back to the 19th century, with the identification of clinical and pathological signs of MS by Jean-Martin Charcot. Throughout the last century, key milestones have shaped our understanding of MS, leading to advances in diagnosis, treatment, and patient management.

Results: The development of neuroimaging techniques, particularly magnetic resonance imaging (MRI), revolutionized the diagnostic process at the end of the 20th century, allowing for visualization of demyelinating lesions. Therapeutic breakthroughs include the introduction of disease-modifying therapies (DMTs) in the 1990s, starting with interferon-beta, which marked a turning point in slowing disease progression. Since then, numerous therapies targeting different aspects of the immune response have been developed, providing personalized treatment options for various forms of MS, including relapsing-remitting and primary or secondary progressive forms. Research into the genetic and environmental factors contributing to MS has expanded, highlighting the role of the immune system, vitamin D levels, and viral triggers such as the Epstein-Barr virus. Advances in neuroimmunology and regenerative medicine offer hope for future therapeutic strategies, including remyelination and neuroprotection.

Conclusion: This paper reviews key points in the history of MS research and management, emphasizing the progress made in improving patient outcomes and highlighting areas for further research, including the development of MS care in our country. Despite ongoing challenges, the evolution of MS treatment and care reflects significant advances in reducing the disease burden and improving the quality of life for those affected by this condition.

Keywords: Multiple Sclerosis (MS), chronic disease, autoimmune, central nervous system, inflammation, demyelination, neuronal degeneration, Jean-Martin Charcot, disease milestones, diagnosis, treatment, patient management.

Autoimmune Diseases of the Nervous System: Pathophysiology, Clinical Features, and their Treatment

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Introduction: In many neurological syndromes previously considered idiopathic, the presence of autoantibodies against various cellular structures of the nervous system has recently been recognized, confirming an autoimmune etiopathogenesis. These findings are significant because many diseases that were once considered untreatable are no longer viewed as such.

Materials and Methods: Experience from the Neurology Service and a review of the literature on autoimmune neurological diseases and their personalized treatment, as well as new treatments in this field.

Results: Neurological diseases caused by autoimmune system disorders occupy an important place within the spectrum of nervous system diseases. Although rare, their incidence and prevalence are continuously increasing. These diseases affect all age groups, but a significant number affect younger individuals and result in high disability rates. For these reasons, early recognition and diagnosis of these diseases, as well as their proper treatment, contribute to improving the quality of life for these patients. Auto immune diseases of the Nervous System can affect all parts of the system, including the brain, spinal cord (Central Nervous System, CNS), neuromuscular junction, skeletal muscles, and peripheral nerves (Peripheral Nervous System, PNS). This group of diseases includes: multiple sclerosis, myasthenia gravis, neuromyelitis optica, Guillain-Barré syndrome, inflammatory autoimmune polyneuropathies, neurological manifestations of diseases caused by the presence of IgG4 and Iglon 5 antibodies, among others. Autoimmune encephalitis, autoimmune epilepsy, dementia, and migraine are also part of this group. Auto immune neurology is a subspecialty dedicated to identifying numerous antibodies that target proteins expressed in the Nervous System. These discoveries have helped recognize autoimmunity as the cause of many diseases that were previously misdiagnosed as psychiatric disorders, degenerative diseases such as dementia, or infections.

Conclusion: Recent discoveries about the causes of these diseases have led to the development of new treatment methods such as therapeutic plasmapheresis, ivIgG, and immunosuppressive drugs. The use of these treatments has brought a significant positive change in improving the quality of life for patients suffering from these previously considered untreatable diseases.

Keywords: Neuroinflammation, autoimmunity, Central Nervous System, immunosuppressive therapy.

Langerhans Cell Histiocytosis: A Clinical Case

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Introduction: Langerhans Cell Histiocytosis (LCH) encompasses a group of relatively rare diseases of the reticuloendothelial system characterized by abnormal proliferation of Langerhans cells or their precursors. Histiocytoses are heterogeneous hematopoietic diseases characterized by the accumulation of CD68(+) cells with various inflammatory infiltrates and/or the presence of fibrosis. LCH is the mildest form of histiocytosis syndromes and is characterized by osteolytic lesions and multiorgan involvement. Central Nervous System (CNS) involvement occurs in 10-25% of cases. Langerhans cell histiocytosis infiltrates the hypothalamic-pituitary axis in 5-50% of cases, causing diabetes insipidus as the most common clinical presentation in 25% of cases.

Clinical Case Presentation: A 33-year-old primiparous female presents with a 3-month history of moderate-intensity headaches and signs of psychomotor agitation. She also experiences memory and concentration difficulties, behavioral disturbances, and increased emotional lability. The patient reports a significant increase in thirst over the past 10 weeks, consuming more than 10 liters of water daily. She is hospitalized and undergoes the necessary laboratory and imaging tests. An MRI of the brain shows enlargement of the pituitary infundibulum, which enhances homogenously after contrast injection, indicative of an eosinophilic granuloma. There is also a lateral bony defect on the left side. During hospitalization, she presents with fluctuating neurological motor and sensory deficits, progressive deterioration, and altered consciousness. Biochemical, urinary, and hormonal tests confirm the presence of diabetes insipidus. Electrolyte imbalances persist for about 14 days, with values above 165mmol/L and the patient in a lethargic state. She is started on inhaled Desmopressin following consultation with an endocrinologist. A biopsy of the lesion confirms the diagnosis. Upon follow-up MRI, the lesion appears smaller in size, though behavioral disturbances and pronounced emotional lability persist, and the patient continues to be monitored by a psychiatrist.

Discussion and Conclusion: LCH in adults is most often manifested by skin, bone, pulmonary, and pituitary involvement (25%), presenting with Diabetes Insipidus. The gold standard for diagnosing LCH is biopsy and immunophenotypic study of the lesion. The diagnosis of LCH is often challenging due to the broad spectrum and atypical nature of its clinical and imaging presentation. This clinical case highlights the clinical signs of LCH to increase suspicion and encourage investigation of this diagnosis through a multidisciplinary approach.

Keywords: eosinophilic granuloma, Desmopressin, Diabetes Insipidus, rare.

New Oral Anticoagulants for Cerebral Venous Thrombosis in Neurovascular Service

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Introduction: The incidence of cerebral venous thrombosis (CVT) is on the rise, partly due to an improvement in the diagnostic techniques. However, the therapeutic options have not changed much in the past three decades. Heparin followed by vitamin K antagonist (VKA), Warfarin is still the mainstay of treatment, although the limitations of VKA therapy including risk of major bleeding, need for constant monitoring, and drug and dietary interactions are all well recognized. New direct oral anticoagulants (NOACs), which are target specific for factor Xa (rivaroxaban, apixaban, edoxaban) or thrombin(dabigatran), were developed to overcome some of these limitations. These drugs have already shown to be safer then VKA for recurrent venous thromboembolism and embolism prevention in atrial fibrillation, with fewer intracranial and extracranial hemorrhages, fewer fatal hemorrhages and no increase in the risk of gastrointestinal hemorrhages.

Materials and Methods: In Neurovascular Service during 2023-2024, 1670 patients were hospitalized. This study included 23 patients diagnosed with Cerebral Venous Thrombosis, 16 females and 7 males.

Results: Three of them were started NOAC. Age group 16-29 years 3 cases, and 30-45 years 4 cases, 6 cases from 45-55 years. First clinical signs in 6 cases were epileptic seizures and altered consciousness, 7 with focal neurological deficits such as hemiparesis, ataxia. All cases have presented as the first complaint severe headache. Assessment of risk factors suggested 6 of patients, thrombophilia panel were positive, the clinical course of all patients has been very good, with mRS 1 (0-3 months) in 7 cases and mRS 0 (0-3 months) in 6 cases.

Conclusion: The first data seems to be confirming that the efficacy of NOAC is the same as antivitamin K with less side effects.

Keywords: Cerebral venous thrombosis (CVT), diagnostic techniques, therapeutic options, heparin, vitamin K antagonist (VKA), Warfarin, bleeding risk, monitoring, drug interactions, direct oral anticoagulants (NOACs), factor Xa, thrombin, venous thromboembolism, atrial fibrillation, hemorrhages.

Dyslipidemia as an Early Predictor in the Development of Neurodegenerative Diseases

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Introduction: Neurodegenerative diseases are a large group of disorders that have been on the rise in recent decades. Therefore, studies on potential predictors for their development play a crucial role for the future. Disruption of lipid metabolism in the brain is a major risk factor for many neurodegenerative disorders, and there is growing interest in using lipids as biomarkers.

Objective: The process of neuronal degeneration begins much earlier than the first clinical manifestations. Identifying predictive factors for the onset of this neuronal destruction is of special value. Timely intervention, avoidance, and early treatment of these predictors could significantly slow the development of these pathologies.

Materials and Methods: Data collection involved measuring cholesterol levels (total, LDL, HDL) and triglycerides. MRI imaging was used to assess structural changes in the brain, along with cognitive testing.

Results: Higher levels of LDL cholesterol and triglycerides in midlife were strongly associated with a higher risk of Alzheimer's and Parkinson's diseases. Lower levels of HDL were identified as a risk factor for neurodegeneration in individuals with a family history of Alzheimer's disease. Individuals showing high LDL cholesterol levels were at greater risk for developing cognitive impairment and neurodegenerative diseases.

Conclusions: Dyslipidemia is an important early predictor of neurodegenerative diseases. Lifestyle changes and pharmacological treatments play a significant role in reducing the risk of neurodegeneration.

Keywords: Dyslipidemia, LDL cholesterol, HDL cholesterol, triglycerides, neurodegenerative diseases, Alzheimer's, Parkinson's, biomarkers, MRI, cognitive tests.

Migraine

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Introduction: Migraine is a common neurological disorder characterized by episodic headaches, sensory disturbances, and cortical hyperexcitability. Electroencephalography (EEG) and evoked potentials (ERP) have shown that there are distinct changes in brain electrical activity during migraine episodes, suggesting a complex pathophysiology. While EEG can provide important insights into the biological processes of migraine and help in the development of personalized treatments, there are still limitations to its use in clinical practice due to varying methodologies and a lack of longitudinal studies.

Study Objective: This study aims to review recent advancements in the use of EEG and multimodal approaches, including functional MRI (fMRI), to understand the pathophysiology of migraine. It particularly focuses on the use of EEG to differentiate between migraine with aura (MA) and migraine without aura (MO), and how these techniques can contribute to the development of personalized therapeutic interventions.

Materials and Methods: This is a literature review on the use of EEG and multimodal approaches for studying migraine. The studies reviewed include those evaluating EEG in the interictal, preictal, and ictal phases of migraine. Patterns of EEG activity and functional connectivity changes were analyzed to identify potential alterations linked to the pathophysiology of migraine. Additionally, recent advancements in the use of home EEG monitoring and the integration of fMRI for a more comprehensive assessment of brain activity during migraine episodes have been explored.

Results: Findings from EEG studies suggest that migraine sufferers experience unstable patterns of cerebral activity, with both increases and decreases in cortical excitability. There have been spectral power changes in the alpha, beta, delta, and theta bands, disruptions in functional connectivity, and impaired responses to stimuli, especially in the preictal and ictal phases of migraine. Studies have also shown that EEG can help differentiate between migraine with aura and migraine without aura, contributing to early diagnosis and the development of personalized treatment strategies.

Discussion: Advances in EEG, including home monitoring and integration with other technologies such as fMRI, offer new possibilities for further research and improvement in the diagnosis and treatment of migraine. Differentiating EEG activity between migraine with aura and migraine without aura has clinical significance and can aid in developing targeted therapies. However, methodological discrepancies and the lack of longitudinal studies remain significant obstacles to using EEG as a reliable biomarker for migraine.

Conclusions: EEG has great potential in improving the diagnosis and treatment of migraine, offering valuable information regarding brain activity changes during a migraine episode.

Recent advancements in home EEG monitoring and integration with fMRI could contribute to the development of personalized treatments, but further studies are needed to fully evaluate the potential of this technique in clinical practice.

Keywords: Migraine, EEG, fMRI, aura, migraine without aura, early diagnosis, treatment, multimodality, biomarkers.

The Reemergence of Syphilis in Albania: A Call for a New Paradigm in Control and Management

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Introduction: Syphilis, also known as the "great imitator," remains a public health threat with increasing prevalence globally in recent years. According to ECDC, in 2023, 41,051 confirmed cases of syphilis were reported in 29 EU/EEA Member States, with an overall notification rate of 9.9 cases per 100,000 populations, representing a 13% increase in the crude notification rate compared to 2022, and a 200% rise compared to the official data reported in 200%.

Materials and Methods: Syphilis in Albania: Data from the infectious diseases service at QSUT show an increase in syphilis cases, particularly among patients with HIV and MSM (men who have sex with men). During the period from 2005 to 2015, 44 cases of syphilis were diagnosed among 521 HIV cases (incidence 8.4%), while between 2020 and 2023, 46 syphilis cases were recorded out of 331 HIV cases followed at the HIV outpatient clinic (incidence 13%). Among the 53 new HIV diagnoses in 2023, 15 cases of syphilis were reported, an incidence of 28%. Blood donation screening program data show a 0.35% incidence of syphilis among blood donors in 2022. There is no specialized sexual health clinic in Albania that can manage STIs, and based on the referral system, any patient with an STI, including syphilis, requires a referral from a general practitioner to be seen by a specialist, such as an infectious disease doctor or dermatologist.

Discussion: The aforementioned problems and gaps must be addressed to enable effective syphilis control in Albania. Response activities should consider a combination of case finding (expanded screening of at-risk populations, increased testing in contact sites, partner notification and surveillance activities), case management (diagnosis and treatment), and education (targeted at the general population, at-risk populations, and healthcare providers). Sexual health education campaigns targeting high-risk groups through the internet and mobile technologies are essential to raise awareness about syphilis and to increase syphilis testing rates. Healthcare providers should also be trained to recognize and treat syphilis promptly. Immediate diagnosis should be improved through better availability of diagnostic tests, such as POC testing and serological tests. Syphilis testing and treatment should be widely available, affordable, and destigmatized to enable access for these groups. It is necessary to establish a modern sexual health clinic or "one-stop shop" in Albania where all STIs can be tested, and immediate treatment can be provided on-site.

Conclusions: This approach of bypassing the usual referral model from a general practitioner could improve access and avoid stigma. Treatment options (including benzathine penicillin), based on approved protocols and guidelines, should be made available in both the public and private sectors.

Keywords: Syphilis, public health threat, ECDC, confirmed cases, EU/EEA, notification rate, increase, prevalence.

Sexually Transmitted Diseases Not Typically Associated with Sexual Contact

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Introduction: According to the World Health Organization (WHO), more than 1 million sexually transmitted infections (STIs) are acquired every day, caused by over 30 different pathogens that can be transmitted through sexual contact or from mother to child during pregnancy, childbirth, and breastfeeding. STIs, caused by bacteria, viruses, and parasites, affect sexual and reproductive health globally. Despite the fact that some STIs are treatable (e.g., syphilis, gonorrhea, chlamydia, and hepatitis C) or preventable (e.g., HIV, hepatitis B, and HPV), services for their prevention and control remain limited and insufficient.

Materials and Methods: The emergence of new pathogens such as the Zika virus, hepatitis A, Shigella, and more recently Mpox, has increased challenges in the treatment of STIs. An important issue is the fact that many STIs are asymptomatic, making diagnosis and early intervention difficult. Therefore, the search for rapid and accurate diagnostic tests remains crucial. Currently, rapid tests for STIs are being developed, which are of particular importance in resource-limited countries. There is also growing interest in the development of vaccines and biomedical interventions for STI prevention, as well as in evaluating the effectiveness and safety of pre- and post-exposure prophylaxis for STIs.

Conclusions and Recommendations: Health services for STI screening and treatment remain limited, while the implementation of national guidelines for STI management is still insufficient. To improve the situation, stricter surveillance and an evidence-based approach are required. The WHO Global Health Sector Strategy for HIV, Hepatitis, and STIs (2022–2030) aims to address these challenges through improved interventions and expanded professional education. In this context, the European Society of Clinical Microbiology and Infectious Diseases (ESCMID) has established the Sexually Transmitted Infection Study Group (ESTISG) to support research and the development of effective strategies.

Keywords: Sexually transmitted infections, diagnosis, treatment, prevention, global strategies, ESCMID, STI.

Pulmonary Kaposi's Sarcoma: Clinical Presentation Determining Lethality in a Patient with End-Stage AIDS

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Introduction: Kaposi's sarcoma is one of the most common malignancies in patients living with HIV. Although the appearance of Kaposi's sarcoma (KS) typically affects the skin, mucous membranes, or internal organs, pulmonary involvement is a critical complication that increases the risk of morbidity and mortality. Patients living with HIV may be diagnosed with KS either simultaneously with HIV or during the course of therapy. Pulmonary involvement can be isolated or part of systemic disease.

Case Report: Our patient, a 27-year-old recently diagnosed with HIV/AIDS, presented to the hospital initially with elements of KS on the skin and axillary lymphadenopathy. He had only been on antiretroviral therapy for 3 months. Laboratory tests showed a low CD4 count and detectable HIV-RNA levels. The patient began chemotherapy according to consultations with oncologists, where a clinical improvement was noted and the skin lesions faded. Later, he presented again with difficulty breathing and cough. A CT scan of the lungs revealed pleural effusion and opacities suggestive of KS elements, as well as infiltration of the thoracic duct. Concurrently, he developed generalized edema and an increase in skin lesions. Laboratory results showed CD4 = 23 cells. Thoracocentesis was negative for TB or other infections.

Conclusions: Pulmonary complications of KS are a significant cause of morbidity and can complicate the treatment of KS in affected patients. Early diagnosis and simultaneous treatment with antiretrovirals (ARVs) are crucial to achieving good outcomes. Pulmonary KS can mimic other pathologies in its early stages, making diagnosis challenging.

Keywords: Kaposi's sarcoma, HIV, HIV/AIDS infection, pulmonary, complication, lymphadenopathy, chemotherapy, antiretrovirals, CD4, HIV-RNA, thoracocentesis, early diagnosis, known treatment, pleura, opacities, edema, skin lesions, thorax, differential diagnosis.

Subtyping Chronic Spontaneous Urticaria Based on Severity Biomarkers, an Unmet Need in Personalized Medicine

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Introduction: Chronic spontaneous urticaria (CSU) is uncommon, affecting 0.5-1% of general population [1], but debilitating health condition. Addressing the subtypes of CSU is a pressing unmet need particularly in difficult to treat urticaria, managing comorbid conditions and overcoming issues related to limited access to anti-IgE therapy. Two subtypes of chronic spontaneous urticaria are characterized by the presence of mast cell-activating autoantibodies: Autoallergic CSU, which involves IgE antibodies against autoallergens, and Autoimmune CSU, where IgG antibodies target the high-affinity IgE receptor (FcεRI) or IgE itself. [2] Autoreactive IgE testing, IgG anti-IgE receptor and basophil activation test are not available in Albania.

Materials and Methods: A cross-sectional, prospective study was performed to analyze clinical data of CSU patients with high disease activity, aiming subtyping based on following severity biomarkers: Total IgE≤40 UI/ml, elevated Anti-TPO IgG, ANA positivity, eosinopenia $<0.2x10^3/\mu L$, basopenia $<0.01x10^3/\ \mu L$, elevated CRP, atopic comorbidity, autoimmune comorbidity, vitamin D deficiency <20ng/ml, low/no response to high dose sgAH, accompanying angioedema.

Results: 28 patients were analyzed 21(75%) females, mean age was 45.2±15.3 years old. Results of severity biomarkers are in the table:

Biomarker	Total IgE ≤ 40 UI/ml	IgG anti TPO	ANA positivity	Eosinopenia	Basopenia	CPR >5mg/L	Vit D<20ng/ml	SPT positive	Atopic comorbidity	Autoimmune comorbidity	Presence of angioedema	Partial response to sgAH
Number of patients (Fr%)	7(25 %)	11(39.3 %)	5(17.9%)	15(53.6 %)	18(64.3 %)	6(21.4%)	20(71.4 %)	6(21.4%)	18(64.3 %)	19(67.9 %)	19(67.9 %)	21(67.9 %)

Probable auto allergic CSU subtype (total IgE >40 UI/ml; atopy comorbidity, response to sgAH) is diagnosed in 9(32.1%) of cases, autoimmune CSU subtype 7(25%) cases (total IgE ≤40uUI/ml; autoimmune comorbidity, Anti -TPO IgG and/or positive ANA, low response to sgAH, basopenia, eosinopenia) and probable co-auto allergic and autoimmune CSU subtype in 12(42.9%) patients. Vitamin D deficiency, eosinopenia, basopenia resulted in over 80% of cases with evidence of autoimmunity and autoallergy.

Conclusions: Vitamin D deficiency, eosinopenia, basopenia can be biomarker of co-autoallergic & autoimmune CSU. Subtyping CSU according severity biomarkers, can help

improve patient care and implement protocols to personalized treatment, fulfilling unmet needs of innovative drugs and diagnostics test in the future.

Keywords: Chronic Spontaneous Urticaria, biomarker, autoallergy, autoimmunity, vitamin D

The Importance of Early Diagnosis of a Cutaneous Ulcerative Lesion

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Introduction: The definition of a chronic ulcer is linked to a wound that does not heal over a specific period of time. Most physicians suggest that a wound not healing within 3–4 months can be considered chronic. Identifying the cause of a cutaneous ulcer is often a challenging, multidisciplinary process. Risk factors for the development of a cutaneous ulcer span a wide range (either individual or co-existing), including: infections (bacterial, fungal, viral, protozoal), traumatic injuries, vascular causes, malignant diseases, multisystem disorders, hematological abnormalities, nutritional and metabolic disorders, etc. For this reason, early diagnosis is crucial and a challenge for dermatologists.

Materials and Methods: We present the case of a 62-year-old patient who presented to the dermatology clinic with a chronic atypical cutaneous ulcer with a maximum diameter of 6 cm, located in the lower left abdominal area. It began as a small nodule which progressively enlarged over many years. The ulcer appeared with raised, rounded, outward-facing edges and granulation tissue at the base. Clinically, the differential diagnosis included ulcerated squamous cell carcinoma, ulcerated basal cell carcinoma, malignant melanoma, and pyoderma gangrenosum. During hospitalization, the patient underwent the following examinations: dermoscopy, which suggested criteria for a baso-squamous lesion; CT and lymph node ultrasound, revealing reactive lymph nodes; deep fungal examination, which was negative. Histopathological examination of a cutaneous fragment from the lesion suggested baso-squamous cell carcinoma. Post-excisional histopathological examination confirmed the final diagnosis of ulcerated basal cell carcinoma.

Disscusions: The differential diagnosis of cutaneous ulcers is complex and requires careful clinical and histopathological consideration. Malignancy should be suspected under circumstances such as: when an ulcer develops over a prominent and infiltrated nodule, when granulation tissue extends beyond the ulcer's borders, or when typical features are observed such as the pearly border of basal cell carcinoma, or when the ulcer's periphery appears indurated and hypertrophic. In all such cases, the appropriate approach is early biopsy of the lesion. In our case, the ulcerative lesion was atypical and required the aforementioned examinations to differentiate between pyoderma gangrenosum, ulcerated melanoma, and non-melanocytic carcinomas. Histological examination was a significant aid in differentiating the atypical cutaneous ulcerative lesion.

Conclusion: In the presence of a chronic atypical cutaneous ulcer, performing differential diagnoses and considering all etiological factors is essential. An early biopsy in such lesions is necessary to establish a definitive diagnosis. Accurate early diagnosis enables appropriate treatment, which can significantly improve patient prognosis.

Keywords: atypical cutaneous ulceration, basal cell carcinoma, malignancy.

Barriers to clinical remission in severe bronchial asthma

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Introduction: The term "remission" is widely used in medicine and refers to a state of zero or very low activity in chronic diseases, as a result of therapy or spontaneously. In the case of patients with bronchial asthma, it is common to encounter a natural remission of the disease, primarily in young children, who tend to stabilize during adolescence, and a significant portion do not experience relapses in early adulthood or later. However, for adult bronchial asthma, the term remission is difficult to apply.

Materials and Methods: The use of biological preparations has changed the approach to this disease. Now, the treatment aims not only to alleviate symptoms to achieve disease control but also targets the complete dominance of the disease by acting on its pathophysiological mechanism. Clinical experts identify four subtypes of remission in bronchial asthma: clinical remission and complete remission, in both cases with and without medication.

Results: The highly heterogeneous nature of asthma and its complex interactions with other diseases make it very difficult to determine full clinical remission. This requires a multidisciplinary treatment approach with the goal of increasing the number of patients who achieve clinical remission. Bronchial asthma is a very widespread disease, affecting over 300 million people worldwide.

Conclusions: The symptoms and signs of asthma may overlap with other diseases, and for this reason, a multidisciplinary approach is essential. Phenotyping and endotyping of asthma are necessary to ensure an accurate diagnosis and differential diagnosis, as well as to identify all its triggering factors and, above all, comorbidities.

Keywords: Remission, bronchial asthma, biological treatment, clinical remission, phenotyping, endotyping, multidisciplinary treatment, comorbidities.

Telogen Effluvium – Recent Advances?

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Introduction: Telogen Effluvium is a condition that refers to diffuse hair shedding due to a shortened anagen phase and an increased transition to the telogen phase, leading to a decrease in total hair volume. It is characterized by increased shedding of normal telogen hairs and is often caused by various factors such as febrile illnesses, emotional and psychological stress, medications, thyroid disorders, childbirth, or trauma. TE can present in two ways: acute, with shedding lasting less than 6 months, and chronic, lasting more than 6 months.

Presentation Objectives: The aim of this presentation is to provide a brief overview and share our experience with new treatments for Telogen Effluvium.

Materials and Methods: This research is based on the examination of our patients in daily practice. Additionally, a thorough review of literature and the latest articles on this topic was conducted.

Results: Diagnosing TE requires a complete medical history, physical examination, and laboratory tests to exclude other possible causes of hair loss. Patients usually report a sudden onset of diffuse hair shedding and the presence of a triggering factor in their history. The pull test is typically positive, and unlike other hair loss conditions, the scalp in TE shows no signs of inflammation or scarring. Several diagnostic approaches can be used to assist in the diagnosis of TE, such as the modified wash test, hair loss count, trichogram, trichoscopy, and in cases of chronic TE, scalp biopsy.

Conclusions: In conclusion, the treatment of acute TE involves removing the underlying causative agent and is usually self-limiting, while the management of chronic TE presents a significant challenge for physicians. These diagnostic tools play a crucial role in providing clinicians with valuable insights into the underlying causes of TE and guiding appropriate treatment strategies.

Keywords: hair loss, TE, shedding, anagen, acute, chronic.

Retrospective Study of 1000 Cases with Dermatoscopy

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Introduction: Dermatoscopy has become a crucial tool in the early diagnosis of skin cancer. However, many doctors in Albania have not yet embraced the concept of routine dermatoscopic checks for their patients. For this reason, dermatologists often diagnose skin cancers at advanced stages, and dermatoscopy serves only to confirm the diagnosis made clinically.

Objective of the Study: The aim of this retrospective study of 1000 cases examined with dermatoscopy was to identify the trend in the incidence of some of the most common forms of skin cancer such as Basal Cell Carcinoma, Squamous Cell Carcinoma, and Melanoma, and to assess the impact of demographic factors such as age and sex on these conditions.

Materials and Methods: This retrospective study presents a comprehensive statistical analysis of 1000 patients who underwent dermatoscopic examination in a dermatological reference clinic in Tirana. The data was collected in two separate time periods: the first group of patients underwent dermatoscopic examination between 2009 and 2010, while the second group was examined between 2022 and 2024. The data was extracted from the dermatoscopic registry of the clinic, where all patient information was stored over a 15-year period. The stored information included the following: age, sex, diagnosis, lesion localization, residence, and biopsy results for suspicious cases of skin cancer.

Results and Discussion: One of the most important findings of our study is the connection between skin cancer diagnosis and the age of the patients. The p-value of 0 indicates that age is a significant predictive factor for these diagnoses. Basal Cell Carcinoma and Squamous Cell Carcinoma diagnoses are most common in the age groups 41-60 and 61-80 years. Regarding the relationship between age and Actinic Keratosis, the p-value of 0.00199 shows that this relationship is statistically significant. Most of the patients diagnosed with Melanoma were concentrated in the older age groups, but no connection between this diagnosis and age was observed in this dataset. Seven cases of Melanoma were found in patients under the age of 30.

Conclusions: The early diagnosis of skin cancer should be facilitated by objective skin examinations conducted by family doctors and the performance of dermatoscopic examinations. Doctors and dermatologists in Albania should encourage individuals at risk of developing skin cancer to undergo routine dermatoscopic checks of their skin lesions.

Keywords: dermatoscopy, skin cancer, melanoma.

Diagnosis of Melanocytic Lesions in Pediatric Age

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Introduction: Melanocytic lesions in the pediatric population present a unique challenge in dermatological practice. This is due to the different types of lesions, similar differential diagnoses, dynamic changes in their morphology, and the psychological impact. This presentation explores three main types of melanocytic lesions commonly found in children: congenital melanocytic lesions, Spitz nevus, and melanoma.

Materials and Methods: In this presentation, we will refer to the clinical presentation data of a pediatric patient with a giant congenital melanocytic nevus presented at our department, along with cases from a literature review. Epidemiological and clinical data, as well as diagnostic and management challenges, will be discussed.

Discussion: The category of congenital melanocytic lesions includes a spectrum of pigmented lesions present at birth, ranging from small macules to giant nevi. Challenges include the potential for malignant transformation, complications, and the psychosocial impact on affected individuals. Spitz nevi are benign solitary nodular lesions that present diagnostic difficulties due to their clinical and histopathological similarity to melanoma. Distinguishing features that help differentiate them from other similar lesions and management strategies will be discussed. Melanoma is rare in the pediatric population. We will emphasize the critical importance of early detection and accurate diagnosis through vigilant clinical examination, dermatoscopy, and histopathological evaluation.

Conclusions: This presentation synthesizes current knowledge on these melanocytic lesions, highlighting the importance of a multidisciplinary approach involving dermatologists, pediatricians, and pathologists for accurate diagnosis and proper management. A detailed understanding of these lesions in the pediatric age group is essential for timely intervention, prognosis, and parental counseling.

Keywords: Pediatric dermatology, melanocytic lesions, congenital nevi, Spitz nevus, pediatric melanoma, psychosocial impact.

Bullous Lupus Erythematosus (Case Report and Literature Review)

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Introduction: Bullous lupus erythematosus is an autoimmune disease characterized by the formation of subepidermal blisters. It is a rare form of lupus, accounting for less than 5% of lupus cases.

Case Report: We present the case of a 19-year-old patient who presented to the emergency department of QSUT with generalized erythema and papular elements accompanied by allergic urticaria. The patient was admitted to the allergology department and started treatment with corticosteroids. On the second day of treatment, some of the pathological elements decreased, but at the same time, some elements on the chest transformed into blisters with serous fluid. The results of all tests were normal, and a skin biopsy did not confirm any of the suspected diagnoses. The patient continued outpatient treatment with systemic corticosteroids, but a reduction in the corticosteroid dosage was accompanied by a reappearance of skin lesions. After several months of outpatient and inpatient follow-up, the patient underwent examinations in Italy, where histopathological tests and immunofluorescence suggested the diagnosis of lupus erythematosus. In addition to corticosteroids, dapsone was added to the treatment, and the result was spectacular.

Discussion: Bullous lupus is a rare diagnosis, so epidemiological data on it are limited. In a study conducted in France, the incidence of bullous skin diseases was 3.6 per million inhabitants per year. Bullous lesions are usually triggered by sun exposure but can also appear on areas of the body that are not sun-exposed. The bullous elements are tense and heal without leaving scars. Differential diagnosis includes all other diseases presenting with subepidermal blisters, such as bullous pemphigoid, dermatitis herpetiformis, epidermolysis bullosa acquisita, and linear IgA bullous dermatoses.

Conclusions and Recommendations: Immunohistochemical examinations and immunofluorescence are essential for establishing the diagnosis. Differentiating from other bullous diseases poses a challenge for both the clinician and the pathologist. While corticosteroids are a good alternative for treating lupus and controlling systemic symptoms, they have a moderate effect on treating bullous skin lesions. Dapsone is a good alternative medication that provides rapid results.

Keywords: Bullous lupus erythematosus, autoimmune blistering disease, systemic lupus erythematosus, subepidermal blister.

Review of Diagnosis and Management in Primary Sclerosing Cholangitis

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Introduction: Primary Sclerosing Cholangitis (PSC) is a chronic and progressive liver disease characterized by inflammation and fibrosis in the bile ducts, which often leads to cirrhosis and hepatobiliary cancers, particularly cholangiocarcinoma. The disease is closely associated with inflammatory bowel diseases (IBD), especially ulcerative colitis.

Objectives: This review aims to summarize the latest updates from clinical guidelines on the management and treatment of Primary Sclerosing Cholangitis.

Materials and Methods: This is a review of the latest guidelines for PSC from major liver disease associations (AASLD, EASL, British Society of Gastroenterology, and others), published in the last two years.

Results: Recent guidelines recommend the use of magnetic resonance cholangiopancreatography (MRCP) as the preferred non-invasive diagnostic modality for PSC. Liver biopsy remains an adjunct in diagnosing advanced fibrosis or confirming atypical cases. The role of serum biomarkers has been strengthened for monitoring disease progression. The updated guidelines emphasize the importance of annual surveillance for cholangiocarcinoma in PSC patients, particularly those with advanced fibrosis. MRCP and endoscopic ultrasound are recommended for routine monitoring. The treatment guidelines for PSC recommend ursodeoxycholic acid for symptomatic patients with mild to moderate PSC, although its long-term benefit remains debatable. New therapies, such as farnesoid X receptor (FXR) agonists and JAK inhibitors, are under investigation in clinical trials, showing promise in modifying bile acid metabolism and inflammation. Liver transplantation is necessary for patients with end-stage liver disease or cholangiocarcinoma. New recommendations emphasize pre-transplant evaluation to assess the possibility of cholangiocarcinoma in high-risk patients, and post-transplant immunosuppressive protocols should be tailored based on PSC-related complications.

Keywords: Primary Sclerosing Cholangitis, chronic liver disease, bile duct fibrosis, ulcerative colitis, cholangiocarcinoma, hepatobiliary cancer, advanced fibrosis, therapeutic innovation, transplant evaluation, clinical trials, multidisciplinary care.

Efficacy of Biologic Drugs in the Treatment of Inflammatory Bowel Disease: Our First Experience

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Introduction: Inflammatory Bowel Disease (IBD) affects the gastrointestinal tract. It consists of Ulcerative Colitis (UC) and Crohn's Disease (CD). Anti-TNFα biological therapies have enabled clinical and morphological remission of IBD.

Objectives: To evaluate the efficacy of anti-TNFα in achieving clinical and endoscopic remission in patients with UC and CD.

Materials and Methods: A prospective study conducted at the University Clinic of Gastrohepatology, University Hospital Center "Mother Teresa" in Tirana (2016-2025). Patients ≥ 18 years of age with CD or UC who were treated with anti-TNFα drugs [Infliximab (IFX) or Adalimumab (ADA)] were included. Therapy outcomes were assessed based on clinical, laboratory, and endoscopic parameters included in the Mayo scoring system. Clinical response was assessed at week 8; clinical and endoscopic remission at week 52.

Results: 106 patients, mean age 46.3 ± 14.4 years (19-79); 52 (49.1%) males, 54 (50.9%) females. 89 (84%) UC patients (46.1% pancolitis, 47.2% left-sided colitis, 6.7% proctitis), 17 (16%) CD patients (35.3% terminal ileitis, 11.8% colitis, 52.9% ileocolitis). Mean disease duration 8.9 ± 5.7 years (1-26). 59 (55.7%) patients were treated with IFX, 47 (44.3%) with ADA. At week 8, clinical remission was achieved in 60.4% of patients (64% UC, 58.3% CD, p=0.7). At week 52, clinical remission was 57% (53.7% UC, 72.7% CD) (p=0.246). Mucosal healing at week 52 was observed in 46.6% of cases, 47.3% in UC, 33.3% in CD (p=0.637).

Conclusion: Anti-TNFα therapy (IFX and ADA) in our clinical experience is effective in achieving clinical and endoscopic remission in patients with IBD.

Keywords: Inflammatory Bowel Disease (IBD), Ulcerative Colitis (UC), Crohn's Disease (CD), anti-TNFα therapy, Infliximab (IFX), Adalimumab (ADA), biological therapy, clinical remission, endoscopic remission, mucosal healing, Mayo score, gastrointestinal inflammation, immune-mediated disease.

Post-Traumatic Tricuspid Regurgitation

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Introduction: Patient D.F., 40 years old, male, is hospitalized for dyspnea, fatigue, body weakness, and palpitations. The symptoms have been present for several years but have become more pronounced in the last 2-3 months. On objective examination, a systolic murmur is heard in the parasternal area, in the fourth intercostal space on the right, and there is a pulsatile jugular vein.

- Life History: Epilepsy and a motor vehicle accident 12 years ago.
- Family History: Not significant.
- EKG: Sinus rhythm, complete right bundle branch block, right axis deviation.
- Positive Diagnosis: Tricuspid regurgitation? Right heart failure.
- Transthoracic (TT) and Transesophageal Echocardiogram (TEE): Thickened tricuspid leaflets, prolapse and flail of the tricuspid valve with advanced tricuspid regurgitation. PASP 45 mmHg. Mild mitral valve prolapses with mild mitral regurgitation. Atrial septal defect (ASD).
- Coronary Angiography and Cardiac Catheterization: No coronary stenosis, tricuspid regurgitation, no signs of congenital pathology.
- Laboratory Analysis: LDL cholesterol 200 mg/dl.
- Final Diagnosis: Advanced tricuspid regurgitation with right heart failure. ASD. Dyslipidemia. Epilepsy.

Treatment: Furosemide, spironolactone, Twicor, aspirin, Tegretol, Keppra.

Recommendation: Surgical intervention for tricuspid pathology. The patient was consulted with a cardiothoracic surgeon and scheduled for surgery. The elements described in the echocardiogram were confirmed, and as an etiological factor, dehiscence or rupture from accidental trauma to the tendinous cords of the septal tricuspid leaflet was noted, resulting in advanced tricuspid regurgitation. A successful valve repair was performed. Suturing was applied to the middle point of the free edges of the tricuspid leaflets, creating a trileaflet valve.

Discussion: Moderate and severe tricuspid regurgitation has an incidence of 0.55% in the general population, while in those over 75 years of age, the incidence is 4%. The etiology is secondary to left-sided valvular pathologies or myocardial involvement with right heart failure (RH failure), in 90% of cases. Remodeling from atrial fibrillation (AF) and implanted devices in the right ventricle (RV) can lead to tricuspid regurgitation. Primary causes of tricuspid regurgitation include infective endocarditis, especially in intravenous drug users, rheumatic heart disease, carcinoid syndrome, tricuspid myxomatous disease, endomyocardial fibrosis, congenital valve dysplasia (e.g., Ebstein anomaly), thoracic trauma, and iatrogenic valve injury. Severe tricuspid regurgitation is associated with impaired survival and worsening of right heart failure. Surgical repair or replacement is recommended in symptomatic patients with

advanced primary tricuspid regurgitation. In selected asymptomatic or mildly symptomatic patients who are suitable for surgery, intervention should be considered even in cases of RV dilatation or decreased RV function. Tricuspid valve repair should be routinely performed during left-sided valve surgery in patients with secondary tricuspid regurgitation. Traumatic tricuspid regurgitation (TTR) is a rare complication of accidents with thoracic trauma and often goes undiagnosed during the initial assessment. Traumatic damage to the tricuspid valve is rare, constituting 0.02% of traumatic valve injuries, following mitral and aortic valve injuries. The diagnosis of traumatic TTR is challenging due to its slow progression and atypical or asymptomatic presentation until symptoms and signs of right heart failure appear; thus, its incidence may be underreported. The pathophysiology of the damage includes direct compression, decompression, or acceleration/deceleration forces in the chest, and indirect compression from the upper abdomen. Tricuspid valve involvement occurs from increased hydrostatic pressure during the isovolumetric contraction phase, causing avulsion of the tricuspid leaflets. Common lesions involving the tricuspid valve include chordal rupture, papillary muscle rupture, and leaflet rupture. Maisano et al. reviewed 74 reported cases and found that chordal rupture (n = 41, 55.4%) was the most common cause of TTR (with 31 cases of anterior chordal rupture, which constituted 75.6% of the ruptured cords). Diagnosis is based on echocardiographic examination (TT + TEE) and magnetic resonance imaging (MRI). New echocardiographic techniques such as 3D echocardiography help as an adjunctive tool in characterizing the exact location of the tricuspid damage. Due to the compliant nature of the right ventricle, tricuspid regurgitation can be well tolerated in the early phase, and patients may present later with heart failure symptoms, often with a retrospective history of trauma, as in our case. A distinctive feature of our case is that this complication occurred over a myxomatous tricuspid valve, suggested by the echocardiographic examination (also associated with a myxomatous mitral valve), and confirmed intraoperatively. Early surgery is recommended to avoid non-functioning and irreversible dilatation of the right ventricle. Furthermore, it is assumed that if surgery is delayed, the papillary muscles, tendinous cords, and involved valve leaflets will be in an atrophic state, making valve repair more difficult. The tricuspid leaflets can be repaired by plication with or without resection, tendinous cords can be replaced with neocords, and papillary muscles can be reconstructed. Other techniques have been described in the literature. Alfiere et al. repaired five tricuspid valves by suturing the middle points of the free edges of the tricuspid leaflets, creating a trileaflet valve. This was the technique applied in our case, which resulted in successful short-term outcomes. Although valve replacement is also described as a technique, few cases have been reported using this approach. Our case had a favorable short-term postoperative course, which warrants further monitoring for mid-term and long-term outcomes.

Keywords: Tricuspid regurgitation, traumatic tricuspid regurgitation, right heart failure, echocardiography, valve repair, trileaflet valve, myxomatous valve, cardiac trauma, chordal rupture, valve surgery, atrial septal defect (ASD), tricuspid valve prolapses, right ventricular dysfunction, cardiac imaging, thoracic trauma.

Atrial Fibrillation in Heart Failure with Preserved Ejection Fraction

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Introduction: Heart failure with preserved ejection fraction (HFpEF) is a syndrome that causes insufficient tissue oxygenation, not due to reduced pumping function of the heart (EF > 50%), but due to high filling pressures at which the heart must operate. Continuous heart function under high pressures leads to physiological and structural modifications. The main observed changes include: left ventricular hypertrophy, hypertrophy and dilation of the left atrium (leading to the onset of atrial fibrillation – AF), pulmonary hypertension, and decreased right ventricular function (risk factors for mortality). The occurrence of AF in these patients increases morbidity and mortality.

Objective: To raise primary care awareness of this diagnosis and emphasize that it should not be ruled out solely based on a normal echocardiogram.

Materials and Methods: Materials were mainly sourced from journals and publications from recent years.

Discussion: HFpEF is a syndrome that still presents many unknowns. Its pathophysiology and the mechanisms that may influence the inhibition of these changes will be the main pillars in the future treatment of this syndrome.

Conclusions: This syndrome should also be considered by family physicians, as they are often the first to see the patient. The clinical presentation of heart failure, despite a normal left ventricular ejection fraction, should raise suspicion for HFpEF, especially in patients with metabolic syndrome.

Keywords: heart failure, atrial fibrillation, preserved function.

Treatment of Heart Failure with Low Ejection Fraction

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Introduction: Heart failure (HF) is a global burden. The lifetime risk of heart failure has increased to 24%, or approximately 1 in 4 people. From the hospital data, 50% of HF have a reduced ejection fraction.

Objective: Heart failure with reduced ejection fraction is a complex and progressive clinical syndrome. Basic treatment strategies include diuretics for symptom relief and the use of quadruple therapy (angiotensin receptor blockers/neprilysin inhibitors, beta-blockers, mineralocorticoid receptor antagonists, and sodium-glucose cotransporter 2 inhibitors) to reduce mortality. Other medications such as intravenous iron, ivabradine, hydralazine/nitrates, and vericiguat may also have a role in certain subgroups. Certain groups of patients may also be candidates for device therapy, such as an implantable cardiac defibrillator and cardiac resynchronization therapy.

Materials and Methods: The construction of the topic is based on literature obtained mainly from publications of recent years, in prestigious journals, as well as in the guidelines of the European Society of Cardiology.

Results: This review provides a comprehensive overview of drug and device management approaches, recommendations for initiation and titration of therapies, and challenges associated with guideline-directed medical therapy in the management of these patients.

Conclusion: Despite compelling evidence of clinical benefit, guideline-directed medical therapy is extremely underutilized in clinical practice. The morbidity and mortality of the disease remains high, with a 5-year survival rate of 25% after hospitalization.

Keywords: heart failure, ejection fraction, treatment.

Non-Traditional Cardiovascular Risk Factors in Chronic Kidney Disease: Innovations in the Management of Cardio-Reno-Metabolic Syndrome

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Introduction: Cardiovascular disease (CVD) remains the leading cause of mortality in chronic kidney disease (CKD), yet traditional risk factors fail to fully account for the increased cardiovascular burden. Non-traditional factors, such as asymmetric dimethylarginine (ADMA) and hyperhomocysteinemia, contribute significantly to endothelial dysfunction, vascular stiffness, and oxidative stress. Addressing these risk factors through innovative therapeutic strategies is essential for improving outcomes in cardio-renal-metabolic (CRM) syndrome.

Objective: The purpose of this presentation will be to present the literature and studies, and synthesize current knowledge on the mechanisms by which non-traditional factors contribute to cardiovascular and renal diseases and to discuss possible approaches to their management.

Materials and Methods: This review explores the role of ADMA and hyperhomocysteinemia in CKD-related cardiovascular complications. We assess emerging therapeutic interventions, including sodium-glucose cotransporter-2 (SGLT2) inhibitors, glucagon-like peptide-1 (GLP-1) receptor agonists, and mineralocorticoid receptor antagonists (MRAs). The impact of these therapies on endothelial dysfunction, oxidative stress, and vascular remodeling is critically evaluated.

Results: ADMA, an endogenous nitric oxide synthase inhibitor, promotes endothelial dysfunction and arterial stiffness, while hyperhomocysteinemia accelerates oxidative damage and thrombogenesis. Traditional cardiovascular management strategies fail to adequately target these mechanisms. SGLT2 inhibitors and GLP-1 receptor agonists have demonstrated anti-inflammatory and vasoprotective effects beyond glycemic control. MRAs offer additional reno-cardiovascular protection by reducing fibrosis and vascular remodeling.

Conclusion: Recognizing ADMA and hyperhomocysteinemia as critical non-traditional cardiovascular risk factors in CKD shifts the paradigm toward a more comprehensive approach to cardio-reno-metabolic syndrome. Emerging therapies offer promising avenues for intervention, potentially transforming cardiovascular risk management in CKD patients. Future research should focus on integrating these strategies into routine clinical practice.

Keywords: Chronic kidney disease, cardiovascular disease, asymmetric dimethylarginine (ADMA), hyperhomocysteinemia, endothelial dysfunction, oxidative stress, SGLT2 inhibitors, GLP-1 receptor agonists, mineralocorticoid receptor antagonists, cardio-renal-metabolic syndrome, vascular remodeling.

Treatment of Chronic Hepatitis C – Remaining Challenges

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Introduction: Hepatitis C virus infection remains a major global problem due to its high prevalence, with approximately 71 million people infected. New direct-acting antivirals (DAA) ensure eradication of the virus in over 95% of cases, regardless of the degree of hepatic fibrosis, but access to diagnosis and treatment continues to be limited. This study aimed to assess the efficacy of DAA in Albanian patients with genotypes 1-5, most of whom had advanced hepatic fibrosis.

Materials and Methods: This is a retrospective study conducted at the University Hospital Center "Mother Teresa" in Tirana, including naive patients and those previously treated with genotypes 1-5. All patients were assessed for hepatic fibrosis using transient elastography, and most were in stages F3-F4. The primary endpoint of assessment was SVR-12 (sustained virologic response 12 weeks after treatment). Two treatment regimens were used: genotype-specific and pan-genotypic.

Results: The average age of patients included in the study was 47.9 ± 12 years, with 56% males and 44% females. Regarding the distribution of hepatitis C genotypes, 152 cases (73%) had genotype 1, 24 cases (11.5%) had genotype 2, 9 cases (4.3%) had genotype 3, 14 cases (6.7%) had genotype 4, 1 case (0.4%) had genotype 5, and 7 cases (3.8%) had unclassified genotypes. SVR in all patients was 93.2%. Based on the level of hepatic fibrosis, 127 cases (66%) were in stages F3-F4, while 80 cases (44%) were in stages F1-F2.

Conclusions: Chronic hepatitis C treatment with DAA was highly effective in our patients, most of whom had advanced hepatic fibrosis, decompensated cirrhosis, and other comorbidities. It is essential to treat all patients with chronic hepatitis C to achieve the WHO goal of eliminating hepatitis C as a public health issue.

Keywords: Chronic hepatitis C, antivirals, genotype, hepatic cirrhosis.

Gut Microbiota and Liver Diseases: A Key Player in Pathogenesis and Progression

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Introduction: The gut microbiota has emerged as a critical area of research due to its profound impact on human health. The liver, which plays a central role in detoxification and metabolism, maintains a dynamic relationship with the gut microbiota. Changes in microbial composition can significantly influence the development and progression of liver diseases through various pathophysiological mechanisms. Understanding these interactions is crucial for developing new therapeutic strategies.

Objective: This review summarizes recent research on the gut microbiota-liver disease interaction and its clinical implications.

Materials and Methods: The studies reviewed from the last decade were selected through keyword-based searches in PubMed, Scopus, and The Journal of Hepatology. Studies were chosen based on their relevance, quality, and contribution to the understanding of the interaction between gut microbiota and the liver.

Results: The gut-liver axis is involved in chronic liver diseases, including alcohol-related liver disease, non-alcoholic fatty liver disease, primary sclerosing cholangitis, primary biliary cholangitis, and hepatocellular carcinoma. Microbial dysbiosis contributes to disease progression by disrupting gut permeability, altering immune responses, and modifying bile acid metabolism and short-chain fatty acid production. These mechanisms promote chronic inflammation, liver damage, and fibrosis. Recent studies emphasize the role of gut microbiota in the pathogenesis of liver diseases and its potential as a therapeutic target.

Conclusion: An increasing focus on microbiota modulation has led to the exploration of prebiotics, probiotics, and fecal microbiota transplantation to restore microbial balance and improve liver health. Targeting the gut microbiota presents a promising strategy for new interventions in chronic liver diseases.

Keywords: Gut microbiota, liver diseases, gut-liver axis, microbial dysbiosis.

Chronic Lymphocytic Leukemia and Small Cell Lymphoma: Two Sides of the Same Coin?

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Introduction: Chronic lymphocytic leukemia (CLL) and small cell lymphoma (SCL) are two B-cell neoplasms that are closely related, often considered as manifestations of the same disease. Both conditions are characterized by the proliferation of small B lymphocytes, but while CLL presents with lymphocytosis, SCL presents with lymphadenopathy without lymphocytosis. These two entities share numerous genetic and epigenetic alterations, which could enhance therapeutic strategies for patients suffering from these conditions.

Objective: This study aims to investigate and explore the similarities and epigenetic differences between CLL and SCL and their role in the treatment of patients.

Materials and Methods: A comprehensive literature review was conducted focusing on genetic modifications, signaling pathways, and specific therapies in CLL and SCL. Fifty-nine publications published between 2010 and 2024 were examined, from which nine publications were selected that addressed our objective concerning the identification of key epigenetic regulators and their role in lymphomagenesis.

Results: The evidence demonstrates that epigenetic dysregulation, particularly of genes associated with DNA methylation and histone modification, is prevalent in both pathologies. The expression of lymphoid-enhancer-binding factor 1 (LEF1) may be crucial in differentiating between CLL and SCL. Furthermore, the use of epigenetic-modifying agents has shown great promise in enhancing immune responses and improving therapeutic outcomes, thereby improving treatment for both CLL and SCL.

Conclusion: CLL and SCL exhibit significant epigenetic overlap, providing a strategic foundation for targeted therapies that could intervene in their shared epigenetic pathways. Therapies focusing on epigenetic modulation have great potential to transform the paradigms of these hematological neoplasms, opening the door for further clinical studies.

Keywords: Chronic lymphocytic leukemia, small cell lymphoma, epigenetics, treatment.

Conference Hall 2

Historical Evolution of the Diagnosis of Schizophrenia

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Introduction: Schizophrenia was first officially described by Belgian psychiatrist Benedict Morel, who named it "dementia precoce". More than a century since the delineation of dementia praecox by Kraepelin, the etiology, neuropathology and pathophysiology of schizophrenia remain elusive. Despite the availability of criteria allowing reliable diagnostic identification, schizophrenia essentially remains a broad clinical syndrome defined by reported subjective experiences (symptoms), loss of function (behavioral impairments), and variable patterns of course.

Discussion: Research has identified a number of putative biological markers associated with the disorder, including neurocognitive dysfunction, brain dysmorphology, and neurochemical abnormalities. Yet none of these variables has to date been definitively proven to possess the sensitivity and specificity expected of a diagnostic test. Genetic linkage and association studies have targeted multiple candidate loci and genes, but failed to demonstrate that any specific gene variant, or a combination of genes, is either necessary or sufficient to cause schizophrenia. Thus, the existence of a specific brain disease underlying schizophrenia remains a hypothesis. Against a background of an ever-increasing volume of research data, the inconclusiveness of the search for causes of the disorder fuels doubts about the validity of the schizophrenia construct as presently defined. Given the protean nature of the symptoms of schizophrenia and the poor coherence of the clinical and biological findings, such doubts are not without reason. However, simply dismantling the concept is unlikely to result in an alternative model that would account for the host of clinical phenomena and research data consistent with a disease hypothesis of schizophrenia.

Conclusion: For the time being, the clinical concept of schizophrenia is supported by empirical evidence that its multiple facets form a broad syndrome with non-negligible internal cohesion and a characteristic evolution over time. The dissection of the syndrome with the aid of endophenotypes is beginning to be perceived as a promising approach in schizophrenia genetics.

Keywords: nosology, category, dimension, validity, utility, endophenotyp

Catatonia! Syndrome or Category or a Distinct Entity?

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Introduction: According to Jeffrey in 2022, catatonia is a neuropsychiatric syndrome characterized by abnormalities in movement, motor skills, and disruption of the neural systems related to cognition, emotions, behavior, motivation, and movement. In 1898, Schu recognized it as a new entity with 6 subtypes. By the DSM-IV, catatonia was classified as a subtype of schizophrenia, explaining the neglect/underdiagnosis of the catatonic syndrome. Meanwhile, most patients with catatonic symptoms could have underlying medical and neurological disorders, with fundamental and epidemiological evidence showing its connection to multiple somatic and psychiatric diseases.

Objective: This presentation will describe and discuss a theoretical review of the formal and pragmatic changes that catatonia has shown since its origin.

Material and Methods: Review of articles published in MEDLINE/PubMed after 2010.

Results: Clinical diagnosis can be supported by additional tests, but there are various psychometric instruments with a clinical focus. The most validated subtypes are catatonia with inhibition and with agitation. It is most commonly associated with somatic, neurological, affective, psychotic disorders, and disorders on the autism spectrum. New neurobiological findings challenge nosological and therapeutic principles, renewing the cycle in the conceptualization of catatonia. We emphasize the affective component of the psychomotor syndrome and the role of interventions aimed at modulating it.

Conclusions: Early recognition and treatment lead to the rapid resolution of catatonia and prevent complications. The main therapeutic lines are benzodiazepines and electroconvulsive therapy. Other studied interventions include zolpidem, antipsychotics, mood stabilizers, glutamatergic modulators, and transcranial magnetic stimulation (TMS).

Keywords: Catatonia, neuropsychiatric syndrome, movement abnormalities, neural systems, cognition, emotions, behavior, motivation, Schu, DSM-IV, schizophrenia, underdiagnosis, medical and neurological disorders, somatic diseases, psychiatric diseases.

Perspectives on the Treatment of Mental Health Disorders in Pregnancy and the Postpartum Period

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Introduction: Pregnancy and the one-year postpartum period are critical times for a woman's mental health, during which psychiatric disorders such as depression, anxiety disorders, bipolar disorder, and psychotic disorders may arise. Early identification and treatment are essential for the well-being of both the mother and the baby.

Purpose: This study aims to analyze current approaches in the diagnosis and treatment of psychiatric disorders during pregnancy and the postpartum period, assessing the effectiveness and safety of psychotherapeutic and pharmacological interventions.

Materials and Methods: The latest literature on the treatment of psychiatric disorders in pregnant and postpartum women was reviewed. Clinical guidelines for the use of psychotherapy and psychotropic medications were analyzed, considering the benefits and risks for both the mother and the baby.

Results: Psychotherapy and psychosocial interventions are the first-line treatment for mild to moderate disorders. For moderate to severe cases, studies show that the use of most psychotropic medications is safer than the risk of untreated disorders. Antidepressants, mood stabilizers, and antipsychotics can be used cautiously, considering their safety profile during pregnancy and breastfeeding.

Conclusions: Monitoring and treating psychiatric disorders during pregnancy and the postpartum period are essential for the mental health of the mother and the development of the baby. Decision-making should be based on a careful biopsychosocial assessment and close collaboration with the patient, focusing on the safest and most effective treatment.

Keywords: Pregnancy, postpartum, depression, anxiety, psychosis, bipolar disorder, antidepressants, antipsychotics, anxiolytics, mood stabilizers.

The Use of Deep Brain Stimulation in Children and Adolescents in Psychiatry: Pros and Cons Thesis

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Introduction: Psychiatric illness remains a major source of disability worldwide. The clinical use of deep brain stimulation (DBS) is among the most important advances in the clinical neurosciences in the past two decades. DBS is a new and promising method for treating patients with psychiatric disorders, refractory to medication. DBS is increasingly being considered for the treatment of refractory neurodevelopmental conditions affecting children. Objectives: This presentation sets out to delineate the current evidence for DBS use in psychiatric disorders, especially on the pediatric population, emphasizing pitfalls and opportunities not only worldwide, but also in the Albanian context.

Materials and Methods: We review the latest guidelines and studies regarding DBS as an alternative treatment of child/adolescents' psychiatric disorders.

Results: The main indications for use of DBS in children (≤18 years-old), are Tourette Syndrome (GTS), Eating Disorders (ED), Aggressive Behaviour and self-harm (AB). A multidisciplinary approach to address patient selection and ethical considerations is essential when deciding the intervention.

Conclusions: Pediatric patients will certainly benefit from the continued development of DBS technology for the management of refractory neuropsychiatric diseases. The future of pediatric functional neurosurgery will focus on developing safer, smaller, and more flexible technology that will improve the quality of life of the child while minimizing the risk of surgical risks. Determining the next, safe steps in DBS science will help determine the future role of this technology in the development of new therapies for childhood psychiatric disorders, not only worldwide but perhaps also in the Albanian context.

Keywords: Deep brain stimulation (DBS), clinical neurosciences, psychiatric disorders, refractory conditions, neurodevelopmental conditions, pediatric population, Tourette Syndrome (GTS), Eating Disorders (ED), Aggressive Behaviour, self-harm

Applied Neuroscience of Neurodevelopmental Disorders

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Introduction: Neurodevelopmental Disorders remain yet far from being fully understood in their biological mechanisms. Their cure is missing. Treatment and management approaches vary to the level of efficacy or evidence based strength.

Objectives: The hereby presentation aims to map developments in service design, composition and modality approaches, locally in the country during the last two decades, mirroring international developments on neuroscience-based and evidence-based results of effectiveness.

Materials and Methods: Data from both channels of standards of care are used on fueling the reflections on a number of questions valid for the community of health professionals, service administrators, parents and teachers.

Results: Areas worth of being included in meaningful research agenda sound for the Albanian context is also discussed.

Conclusions: Some conclusions related to the above mentioned topics, with a specific focus on Autism Spectrum Disorder are going to be formulated on dilemmas regarding market pressure and (dis) orientation towards potentially risky treatment approaches.

Keywords: Neurodevelopmental Disorders, biological mechanisms, treatment and management, service design, neuroscience-based, evidence-based, standards of care, health professionals, service administrators, parents, teachers, research agenda

Successful Treatment of a N-Methyl-D-Aspartate Receptor Antibody Encephalitis Presented with Psychiatric Symptoms

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Introduction: N-Methyl-D-Aspartate Receptor (NMDAR) encephalitis is a treatable autoimmune disorder characterized by prominent neuropsychiatric symptoms that predominantly affects children and young adults. Therapeutic plasma exchange has been increasingly employed to treat this disease. This expansion is a consequence of improved techniques and apheresis instruments, as well as the recognition of its applicability in neurological diseases. Here, we report a case of a previously healthy 15-year-old girl with sudden-onset of psychiatric symptoms diagnosed with NMDAR encephalitis that was successfully treated with therapeutic plasma exchange.

Case Presentation: A 15-year-old female presented to the psychiatric unit with mood changes, social withdrawal, refusal to attend school, disorientation, and an inability to recognize family members or her home. Initial psychiatric evaluation led to the prescription of antipsychotics, and she was discharged home. Following a two-week period of relative clinical stability, with normal blood tests and an unremarkable CT brain scan, the patient suddenly experienced an episode during sleep, marked by yelling and subsequent loss of consciousness, with foaming at the mouth and worsening of the psychiatric symptoms with psychomotor agitation. Due to neurologic manifestations she was transferred to the neurology department. During this period the patient experienced a seizure involving cyanosis, loss of consciousness, and psychomotor agitation. Upon neurological consultation, clinical examination was unremarkable, EEG results revealed rhythmical slowing, MRI and CSF glucose, protein and lactate were normal. Over the next few days, the patient experienced several tonic-clonic seizures lasting approximately 1 minute, and was treated with intravenous Phenytoin, Olanzapine, Diazepam, and Tegretol. However, the child became increasingly aggressive, incoherent, and exhibited bizarre requests. An immunological panel was ordered, and while tests for autoantibodies (ANA, Anti dsDNA, ENA, and MPO) were normal, Anti-NMDA receptor IgG antibodies were detected, confirming the diagnosis of NMDA Receptor Encephalitis. Treatment was initiated with high dose Methylprednisolone, but her clinical condition deteriorated further, manifesting as non-verbal behavior, lack of response to stimuli, sialorrhea, and dysphagia, convulsive seizure with cyanosis and contraction lasting approximately 7 minutes, along with severe psychomotor agitation and was subsequently transferred to the Intensive Care Unit. Given the lack of response to corticosteroid treatment, on day 15 of hospitalization, TPE was initiated. The patient underwent seven sessions of therapeutic plasma exchange (TPE) using the COBE Spectra system, with citrate as the anticoagulant. Each procedure involved 1 plasma volume exchange, using 5% albumin and 0.9% normal saline as replacement fluids. Remarkably, after the TPE procedures, the psychiatric symptoms resolved completely, and the patient achieved full clinical recovery.

Results: After 7 procedures of TPE the patient was transferred to the neurology department and was discharged from the hospital fully recovered.

Discussion: The evidence for using TPE in autoimmune encephalitis still remains limited to case series or case reports. In our case report, TPE proved to be effective in treating NMDAR encephalitis. There is no broad consensus about the exact order to apply corticosteroids, IVIG, or TPE, or when to initiate treatment with a combined multimodal approach. The results obtained in our case showed that initiation of TPE before IVIG provided rapid clinical benefit for the patient. This goes in line with other case series that suggest early initiation of TPE or TPE followed by IVIG, provide better outcomes. In our case corticosteroid therapy was immediately followed by TPE and it provided immediate clinical benefit. This is reported also from other authors who found that fewer patients showed improvement following corticosteroids as compared to corticosteroids immediately followed by TPE.

Conclusions: TPE performed immediately after corticosteroid therapy in NMDAR encephalitis appears to be an effective treatment option. Further studies should be performed to identify the time, frequency, duration, and type of replacement fluid(s) used in TPE and to determine if TPE combined with steroids and IVIG has a more rapid effect than the use of corticosteroids and IVIG in the early stages.

Keywords: N-Methyl-D-Aspartate Receptor (NMDAR) encephalitis, autoimmune disorder, therapeutic plasma exchange (TPE), psychiatric symptoms, children and young adults, case report, seizure, immunological panel, anti-NMDA receptor IgG antibodies, Methylprednisolone, corticosteroids

Cancer Screening Programs in Albania and the Process of Alignment with the European Union

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Introduction: Cancer is easier to treat if detected early and screening is one essential strategy for cancer control. Still, some screening programs are more effective that others and the recommendations about screening tests, target groups, periodicity and follow up are continuously changing based on the best evidence. Additionally, there are important differences in standards between European countries and between United States and European Union. Here we present for the first time an analyses of Albanian cancer screening programs as the country is joining EU.

Materials and Methods: For this work we have done a systematic review of legal bases, standards, protocols, service registries and other documents about cancer screening programs in Albania. EU and USA policies for cancer screening are also reviewed. More specifically, the Council of the "European Union new approach on cancer screening" and "United States Preventive Services Task Force" were compared on the issue.

Results: There are three cancer screening programs in Albania. Cervical cancer screening program using HPV test as primary test is functional since the second half of 2019 (Council of Ministers Decree No. 47, 30/01/2019). The initial target group are women 40-50 years old planned to be extended to 35-65. Pap-test is provided opportunistically to other age groups. Institute of Public Health has carried out evaluation of the program and published the data. 62280 women were screened since the beginning of the program. The program of breast cancer screening is approved by Council of Ministers Decree No. 623 (29/07/2020), It regulates the access to free services for early detection of breast cancer. The initial target group for mammography screening are women 50-60 years old. The age group is planned to be extended to 45-70. Clinical Breast Examination is provided to other age groups at Primary Health Care facilities. 22080 screening mammograms were done in 2024 and 25643 in 2023, an important increase from only 5216 and 10580 mammograms respectively in 2014 and 2015. Colorectal cancer screening program, using gFOBT as a primary test, is part of the National Program for Health Check Up and is provided at Primary Health Care for all residents 35-70 years old. This program was introduced in 2015 by a Council of Ministers Decree. Over 200000 screening tests were done every year since the beginning of the program.

Discussion and conclusions: Three existing screening programs need to be further adapted to EU standards in terms of increasing coverage, expanding target population age group and introducing more effective screening tests (i.e. immunological test for FOBT). More analyses are needed to consider piloting new screening programs, namely for prostate cancer, lung cancer and stomach cancer.

Keywords: Cancer screening, early detection, Albania, European Union, United States Preventive Services Task Force, cervical cancer screening, HPV test, breast cancer screening,

mammography, colorectal cancer screening, gFOBT, public health programs, legal bases

Analysis of Mean Age at Incidences and Mortality for Cancer in Albania 2015-2022

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Introduction: Albania faces a double burden of disease, with non-communicable diseases, including cancer, rising rapidly alongside continued morbidity and mortality from infectious diseases. While age-standardized rates of cancer have changed only marginally, the absolute number of patients diagnosed with cancer annually in Albania is growing rapidly, due to increasing life expectancy, growing urbanization and lifestyle changes. In 2005, a cooperation agreement was signed between the Albanian Ministry of Health and the World Health Organization for the period 2006- 2007 to address, among others, the issue of "Non-Communicable Diseases" which includes cancer. The first National Cancer Control Program (NCCP) 2010-2020 was developed based on a consultative process with various stakeholders under support of IAEA, to be integrated into all levels of the Albanian health care system, to be a community property and to include the society through collective and social action.

Objective: To analyse the age distribution characteristics of different cancers in the Albania according to the database from Cancer Incidence of Cancer Registry, and to compare the age differences of cancer incidence in world.

Materials and Methods: The average age of cancer incidence in Albania, gender and cancer sites were analysed and stratified according to world standard population.

Results: This study included the new cancer cases, for the years 2015-2022 in Albania. The analysis showed that the median age of cancer incidence in Albania was increased by 60 years in 2015 to 64 year in 2022, respectively. Among them, the median age of breast cancer was changed from 55 to 57 years, for cervical cancer from 51.3 to 54 years and that of lung cancer was 64 to 66 years and colorectal 63 years. The median age of new cases at the time of diagnosis has increased by 3.5% in the last 7 years. Hospitalizations for monitoring and treatment of cancer cases have been increased by over 70%, for both men and women in the period 2015-2022. This fact speaks of an increase in the supply of health services related to with the treatment of cancers, and especially a greater awareness of society for this group of diseases.

Conclusion: The most recently strategies, interventions, activities, were based on NCCP of Albania. Focus on compressive cancer care, health disparities are reduced and medical outcomes are improved in years. The IAEA's support in capacity building and treatment is highlighted in Albania. After a new radiotherapy machine in clinical settings, the IAEA supports with training, medical professionals and evaluate the process, in the interests of both effectiveness and safety.

Keywords: Albania, cancer burden, non-communicable diseases, cancer incidence, National Cancer Control Program, age distribution, breast cancer, cervical cancer, lung cancer, colorectal cancer, cancer registry, gender differences, healthcare access

Comparison of Leptomeningeal Dissemination in Large Brain Metastases: Stereotactic Radiosurgery (SRS) Versus Surgery Followed by SRS

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Introduction: Large brain metastases, defined as ≥3 cm in diameter or ≥14 cm^3 in volume, are commonly treated with stereotactic radiosurgery (SRS).

Objectives: This study compares leptomeningeal dissemination (LMD) in patients treated with SRS alone versus those treated with surgery followed by SRS, analyzing primary tumor distribution and associated risk factors.

Materials and Methods: A retrospective analysis was conducted on 95 patients with large brain metastases treated with fSRS, with or without prior surgical intervention, from 2014 to 2025, at the Department of Neurosurgery, "Mother Teresa" Hospital, Albania. LMD was defined as focal or diffuse leptomeningeal spread >5 mm from the initial metastasis, as observed on follow-up imaging.

Results: The most common primary lesions were pulmonary (37.9%), breast (31.6%), and melanoma (10.5%). Other malignancies included colorectal (5.3%), renal (6.3%), thyroid (2.1%), and rare cases of ovarian, adrenal, esophageal, multiple myeloma, uterine, and bladder cancers (1.1% each). The LMD rate was higher in pulmonary (28.7%), breast (19.8%), and melanoma (58.7%) metastases among patients treated with surgery plus SRS. Among these patients, 68% had pulmonary, 68.5% breast, and 32.7% melanoma metastases.

Conclusions: Surgery prior to SRS appears to increase the risk of LMD in large brain metastases. These findings highlight the need for meticulous surgical techniques, optimized adjuvant strategies, and close monitoring. Further studies are needed to refine treatment protocols and improve outcomes.

Keywords: large brain metastases, stereotactic radiosurgery (SRS), leptomeningeal dissemination (LMD), surgery, primary tumor distribution, metastasis, pulmonary cancer, breast cancer, melanoma, colorectal cancer, neurosurgery, risk factors

Epidemiological and Clinical Profile of Cocaine Users at "Mother Teresa" University Hospital Center in 2023

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Introduction: Cocaine is a stimulant drug produced from the leaves of the cocaine plant (Erythroxylon coca), which is a native plant of South America. In Albania, it enters illegally. Today, Cocaine constitutes a public health problem, due to the serious biopsychosocial problems it causes in its users.

Objectives: To identify the epidemiological and clinical profile of cocaine users.

Materials and Methods: This is a retrospective analytical study in which clinical documentation at MTUHC was used. The study was extended for a 12-month period of 2023. The study took into account all cases of patients who presented for medical assistance in the emergency room or in the Clinical Toxicology service with overdose, abstinence crisis and cocaine addiction treatment.

Results: The number of patients presented to the emergency room was 116. There were 112 males (96.55%) and 4 females (3.45%). Average age 32.17 years. The age group 30-40 years accounted for about 49.13% of cases. The geographical distribution according to residence is dominated by Tirana which has 50% of cases. The most frequent clinical presentations are anxiety with 70% of cases followed by insomnia and sweating with 60%. The intranasal route of administration predominates with 68%.

Conclusion: The large number of cases considering the population size in Albania, the significant male predominance, the concentration in populated areas, the absolute dominance of the working age group and health problems make cocaine use a serious problem for public health.

Keywords: Cocaine, epidemiology, overdose, withdrawal crisis, addiction

Narrative Review of Recent Literature on Obsessive-Compulsive Disorder in the Pediatric Population

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Introduction: Obsessive-compulsive disorder (OCD) is characterized by the presence of obsessions or compulsions, often both simultaneously, and is a chronic illness marked by periods of remission and relapse. Once considered rare in younger populations, epidemiological studies have estimated a prevalence of 0.25% to 4% in children and adolescents. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), 25% of cases begin before the age of 14. OCD can significantly impact a child's educational and psychosocial development, leading to family conflicts and a notable decline in academic performance in approximately 50% of cases.

Objective: This review aims to summarize the evidence regarding clinical presentation, diagnosis, common comorbidities, and management of OCD in children and adolescents.

Materials and Methods: This narrative review compiles studies conducted from 2000 to 2024 on obsessive-compulsive disorder (OCD) in children and adolescents.

Results:

- The literature reports varying rates of obsessive thoughts among children.
- Associated factors include sensory processing difficulties, cognitive dysfunction, behavioral problems (e.g., hoarding and aggressive behavior), sleep disturbances, and immune system dysfunctions.
- OCD often co-occurs with other disorders such as anxiety, depression, ADHD, conduct disorders, and autism.
- A family history of OCD was present in approximately 50% of cases.
- First-line treatment consists of SSRIs (selective serotonin reuptake inhibitors), while cognitive-behavioral therapy (CBT) has been the most commonly used intervention.

Conclusion: This review contributes to the ongoing discussion on pediatric OCD by identifying knowledge gaps and suggesting directions for future research on this disorder.

Keywords: Obsessive-compulsive disorder (OCD), children, adolescents, clinical presentation, diagnosis, comorbidities, treatment, selective serotonin reuptake inhibitors (SSRIs), cognitive-behavioral therapy (CBT), prevalence, sensory processing, cognitive dysfunction

Neurodevelopmental Disorders in Prison Population in Albania

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Introduction: Neurodevelopmental disorders (NDDs) represent conditions characterized by difficulties in cognitive functioning, communication, behavior, and/or motor skills, including intellectual disabilities, communication disorders, autism spectrum disorder (ASD), attention deficit hyperactivity disorder (ADHD), specific learning disorders, and motor disorders. International studies have shown a high prevalence of neurodevelopmental disorders among individuals in detention facilities, which often remain unidentified and untreated. However, in Albania, there is a lack of in-depth studies investigating these issues, making it difficult to accurately understand the extent and impact of NDDs in the prison population. In the Albanian context, where penitentiary systems face challenges such as overcrowding and insufficient resources for rehabilitation, individuals with neurodevelopmental disorders are particularly vulnerable. The lack of proper diagnosis and treatment can lead to a deterioration of their mental health and an increased risk of recidivism.

Objective: This study aims to deepen the understanding of this issue and highlight the need for a more integrated approach. Through collaboration between the healthcare sector and the penitentiary system, as well as investments in training and resources, adequate support can be provided for individuals with NDDs, contributing to effective rehabilitation, reducing recidivism, and potentially preventing crime on a broader scale.

Materials and Methods: The study focuses on identifying the prevalence and impact of neurodevelopmental disorders within the Albanian prison system. It aims to explore the existing challenges and gaps in diagnosis, treatment, and rehabilitation for incarcerated individuals with NDDs. By analyzing existing data and interviewing professionals from both the healthcare and penitentiary sectors, the study seeks to propose solutions for improving the care and support of these individuals.

Conclusion: Individuals with neurodevelopmental disorders in detention facilities face significant challenges, including a lack of proper diagnosis, treatment, and rehabilitation programs. Addressing these issues through a more integrated approach, involving both the healthcare and penitentiary sectors, is crucial. Early identification, targeted interventions, and specialized rehabilitation programs can help reduce recidivism, improve mental health outcomes, and contribute to the successful reintegration of individuals with NDDs into society.

Keywords: neurodevelopmental disorders, prisons in Albania, rehabilitation, stigmatization, treatment.

A Systematic Review by Using AI in Early Depression Detection

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Introduction: Depression is a greatly important health problem for people 18-25, with lots of cases unseen and unaddressed. Usual screening methods face several limitations including stigma, access barriers, as well as resource constraints. AI innovations are valuable instruments for use in improving early depression identification. Among these people, some improvements are possible for improving its identification. Several AI methods including machine learning algorithms, language processing, and computer vision can analyze data and identify depression markers. This review examines the effectiveness as well as the implementation of AI-powered mental health screening tools for the early depression detection in young adults.

Materials and Methods: We have analyzed through a systematic review of studies examining AI-based approaches for screening for depression among people, like youths 18-25 years old. We have analyzed 50 papers. Many studies were screened upon predefined criteria, concentrating on population age range, AI depression screening tools, study design, outcome measurement, study setting, screening focus, as well as depression outcomes. In addition to that, the studies focused on AI component importance. Along with detection performance as well as with depression prevalence, data extraction focused on the study design type, AI technology characteristics, participant demographics, as well as depression screening criteria.

Results: AI technologies includes using machine learning of data from smartphone, convolutional neural nets used for recognizing emotions, voice analysis of biomarkers, chatbots, and also social media analytics. Smaller sample sizes, selection bias, and cross-sectional design flaws were principal limitations across studies. Insufficient standardization of performance metrics was a principal limitation as well.

Conclusion: AI depression screening apps show good abilities at finding depression signs for young people, and some ways show specificity and sensitivity. The wide-ranging array of technologies offers plentiful pathways for reaching young adults. These pathways come through platforms they use already, along with smartphone data analysis to chatbots and social media monitoring.

Keywords: Artificial intelligence, depression screening, mental health, machine learning, chatbots, voice biomarkers.

Depression in Patients with Parkinson's Disease

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Introduction: Depression often accompanies the symptoms of patients with Parkinson's Disease, affecting physical and interpersonal functioning, and undoubtedly influencing their treatment and therapeutic effectiveness.

Objective: This study aims to identify the correlation between depression and Parkinson's Disease in 37 patients diagnosed with Parkinson's Disease.

Materials and Methods: This study included 37 patients (18 females and 19 males) with Parkinson's Disease, to whom the Beck Depression Inventory (BDI) test was administered.

Results: 6 of the patients scored above 30 points, classifying them as having severe depression according to the BDI. 13 patients scored below 10 points, indicating mild mood fluctuations but not depression. The rest had moderate depression, according to the BDI scale. Patients with a history of the disease longer than 5 years scored above 2 points on the BDI. This correlation was found to be significant in males. In patients who had the onset of the disease on the left side, higher BDI scores were recorded. A statistically significant correlation was found between the history of the disease (years), the patient's gender, and the severity of depression.

Discussion and Recommendations: We recommend expanding this study to a larger number of Parkinson's Disease patients in order to identify clinical signs, diagnose, and treat depression, with the aim of improving the quality of life. A good collaboration between neurologists and psychiatrists is necessary to develop effective treatment plans.

Keywords: Parkinson's, depression, screening, treatment

The Impact of COVID-19 Infection on Acute Stroke in the Region of Tetovo, North Macedonia

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Introduction: Stroke and COVID-19 are associated through vascular risk factors, inflammation, and coagulopathy. SARS-CoV-2 infection promotes endothelial dysfunction and a hypercoagulable state, contributing to ischemic stroke.

Objective: This study aims to evaluate the effect of COVID-19 infection on stroke outcomes and to describe the clinical characteristics and risk factors in patients with stroke and COVID-19.

Materials and Methods: In this retrospective study, we included hospitalized stroke patients who were confirmed as either positive or negative for COVID-19 by PCR, at the Clinical Hospital in Tetovo, from January 2020 to September 2022. We compiled data from the hospital and the Center for Public Health Tetovo. We compared COVID-positive and COVID-negative patients' demographic factors, risk factors, clinical characteristics, laboratory findings and severity of illness. Critically ill patients were defined as patients requiring intensive care due to severe organ dysfunction or failure.

Results: Out of 458 stroke patients, only 30 were tested for SARS-CoV-2 and were included in the study, with 14 COVID-positive, and 16 COVID-negative. The mean age of all patients was 71.5 years, with 17 males and 13 females. Ischemic strokes were predominant, and hypertension, dyslipidemia, diabetes, and vascular diseases were the main stroke risk factors for both groups. D-dimers were elevated in 81.3% of COVID-positive and 71.4% of COVID-negative patients. Critically ill patients comprised of 71.43% of the COVID-positive and 56.25% of the COVID-negative patients.

Conclusion: Despite the limited sample size, our preliminary results indicate that COVID-19 has a negative influence on stroke outcomes, with common vascular risk factors and prothrombotic processes playing a key role.

Keywords: COVID-19, SARS-CoV-2, Stroke, Cerebrovascular disease

Anxiety and Depression in Polycystic Ovary Syndrome

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Introduction: Polycystic Ovary Syndrome (PCOS) is a complex endocrine disorder associated with a range of psychological comorbidities, including anxiety, depression, and eating disorders. The relationship between these issues and PCOS is multifaceted and influenced by factors such as obesity, hyperandrogenism, and insulin resistance.

Objective: This study aims to examine the prevalence and pathophysiological mechanisms of anxiety, depression, and eating disorders in women with PCOS, as well as to explore management approaches to improve both the psychological and physical well-being of these patients.

Materials and Methods: Studies on the link between PCOS and mental health issues were reviewed. Contributing factors to these disorders were analyzed, including the physical manifestations of PCOS, hormonal imbalances, and the impact of obesity. Treatment strategies were also reviewed, including psychotherapeutic interventions, lifestyle changes, and pharmacological options.

Results: Women with PCOS have a higher prevalence of anxiety and depression compared to women without the syndrome. Key factors affecting mental health include the negative impact of obesity, acne, and hirsutism on self-esteem and body image. Eating disorders—particularly Binge Eating Disorder (BED) and Night Eating Syndrome (NES)—are more common among women with PCOS and are linked to emotional eating and food cravings. These issues create a complex cycle between metabolic and psychological health. Effective treatments include cognitive-behavioral therapy (CBT), lifestyle interventions, and medications such as GLP-1 agonists and the naltrexone-bupropion combination for managing food cravings and mood disorders.

Conclusions: Since PCOS affects both endocrine function and psychological well-being, its management should adopt a comprehensive approach.

Recommendations: Screening for anxiety, depression, and eating disorders should be a routine part of care for patients with PCOS. Psychotherapeutic interventions and lifestyle changes should be combined with pharmacological approaches to improve the quality of life for these women.

Keywords: PCOS, anxiety, depression, eating disorders

Stakeholder Consultation for Digital Workplace Health Interventions in the PROSPERH Project

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Introduction: PROSPERH is an EU project aimed at improving physical and mental health in workplaces across 11 countries by developing and validating the multi-level PROSPERH intervention, delivered via the PROSPERH Portal. One key component of the project involved conducting a stakeholder consultation to explore the effectiveness of existing promotional materials, focusing on their impact at both organizational and individual levels. The goal was to assess digital workplace interventions and their relevance to the specific workplace contexts in the participating countries.

Material and Methods: The process began with the drafting of a Standard Operating Procedure (SOP), shared with all partners. After receiving ethics approval, an online survey was distributed in two waves to stakeholders from sectors like construction, healthcare, and ICT.
Of the 1,297 individuals invited, 308 responded, representing academic experts, industry leaders, policymakers, and health professionals from 11 countries. Sectoral representation included healthcare (n=117) construction (n=88), ICT (n=54), occupational health experts (n=35), and other sectors (n=14).

Results: The consultation highlighted the perceived benefits and challenges of implementing digital health interventions in the workplace. Stakeholders generally viewed digital interventions positively, with about 50% considering the balance between advantages and disadvantages favourable. Awareness of mental health tools was high, with 59% familiar with online awareness training and 51% aware of virtual stress management programs. However, only 21% reported awareness of virtual ergonomic assessments, and 16% were familiar with platforms for monitoring musculoskeletal health.
Conclusion: The stakeholder consultation provided valuable feedback, guiding the development of tailored, evidence-based tools for the PROSPERH intervention, ensuring that digital solutions effectively address identified challenges and maximize their potential to improve workplace health and well-being.

Keywords: PROSPERH, workplace health, mental health, digital health interventions, stakeholder consultation, occupational well-being, EU project, online survey, ergonomics, stress management, health promotion, SOP, healthcare, construction, ICT.

Implementation of the Reconnected Project in Kosovo: Challenges and Opportunities

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Introduction: Current global societal challenges pose significant threats to the mental well-being of European citizens. The RECONNECTED project, supported by the EU/Horizon Europe program, aims to address mental health issues experienced by vulnerable populations in Europe, including those in Kosovo, particularly individuals with low socio-economic status.

Objective: The objective is to present the RECONNECTED project and its implementation in Kosovo, which aims to enhance psychological resilience among populations with low socio-economic status.

Material and Methods: This includes a description of the theoretical framework, the co-creation process, digital interventions, the scientific approach, as well as implementation challenges and opportunities in Kosovo.

Results: The RECONNECTED project has been implemented in Kosovo since June 2023. It introduces a new community care model, aiming to provide a digitally-supported, evidence-based, and ecologically sensitive self-management system. This system promotes resilience and connects citizens with the goal of protecting their mental health in times of change while ensuring cost-effective implementation. Additionally, the urban mental health framework has been expanded, and a digital support system is being developed through co-creation and a cohort study with ecological momentary assessment.

Conclusions: Despite challenges, the project's implementation foresees that a digital support system like RECONNECTED, adapted to the local context and the specific needs of the target population, represents an innovative contribution to mental health care.

Keywords: RECONNECTED project, implementation, challenges, mental health, Kosovo.

Determinants of Mental Health and Resilience Processes among Kosovars: Study Protocol for the Reconnected Project in Kosovo.

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Introduction: Socioeconomic status is related to mental health outcomes, particularly among individuals living in Low and Middle-Income Countries (LMICs) countries, including Kosovo. The CEMA study protocol is part of the larger consortia study of Reconnected Project EU (11 partners) which aims to understand the complex associations between complex mental health problems and resilience processes in Kosovar individuals, particularly those living in low SES compared to other SES backgrounds.

Material and Methods: The study will recruit N=350 participant's females and males, aged 18 to 65 who live in Pristina municipality and the surrounding area. Participants will complete a 40-minute core baseline questionnaire focusing on resilience, mental health functioning, social environment, health style habits, coping mechanisms, and mental health literacy, followed by 14-day Ecological Momentary Assessment (EMA) items consisting of daily stressors. Ecological momentary assessment data will develop a machine-learning framework which can be applied when delivering the personalised micro-interventions.

Results: CEMA recruitment procedure is underway, N=113 did finish baseline questionnaires, with an average daily completion rate of EMA items of 86.9% as of now.

Discussion: The knowledge gained from the study will provide a better understanding of the role of socioeconomic status on mental health and resilience processes among individuals from various socioeconomic backgrounds in Kosovo.

Keywords: Reconnected project, resilience, mental health problems; Kosovo; LMICs.

MENTBEST: Enhancing Mental Health Support for Vulnerable Groups through Community-Based Interventions

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Introduction: MENTBEST is a 5-year EU-funded project that addresses mental health challenges among vulnerable groups across multiple countries, including Albania, Germany, Spain, Denmark, Greece, Ireland, and Estonia. The project focuses on populations such as migrants, older individuals, youth, long-term unemployed persons, and those with existing mental disorders, aiming to create sustainable solutions for improving mental well-being through community-based interventions and innovative technologies.

Material and Methods: The project utilizes the Community-based EAAD 4-level intervention model. In early 2025, training sessions were initiated for primary health professionals, focusing on early detection, diagnosis, and treatment of depression and suicide prevention. These sessions are designed to build capacity in recognizing and managing mental health issues, ensuring professionals are equipped to respond effectively to the needs of vulnerable populations.

Results: A total of 210 healthcare professionals have been trained. The training improved participants' knowledge regarding the differentiation between subclinical and clinical signs of depression and the management of suicidal behavior. Participants reflected critically on their roles in providing appropriate care and shared experiences of encountering depression and suicidal behavior. Training sessions also discussed the importance of collaboration with staff from Community Mental Health Centers and identifying cases that need to be referred to specialized mental health services. Despite progress, stigma surrounding mental health remains a barrier to open discussions, particularly among youth, adolescents, and within families.

Conclusions: MENTBEST has contributed to improving mental health support, but stigma remains a challenge to accessing care. Future efforts should focus on reducing stigma to enhance mental health outcomes in primary health settings.

Keywords: MENTBEST, mental health, vulnerable groups, community-based interventions, depression, suicide prevention, primary healthcare training, stigma, subclinical vs clinical signs, youth, migrants, older adults, long-term unemployment, mental disorders, EU project, early detection, mental health services, referral pathways, capacity building, cross-country collaboration.

RECONNECTED Project: Understanding the Protective Factors to Mental Health of Non-Western Migrants in the UK

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Introduction: Migrants in the UK face heightened mental health risks due to various challenges, including discrimination, limited access to healthcare and housing, financial difficulties, and the trauma of displacement. This paper presents findings from expert consultations aimed at understanding the mental well-being needs of non-Western migrants in the UK.

Material and Methods: This study is part of the RECONNECTED project, which aims to develop a digital support system to enhance mental health literacy, resilience, and social participation among vulnerable populations, including migrants. Feedback from six stakeholder meeting consultations will inform adaptations to the intervention for non-Western migrants. The consultations will identify protective factors that support mental well-being across different migrant groups (e.g., permanent, temporary, and forced migrants). Across these meetings, ten stakeholders with expertise in migrant mental health will participate in structured meetings and surveys to identify these protective factors.

Results: Stakeholder feedback will be synthesised into a conceptual framework outlining protective factors at the macro (living environment), meso (social factors), and micro (individual factors) levels. The focus will be on understanding how RECONNECTED's social prescribing, mental health literacy initiatives, and micro-interventions can be tailored to enhance resilience and well-being for non-Western migrants in the UK.

Conclusion: Global challenges significantly impact migration and well-being. In the context of growing negative political discourse surrounding migration in the UK, particularly from non-Western countries, it is crucial to identify protective factors and tailor interventions that promote resilience and prevent mental illness in these communities.

Keywords: RECONNECTED, migrant mental health, non-Western migrants, UK, mental well-being, protective factors, digital support system, mental health literacy, resilience, social participation, social prescribing, stakeholder consultations, structured surveys, trauma, discrimination, access to care, macro-meso-micro framework, tailored interventions

Reflections on Co-Creation in the MENTBEST Project

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Introduction: The MENTBEST project is a European initiative involving co-creators – individuals with lived experience and community actors – to design and improve mental health interventions in communities across Albania, Germany, Spain, Denmark, Greece, Ireland, and Estonia. This presentation reflects on the experiences of co-creators within the project, highlighting their motivations, challenges, and the impact of their participation in the co-creation process.

Material and Methods: Co-creators joined the project with the aim of influencing mental health policies and ensuring that interventions respond to real needs. Their involvement has contributed not only to the shaping of the COMBINA intervention and the MENTINA digital app, but also to their own empowerment. Through participatory workshops, sessions, and collaboration with researchers, co-creators have played a key role in making the interventions more accessible, appropriate, and sustainable.

Results: Despite challenges such as adapting to research methodologies, managing time commitments, and overcoming communication barriers, co-creators found support through skill development, flexible engagement strategies, and a strong sense of community. This presentation shares the lessons learned, emphasizing the value of lived experience, the power of collaboration, and the need for ongoing engagement.

Conclusions: By sharing these reflections, we aim to encourage future participatory research projects to prioritize authentic co-creation. The presentation concludes with a call to action addressed to researchers, policymakers, and community members to recognize and integrate co-creators as equal partners in designing mental health interventions, ensuring long-term impact.

Keywords: MENTBEST, co-creation, lived experience, community engagement, mental health interventions, participatory research, COMBINA intervention, MENTINA app, empowerment, accessibility, sustainability, skill development, flexible engagement, collaboration, mental health policy, inclusive research, community actors, EU project

Advances in the Management of ACTH-dependent Cushing

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Introduction: ACTH dependent Cushing includes most often Cushing's disease (CD) versus ectopic (paraneoplastic) Cushing's syndrome (ECS). Differential diagnosis is frequently difficult, considering the high incidence of pituitary microadenoma as well as pseudo-Cushing conditions (obesity, alcoholism, depression, PCOS). Dynamic testing is required, but dexamethasone suppression test is sometimes misleading, CRH became unavailable, localization studies are difficult and many measurement interferences could occur. Plasma and late night salivary as well as free urinary cortisol are routinely used in basal and inhibition tests. Combined low dose dexametasone with CRH (Dex-CRH) test, or the desmopressin test may be able to distinguish between ACTH-dependent CS and pseudo-CS. In our tertiary center, we investigated patients with ACTH dependent Cushing in the last 25 years.

Material and Methods: This retrospective study identified 27 patients diagnosed with CD [78% females, mean age 37.5 years (10-65)] and 21patients with ECS [67% females, mean age 50 years (18-74)] evaluated in our department between 1997-2024. Data on clinical presentation and hormonal workup were analyzed; 85% of CD and 90% of ECS patients were confirmed histologically.

Results: CD patients had 16 (59%) microadenomas and 11 (41%) macroadenomas. Causes of ECS: neuroendocrine tumors in 12 patients (57%); medullary thyroid cancer in 5 patients (24%); lymphoma in 1 patient; thalamic tumor 1 patient, unknown primary tumor in 2 cases (10%). Almost all the ECS and only 63% of CD patients presented with typical cushingoid appearance. In ECS more frequent were hypertension (81% vs 67%, $p<0.05$) and hypokalemia (range 1.65-3.2 mmol/L) in 72% vs 0%, while in CD patients more frequently were found overweight / obesity (78% vs 50%, $p<0.001$) and osteoporosis/osteopenia (40.7% vs 24%, $p<0.05$), while dyslipidemia (81% in ECS vs 74%) and prediabetes/diabetes (52% in ECS vs 48%) were non-significantly different. ECS patients had higher median morning cortisol level 46 vs 22 µg/dL, $p<0.001$, higher late night serum cortisol 18.7 vs 15 ug/dL, $p<0.05$, higher ACTH [141 pg/mL (range 35-1221) vs 77 pg/mL (range 21-201), $p<0.05$], higher UFC levels (1816 vs 254 µg/24h, $p<0.001$). Levels in ECS patients overlapped with those in CD in 57% of cases for morning cortisol, 50% for late night cortisol, 72% for ACTH. Inadequate cortisol suppression (<50% reduction) after high dose dexamethasone (DST, 8mg/day for 2 days) was recorded in 93% of ECS patients, but also in 47.6% of 21 CD patients (in 44.5% of those with macroadenomas and in 41% of those with microadenomas). Body imaging identified the primary source in 71.4% of ECS patients.

Conclusion: Patients with ECS had higher prevalence of hypertension and hypokalemia and lower prevalence of obesity and osteoporosis compared with patients with CD. ECS patients had significantly higher morning and late-night serum cortisol, ACTH and UFC levels. High

dose DST had 93% sensitivity but only 52% specificity for ECS. Body imaging identified the tumor in 71% of ECS patients.

Keywords: ACTH-dependent Cushing's syndrome, Cushing's disease, ectopic Cushing's syndrome, differential diagnosis, pseudo-Cushing, pituitary adenoma, neuroendocrine tumors, dexamethasone suppression test, desmopressin test, cortisol, ACTH, hypokalemia, hypertension, obesity, osteoporosis.

The Role of Genetics in Thyroid Pathologies

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Introduction: Autoimmune thyroid diseases (AITDs), including Hashimoto's thyroiditis, Graves' disease, as well as thyroid cancer, have significant genetic components in addition to environmental ones. Advances in molecular techniques have improved the detection of genetic changes, enabling more accurate diagnosis, risk stratification, and treatment monitoring.

Material and Methods: A review was conducted of studies using genome-wide association studies (GWAS) and the application of digital PCR (dPCR) to evaluate the genetic factors of AITDs and thyroid cancer and their clinical implications. A current study is being carried out to analyze HLA variations in patients affected by AITDs in Albania.

Results: AITDs are associated with immune-related genetic variations, including HLA-DR3, CTLA4, and PTPN22, which contribute to immune system dysregulation. Mutations in TSHR and TG are implicated in Graves' disease, while FOXE1 is associated with thyroid development and cancer risk. Thyroid cancer, particularly papillary thyroid carcinoma (PTC), is linked to the BRAF V600E mutation, which promotes tumor progression. RAS mutations are common in follicular thyroid cancer, while RET/PTC rearrangements are seen in radiation-induced thyroid cancers. Mutations in TERT and TP53 contribute to more aggressive forms of thyroid cancer.

Conclusion: The integration of genetic knowledge and dPCR-based diagnostics into clinical practice may improve risk stratification and optimize therapeutic strategies, thereby enhancing the prognosis of patients with AITDs and thyroid cancer. Future studies should further explore the use of dPCR in routine clinical practice to personalize disease treatment.

Keywords: Autoimmune thyroid diseases, AITDs, Hashimoto's thyroiditis, Graves' disease, thyroid cancer, genetic factors, GWAS, digital PCR, HLA variations, BRAF V600E, RAS mutations, RET/PTC rearrangements, TERT, TP53, FOXE1, TSHR, CTLA4, PTPN22, TG gene, molecular diagnostics, personalized medicine.

NT-proBNP as a Screening Tool for the Use of Echocardiography in the Diagnosis of Preclinical Diastolic Dysfunction in Patients with Type 2 Diabetes Mellitus

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Introduction: Asymptomatic left ventricular (LV) diastolic dysfunction (DD) falls under stage B of heart failure (HF). Studies support the integrated use of natriuretic peptides and echocardiography for HF diagnosis; however, there are no clear recommendations for their use as a screening tool in asymptomatic patients.

Objectives: To evaluate NT-proBNP as a screening test to recommend echocardiographic evaluation in patients with type 2 diabetes mellitus (DM) for the early detection of preclinical DD.

Material and Methods: A case-control study involving 213 participants (170 patients with type 2 DM and 43 control subjects), with a mean age of 58.9 ± 7.3 years, 53.5% male, all in sinus rhythm, without coronary artery disease or clinical HF. LV diastolic function was assessed using Doppler echocardiography (a combination of transmitral flow, tissue Doppler imaging, and color M-mode propagation velocity). Subjects were divided into two groups based on LV function: normal or with DD. NT-proBNP levels were measured in all participants.

Results: NT-proBNP levels showed a significant positive correlation with LV filling pressures (E/E′) ($r = 0.43$; $p < 0.0001$) and indexed left atrial volume ($r = 0.34$; $p = 0.0005$). ROC analysis indicated that an NT-proBNP value of 58 pg/mL detects DD with 71.5% sensitivity, 74% specificity, and 72.3% accuracy (AUC 0.74). Patients with NT-proBNP levels > 58 pg/mL had an 11.8% higher probability of having DD compared to those with levels < 58 pg/mL.

Conclusions: Based on our study findings, we suggest that if an asymptomatic diabetic patient without coronary artery disease presents with an NT-proBNP level > 58 pg/mL, they should undergo echocardiographic screening for the evaluation of LV diastolic dysfunction.

Keywords: Left ventricular diastolic dysfunction, asymptomatic heart failure, stage B heart failure, type 2 diabetes mellitus, NT-proBNP, echocardiographic screening, natriuretic peptides, preclinical diastolic dysfunction, early detection, E/E′ ratio, left atrial volume, Doppler echocardiography, ROC analysis, screening biomarkers, cardiovascular risk.

Trophic Skin Changes in Patients with Diabetes Mellitus

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Introduction: Trophic skin changes in patients suffering from diabetes mellitus are among its most significant complications. They affect 15–25% of diabetic individuals at least once in their lifetime. It is estimated that in 25% of cases, these complications are the main cause of hospitalization. This complication has major consequences on the patient's quality of life and imposes a high cost on both the healthcare system and the patient.

Materials and Methods: This is a retrospective study. All patients with diabetic foot who were hospitalized at the Diabetic and Vascular Foot Surgery Service at the University Trauma Hospital over a three-year period were included. Patients were evaluated for risk factors such as neuropathy, peripheral angiopathy, and treatment characteristics, both systemic and wound-related. A total of 179 patients were studied.

Results: All 179 patients included in the study had type 2 diabetes mellitus. The average age was 66.2 years. The average duration of diabetes was 10.5 years. All patients were hospitalized with complaints of fever and dry or infected gangrene of the toes/foot. Hemogram results revealed leukocytosis (average WBC – 12.0 x 10^3/mm^3). Empirical systemic antibiotic therapy was initiated using the following regimen: Ceftriaxone, Levofloxacin, and Metronidazole (Flagyl). Simultaneously, local wound treatment was performed, including: debridement, minor amputations, sequestrectomy, or drainage of phlegmon.

Conclusion: Patients with diabetes mellitus, especially those who develop skin-related complications, require a multidisciplinary approach in the treatment of diabetic foot due to the complex etiology and associated comorbidities. Foot ulcers in diabetic patients are a key indicator of the risk of limb amputation.

Keywords: Diabetic foot, type 2 diabetes mellitus, diabetic complications, gangrene, foot ulcers, peripheral neuropathy, peripheral angiopathy, multidisciplinary care, hospitalization, limb amputation, wound management, systemic antibiotics, debridement, minor amputations, sequestrectomy, phlegmon drainage, quality of life, healthcare burden.

The Pressure of Climate Change on Emerging or Re-Emerging Pathogens

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Introduction: Climate change is increasingly recognized as a critical factor influencing the emergence and re-emergence of infectious diseases. This influence is both complex and multifactorial, affecting a wide range of pathogens and transmission pathways. Despite growing awareness, the full extent of human vulnerability to infectious diseases shaped by climate variables is not yet well-defined.

Material and Methods: This study is based on a narrative review of current scientific literature addressing the links between climate change and infectious disease patterns. It examines climate-related environmental changes—such as rising temperatures, heatwaves, floods, and wildfires—and their potential to alter the ecology, transmission, and geographic distribution of various pathogens (bacteria, viruses, fungi, protozoa, and others). It also explores different transmission modes affected by these changes, including vector-borne, airborne, and direct contact.

Results: Evidence suggests that climate change can significantly exacerbate the risk of infectious diseases in humans by influencing both pathogen biology and transmission dynamics. The interaction between multiple climate risks (e.g., sea level rise, extreme weather events) and a diverse array of infectious agents presents a substantial threat to global health. Emerging patterns indicate shifts in disease zones, increased frequency of outbreaks, and changing pathogen behaviors that complicate public health responses.

Conclusion: The multifaceted impact of climate change on infectious diseases underscores the urgent need for adaptive health systems and prevention programs. Strategic interventions must be designed to mitigate climate-induced health risks by enhancing surveillance, preparedness, and response mechanisms. Future programs should aim to build climate-resilient healthcare infrastructures capable of addressing both emerging and re-emerging pathogens.

Keywords: Climate change, infectious diseases, emerging pathogens, re-emerging diseases, environmental risk factors, global health, vector-borne transmission, public health preparedness, disease vulnerability, adaptation strategies, extreme weather, zoonotic diseases, heatwaves, floods, climate resilience.

Helicobacter Pylori in Students: Risks, Impact and Management

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Introduction: Helicobacter Pylori is a bacterial infection that affects the gastric mucosa, contributing to gastritis, peptic ulcers and other gastrointestinal disorders. Despite its widespread nature, many infections remain asymptomatic, leading to delayed diagnosis and potential long term complications.

Objective: This review aims to assess the prevalence of Helicobacter Pylori infection among students and examine associated risk factors such as hygiene habits, diet, and stress. It also evaluates the effectiveness of diagnostic methods and eradication therapies in this population.

Methods: A comprehensive review of existing literature was conducted, focusing on studies that assess the prevalence of Helicobacter Pylori among university students. Articles were selected based on inclusion criteria such as sample population, diagnostic methods used, and the assessment of lifestyle factors.

Results: The study found a moderate prevalence of Helicobacter Pylori infection among students, with higher rates in those living in shared accommodations, consuming processed foods, and experiencing high stress. Poor hygiene, such as infrequent handwashing and sharing utensils, significantly increased infection risk. Among infected students, 35% reported gastrointestinal symptoms**,** while 45% remained asymptomatic**,** leading to delayed diagnosis. Standard eradication therapy was 80% effective, but 20% of cases required second-line treatment due to antibiotic resistance.

Conclusions: Helicobacter Pylori is prevalent among students, influenced by lifestyle and hygiene factors. Early screening, hygiene education, and dietary awareness can help reduce transmission and improve treatment outcomes. Addressing antibiotic resistance through alternative therapies and preventive measures is crucial in managing Helicobacter Pylori infections in student populations.

Keywords: Helicobacter Pylori, student health, infection prevalence, hygiene, diet, stress, gastrointestinal disorders, asymptomatic infection, antibiotic resistance, eradication therapy, university population, lifestyle risk factors, public health education, screening, preventive healthcare.

Histiocytosis, a Misdiagnosis of Staphylococcal Osteolysis in Immunocompetent Subjects

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Introduction: Staphylococcus is considered a significant cause of progressive erosive osteopathy, with 67% of cases being culture-positive, which locally generate inflammation and osteolysis. Traditionally, bone erosions have served as a macroscopic marker of neoplasms, and for this reason, in certain clinical situations where microbiological isolates are often absent, osteolysis becomes the cause of misdiagnosis with significant diagnostic and therapeutic implications.

Case Report: A 47-year-old male presented to the emergency room on 06.12.2024 with headache, dysarthria, and motor deficits. A CT scan of the head revealed erosion of the cranial bones and a right frontal and left temporal hematoma. The patient underwent surgery, during which the hematoma was managed, and a biopsy was taken to investigate the nature of the osteolysis. The biopsy revealed granulation tissue and lymphoplasmacytic infiltrates with multinucleated cells. Two consecutive immunohistochemical tests, along with a bone marrow examination, ruled out the suspected diagnosis of histiocytosis. The patient was transferred under these conditions to the infectious disease service for further treatment, as Staphylococcus aureus was isolated from the purulent secretions culture after several attempts (6 weeks of hospitalization). In laboratory tests, leukocytosis and inflammatory markers remained elevated until the therapeutic response was observed, after which there was a gradual decrease correlating with clinical improvement. Serological tests for febrile antigens were negative, and repeated microbiological assessments did not reveal any new isolates. The patient was discharged after 10 weeks, significantly improved both clinically and laboratorily.

Conclusion: Staphylococcal osteolysis represents an urgent clinical entity that, with proper attention, can be diagnosed in time and generate significant therapeutic and prognostic benefits.

Keywords: Staphylococcus aureus, osteolysis, cranial bone erosion, granulation tissue, lymphoplasmacytic infiltrates, multinucleated cells, infectious disease, diagnosis, misdiagnosis, histiocytosis, bone marrow examination, leukocytosis, inflammatory markers, purulent secretion culture, therapeutic response, case report.

Phenotypic Clinical Features of Infectious Neuropathies, Diagnostic-Therapeutic Challenges

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Introduction: Infectious Neuropathies (IN) can occur as an early or late complication of infectious diseases. The variety of symptoms presented by patients with IN and, on the other hand, their neurological emergency, necessitates the need for a clinical phenotypic classification, which would aid in the early diagnosis and potential etiological treatment, thus reducing mortality and the risk of irreversible neurological sequelae.

Objective: To highlight clinical phenotypes and analyze the etiological, therapeutic, and prognostic aspects of IN.

Method: An analytical-descriptive, retrospective study. It includes 41 cases of IN, hospitalized in the Infectious Disease Service from March 2020 to March 2025. The cases were grouped according to etiology, classified by neurological clinical phenotypes, the relationship between them was analyzed, and mortality was determined.

Results: Bacterial IN: 13 (S. aureus 4, S. hemolyticus 1, E. fecalis 1, P. aeruginosa 1, Brucella spp. 1, Corynebacterium afermentans 1, K. pneumonia 1, M. tuberculosis 2, Clostridium tetani 1); Viral IN: 28 (H. zoster 14, H. simplex 1, WNV 7, SARS-CoV-2 virus 3, HIV 1). According to the neurological clinical phenotype: Guillain-Barré Syndrome 3, Demyelinating polyneuropathy 1, Symmetrical distal polyradiculopathy 1, Peripheral myoclonus (spinal) 2, Acute parkinsonism 4, Brachial plexitis 1, Cranial radiculopathy 4, Phrenic nerve neuritis 1, Post-herpetic neuralgia 9, Transitory paresthesia 3, Urinary incontinence 2, Compressive radiculopathy 11.

Conclusions: We identified 11 clinical phenotypes, ranging from mild forms of paresthesia to complete tetraplegia. The most frequent microbial causes were viruses, accounting for 68.29%, while the highest severity was observed in bacterial IN. The mortality rate was 4.87%. The etiological diagnosis is quite difficult and often may be multietiological; therefore, further studies to assist in early diagnosis are extremely important.

Keywords: Infectious Neuropathies (IN), clinical phenotypes, early diagnosis, etiological treatment, bacterial IN, viral IN, Guillain-Barré Syndrome, demyelinating polyneuropathy, mortality, neurological sequelae, S. aureus, H. zoster, M. tuberculosis, HIV, SARS-CoV-2, WNV, diagnostic challenges, multietiological causes, prognosis.

Approach to HPV in HIV/AIDS and the Importance of Monitoring the Two Co- Infections

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Introduction: The complex interactions between viruses have been studied quite early. HPV and HIV each exhibit interactions that promote the infection of the other at the cellular level. HPV promotes the acquisition of HIV in both sexes, and individuals infected with HIV manifest more severe manifestations of warts, dysplasia, and HPV-induced cancer due to immune system suppression. Both infections contribute to a vicious cycle that may be a factor in the escalation of both pandemics in various regions of the world. Compared to HIV-negative women, mortality from cervical cancer in HIV-positive women is twice as high. While ART reduces the incidence of other cancers associated with AIDS, its relationship with cervical cancer remains unclear. The goal is to evaluate the approach to HPV in women with HIV infection in our country, to detect cases with both low and high cancerogenic risk among them.

Materials and Methods: The study included 41 HIV-positive women aged 25 - 65 years, registered at the outpatient clinic of the Infectious Disease Service where they are treated. These women were offered routine screening for cervical infection with HPV. All were under ARV therapy and had not undergone HPV screening after their HIV diagnosis. We analyzed demographic, epidemiological data, and the relationship of HPV16 and/or 18 with the characteristics of HIV, such as CD4 levels, viral load, and the clinical stage of the disease. The samples were analyzed at the Molecular Biology Laboratory, Public Health Institute, Tirana.

Results: 95% of the women were under ARV therapy. HPV DNA was detected in 52.38% of them. With the high-risk type of HPV, 51.2% were positive, and 19.5% were infected with the low-risk HPV type. 26.8% had mixed infections (hrHPV and lrHPV types). The average number of CD4+ lymphocytes was 430 cells/mm3; 31.7% of the women were at the AIDS stage (A3, B3, and C1-C3). 58.48% of the women had an undetectable or low viral load. The lowest CD4 count (<200 cells/mm3) was associated with 36.3% of HPV infections and 40% of hrHPV positivity.

Conclusions: HAART may be useful in reducing HPV infection and associated lesions, but only after several years with optimal HIV viremia control and substantial immune reconstitution. It is of great importance that HIV-infected women be actively examined for cervical infection with the aim of identifying differences related to the persistence of high-risk HPV infection or the progression of CIN among women treated with HAART versus those untreated in our country. The high prevalence of HPV infection, especially of high-risk types, in HIV-infected women is highly problematic given the limited access to cytological screening and gynecological care in our country.

Keywords: HPV, HIV, Cervical Cancer

Pyoderma Gangrenosum: Case Report

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Introduction: Pyoderma gangrenosum is a rare condition characterized by large, painful ulcers that develop on the skin, most often on the legs. The exact causes of pyoderma gangrenosum remain unknown, but it is believed to be an autoimmune disorder. Individuals with underlying conditions, such as inflammatory bowel disease or arthritis, are at higher risk for developing pyoderma gangrenosum. The ulcers typically begin on the legs but can develop anywhere on the body and sometimes appear around surgical sites. When there are multiple ulcers, they may merge to form a larger ulcer. Pyoderma gangrenosum often begins as a small, red bump that may resemble a spider bite, and within a few days, this bump can develop into an open, painful wound.

Objectives: The purpose of this report is to present the clinical manifestations, challenges in diagnosis, and treatment of pyoderma gangrenosum in a patient with comorbid conditions, including a detailed case report emphasizing the clinical course and recovery process.

Methods: This is a case report that includes diagnostic workup and management of a patient with pyoderma gangrenosum. The patient was tested for deep fungal infections (negative results), MRSA culture (positive for MRSA), chest MRI (suggestive of sarcoidosis), Mantoux test negative, HIV test negative, and syphilis test negative. Histopathological results were reviewed and correlated with clinical signs.

Case Report: A 45-year-old female patient, N.H., presented to the dermatology clinic with vegetative erosions and several infected lesions on her arms, forearms, and the distal areas of her legs. The patient was tested for deep fungal infections (negative results), antibiogram for MRSA (positive for MRSA), chest MRI (suggestive of sarcoidosis), Mantoux test negative, and results for HIV and syphilis were negative. The patient had a medical history of insulin-resistant diabetes mellitus and arterial hypertension. Her blood formula showed mildly reduced hemoglobin levels. After receiving biopsy results, the diagnosis was pyoderma gangrenosum (the patient had also undergone two other biopsies that did not correspond with the clinical signs, specifically a diagnosis of allergic dermatitis). After several months of treatment, the patient made a full recovery (with the exception of scars).

Conclusions: Pyoderma gangrenosum is a rare pathology, but the sooner it is diagnosed, the faster the patient's recovery will occur. Early treatment is essential for improving patient health and reducing long-term complications.

Keywords: Pyoderma gangrenosum, autoimmune dermatitis, MRSA, inflammatory bowel disease, arthritis, delayed diagnosis, early treatment, painful ulcers, scars, histopathology, medical therapy, sarcoidosis.

Anthrax: A Possible Diagnosis in Drug Users, but Absent in Our Reality: A Narrative Review

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Introduction: Anthrax is a bacterial infection caused by the bacterium *Bacillus anthracis*. This disease affects both domestic and wild animals, while humans are infected through contact with infected animals or contaminated animal products. Anthrax is also a "biological weapon". The infection can present in cutaneous, pulmonary, gastrointestinal, and injectable forms in drug users. The infection at the injection site can lead to cellulitis, abscess, fasciitis, or even septicemia. Symptoms of inhalation anthrax appear when smoked heroin is contaminated with anthrax spores, causing a mortality rate of over 35%.

Methods: This narrative review was based on research from the PubMed, Web of Science, Medline, Scopus, Google Scholar, and Clinical Trials.gov databases, using keywords such as "Anthrax", "drugged patients", emphasizing the importance of clinical assessment and management of anthrax in drug users.

Results: Anthrax is an endemic disease in Albania, where three genotypes circulate: Albania GT/1, GT/2, GT/3, which are similar to each other. Cases are reported every year, and the incidence is related to temperatures and rainfall. The monitoring of drug-related infectious diseases is supported by the Global Fund, and data on incidence are available from the National Reference Laboratory for HIV and Hepatitis. Infectious pathologies such as endocarditis, fasciitis, osteomyelitis, etc., have been reported in this patient group, but there is no data on anthrax infection.

Conclusion: Intravenous drug users presenting with signs of severe sepsis with or without soft tissue infections should be considered as possible cases of anthrax. This should not be overlooked by clinicians, as rapid diagnosis and management minimize disease progression and mortality.

Keywords: anthrax, *Bacillus anthracis*, diagnosis, drug-using patients, heroin.

HDV – Challenging Hepatitis: Epidemiological Data and Treatment

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Introduction: Hepatitis D virus (HDV) is a unique, defective RNA virus that requires co-infection with the hepatitis B virus (HBV) to complete its life cycle and exert its pathogenic effects. It is considered the most aggressive form of viral hepatitis, leading to rapid progression to cirrhosis, hepatic decompensation, and hepatocellular carcinoma. Despite the global burden, diagnosis and treatment remain challenging due to epidemiological variability, limited access to HDV testing, and suboptimal therapeutic options.

Methods: This study reviews epidemiological data from international meta-analyses and local Albanian studies. Additionally, clinical data from patients with HBV-HDV co-infection treated at the University Hospital Center "Mother Theresa" were analyzed to evaluate current treatment strategies and outcomes. Diagnostic approaches and treatment protocols were assessed with a focus on HDV RNA and HBsAg kinetics.

Results: Global HDV prevalence shows wide variation: 0.11% to 0.98% in the general population, 4.5% to 13.02% among HBsAg-positive individuals, and 14.6% to 18.6% among hepatology clinic attendees. An estimated 12 to 72 million individuals worldwide show serological evidence of HDV exposure. In Albania, the prevalence of HBsAg remains high at 7.5%–8%, categorizing it as an intermediate-to-high endemic area. Historical data suggest a declining trend in HDV prevalence from 9% in 1995 to 7% in 2005 among patients with chronic liver disease, especially in younger populations.

Conclusions: HDV represents a persistent public health challenge due to its severe clinical course and the complexity of its diagnosis and management. Albania continues to demonstrate a significant burden of HBV and HDV co-infection. Improved screening, tailored treatment based on viral kinetics, and enhanced surveillance systems are crucial for better management outcomes. Personalized treatment duration should be guided by HDV RNA and HBsAg kinetics along with patient tolerability.

Keywords: Hepatitis D virus (HDV), Hepatitis B virus (HBV), Albania, Epidemiology, Liver disease, HDV RNA, HBsAg kinetics, Chronic hepatitis, Cirrhosis, Hepatocellular carcinoma

Acute Coronary Syndrome and Chemotherapy

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Introduction: Oncological diseases are increasing. Chemotherapy is one of most frequent therapies in treatment of some malignancies. Knowing the side effects of these preparations is important in the evaluation of oncological patients.

Case Presentation: A 68-year-old male refers for typical anginal chest pain. The patient known as Ca esophageal st I 4 under chemotherapy with oxaliplatin, 5 fluoro uracil and dexamethasone. He is not known and is not treated for any other disease. In the ECG performed in emergency conditions, a decrease in ST 0. 5 mm is noted in V3 – V5 with TPI 0.345. The patient is given morphine for pain but after a while the pain recurs. The second ECG shows a 2 mm ST depression. Echocardiography confirms septoapical necrosis. Coronary angiography times Sak 3 vasal. PCI of LAD is performed.

Discussion: 5-Fluorouracil is one of the most commonly used chemotherapeutic agents in gastrointestinal tract tumors. It is a cardiotoxic agent. The mechanism of 5-fluorouracil is not fully understood, but it is thought to cause vasospasm and changes in the arterial endothelium, which can lead to myocardial infarction. Its toxicity is higher when administered by infusion than by bolus.

Conclusion: There are no specific cardiac protocols for oncology patients undergoing chemotherapy. Multidisciplinary collaboration and information on the type of drug to be used in oncology patients are important. Patients receiving cardiotoxic agents may need additional monitoring such as echocardiography and coronary scans to prevent fatal events.

Keywords: Oncological diseases, chemotherapy, side effects, cardiotoxicity, 5-Fluorouracil, esophageal cancer, anginal chest pain, ST depression, myocardial infarction, vasospasm, coronary angiography, PCI, multidisciplinary collaboration, echocardiography, coronary scans, drug monitoring.

A Comprehensive Guide to Acute Kidney Injury Management in Cancer Patients

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Introduction: Acute Kidney Injury (AKI) is a common complication in cancer patients, particularly those receiving nephrotoxic treatments. Early detection is crucial to adequate management and preventing long-term kidney injury. Biomarkers such as NGAL and cystatin C exhibit promise for timely AKI identification.

Objective: To evaluate the incidence of AKI in cancer patients and assess the role of NGAL and cystatin C in early detection, enabling personalized therapy, dose adjustments for improved management.

Methods: A cohort study of 100 patients diagnosed with cancer receiving chemotherapy, targeted therapy, immunotherapy and hormonal therapy were included. AKI was defined by KDIGO criteria. Biomarkers (NGAL and cystatin C) levels were measured at baseline and during treatment. Statistical analysis included t-tests was performed and p-values <0.05 were considered statistically significant.

Results: AKI occurred in 21% of patients, under potentially nephrotoxic treatment and pre-existing kidney dysfunction being key risk factors. NGAL and cystatin C showed high sensitivity and specificity for early AKI detection ($p<0.01$). Elevated biomarker levels correlated with higher AKI risk and early detection enabled better management and renal recovery.

Conclusion: The incidence of AKI is high in cancer patients undergoing treatment, with a multifactorial etiology and significant impact in clinical outcome. NGAL and cystatin C provide effective early detection for AKI. It is recommended that all cancer treatments teams integrate nephrology expertise early in the treatment process to minimize the risks of AKI and enhance patient recovery. A multidisciplinary team approach is fundamental and highlights the importance in optimizing care for cancer patients

Keywords: AKI, Cancer, NGAL, Cystatin C, Management

The Dual Impact of Cholesterol and Pulse Pressure on the Progression of Chronic Kidney Disease

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Introduction: Chronic kidney disease (CKD) represents a major public health concern worldwide, often influenced by a complex interplay of cardiovascular and metabolic factors. Among these, elevated cholesterol levels and pulse pressure (PP) play a significant role in accelerating the progression of CKD. This study aims to assess the relationship between high cholesterol levels and PP in the progression of CKD, highlighting the importance of early management of these modifiable risk factors.

Materials and Methods: A prospective study was conducted, including 139 patients with an estimated glomerular filtration rate (eGFR) above 30 mL/min/1.73m². The patients were followed for approximately 2 years. Detailed clinical, laboratory, and anamnesis data were collected for each patient. Levels of creatinine, eGFR, cholesterol, uric acid, and hemoglobin were evaluated both at the beginning and during the study period. Statistical methods were applied to analyze the data, with a p-value ≤ 0.05 considered statistically significant.

Results: 84 patients were male. The average age of patients with high cholesterol levels was 55 ± 13.5 years. The mean values of creatinine and eGFR were 2.35 ± 1.1 mg/dL and 54.5 ± 13.2 mL/min/1.73m², respectively. 100 patients had hypercholesterolemia, and 75 patients had high pulse pressure values (PP $\geq$ 60 mmHg).
The study revealed a significant positive correlation between PP and high cholesterol levels (p=0.014), as well as a statistically significant relationship between eGFR and hypercholesterolemia (p=0.06). ANOVA testing showed a strong link between the progression of CKD (including mortality) and elevated PP values ($p \leq 0.001$).

Conclusions: Cholesterol and elevated pulse pressure play a significant role in the progression of CKD. Therefore, early interventions targeting the treatment of dyslipidemia and arterial stiffness are crucial in slowing the progression of CKD. The study confirmed the priority that healthcare providers should give to managing these modifiable risk factors to improve the quality of life for patients and delay the progression of CKD.

Keywords: Chronic kidney disease, cardiovascular factors, metabolic factors, cholesterol, pulse pressure, glomerular filtration rate, hypercholesterolemia, arterial stiffness, creatinine, eGFR, risk factors, progression of CKD, early management, dyslipidemia, kidney function, mortality

Assessing Cognitive Function in Renal Replacement Therapy in Albania: Insights into Cognitive Decline and Potential Benefits of Transplantation

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Background and Aims: Cognitive impairment (CI) is a common issue among patients undergoing dialysis, affecting multiple cognitive domains. This study evaluates cognitive function in several patient groups, including dialysis patients, kidney transplant recipients (Tx) and healthy controls (HC).

Methods: We assessed various cognitive abilities (CA) in 148 patients on renal replacement therapy (RRT) and compared the effect of renal treatment on CA with a HC of 143 individuals. CI was estimated using the using the Montreal Cognitive Assessment (MOCA) test. Paired t-test and ANOVA test were used to obtain the results.

Results: The mean age is 54.5 years for the CG and 57.16 years for the sample patients. The ANOVA test confirms that there is no difference between the age and educational level of the two groups.The normal cognition is most common in the HC (42%) and Tx (39.7%) groups, while mild cognitive impairment is significantly more common in dialysis patients with the highest rates observed in dialysis group (66%). A detailed cognitive assessment showed that executive function, attention and verbal skills were lower in dialysis patients compared to HC. Dialysis patients scored lower on naming, delayed memory and orientation tasks, reflecting the cognitive load associated with dialysis treatment. The total cognitive performance score was lowest in the dialysis group (19.67) and highest in the TX group (24.01), close to the HC (24.40).

Conclusions: These findings underscore the cognitive decline associated with dialysis treatment and highlight the potential cognitive benefits of kidney transplantation. Targeted interventions and early cognitive screening are needed to mitigate cognitive impairment in dialysis patients and improve overall quality of life. Further research should explore strategies to preserve cognitive function and enhance neuroprotection in this vulnerable population.

Keywords: cognitive impairment, dialysis, renal transplantation, MOCA

Lipoprotein (A), a New Biomarker of Premature Coronary Atherosclerotic Disease

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Introduction: In recent years, there has been an increasing trend in the occurrence of acute myocardial infarction at younger ages (age group < 50–55 years), particularly among women. In addition to the well-known traditional risk factors, the identification of new causative factors of premature atherosclerosis is crucial for primary and secondary prevention.

Objectives: Lipoprotein (a) is now recognized as a new, independent biomarker of atherosclerosis of hepatic origin, easily measurable in the blood and genetically determined. Since 20–30% of the global population has high circulating levels of it (≥ 50 mg/dl), identifying these individuals and early treatment would prevent the long-term destructive consequences of coronary artery disease.

Methods: Lp(a) is a plasma macromolecular complex similar to LDL-cholesterol but with more pronounced proatherogenic, proinflammatory, and prothrombotic properties. When elevated, the atherosclerotic risk increases by 2–3 times, and its atherogenic potential begins at birth. Lp(a) levels can be measured only once in a lifetime and are unaffected by age, gender, physical activity, diet, or hypolipidemic drug therapy. Identifying its presence makes the medical approach more aggressive in modifying other risk factors since, currently, no direct therapy has been approved to lower Lp(a).

Results: Lp(a) is currently not well-known in Albania, and very few physicians request it as a test in daily practice, whereas in Western countries, it is an important part of cardiovascular risk assessment in every patient, especially in younger individuals, with family history, familial hypercholesterolemia, or LDL-C > 190 mg/dl. On the other hand, Premature Coronary Atherosclerotic Disease (PCAD) is also little studied in our country to identify prevailing risk factors as well as the role of Lp(a) as a distinct factor in the emergence of PCAD.

Conclusion: The identification of risk factors will lead to more specific recommendations for lifestyle modification and more aggressive treatment of correctable factors to reduce the risk of premature CAD years before it manifests clinically.

Keywords: Acute myocardial infarction, premature atherosclerosis, lipoprotein (a), Lp(a), cardiovascular risk, coronary artery disease, atherogenic, proinflammatory, prothrombotic, familial hypercholesterolemia, LDL-cholesterol, early treatment, risk factors, lifestyle modification, premature coronary atherosclerotic disease (PCAD).

Joint Pain in Childhood

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Introduction: Joint pain represents one of most common complaints among children. The main reasons of joint pain and walking disturbance in childhood could be different: malignancies, hemophilia, orthopedic problems, neurologic condition, infections and inflammatory conditions. The pain onset and severity are of crucial interest for differential diagnosis. Detailed disease history and physical examination are sine qua non of the patient evaluation.

Methodology: The first distinction should be made regarding the possible etiology of the disease. Secondary, the presence of arthritis examined and the differentiation between arthritis and arthralgia should be performed. In the presence of the arthritis signs, the number of the included joints and the durations of symptoms should be registered. An examiner should search for additional systemic symptoms (except for joint complaints) in order to include/exclude the underlying systemic condition. The possible trauma should be kept on mind and suspected. Since the child abuse could be misdiagnosed, the physicians should be aware of such a possibility.

Results: In summary, signs that deserve the attention among children with joint/extremities pain: fever, night sweating, severe pain of extremities (especially nocturnal), pallor, ecchymosis, hepatosplenomegaly, anemia and thrombocytopenia, persistent restriction in joint movement and persistent back pain.

Conclusion: The most common mistakes among physicians are: antibiotically treatment despite the sterile cultures, quick diagnosis/decisions, underestimation of psychosocial factors. Detailed medical history, evaluation of all joints, radiological assessment, timely treatment when sepsis or osteomyelitis is suspected, preservation of free joints' movement and long-term monitoring of patients are mandatory.

Keywords: arthritis, childhood, joint pain

Autoinflammatory Diseases in Childhood

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Introduction: Autoinflammatory diseases are characterized by recurrent episodes of fever and clinical symptoms suggesting impaired natural immunity. These diseases can affect various organ systems and often occur as a result of defects in the innate immune system. The group of autoinflammatory diseases is distinct from autoimmune diseases, as the latter are more related to the absence of antibodies. This disease category has significantly expanded over the last 20 years and has entered a phase of rapid development thanks to advances in molecular sciences and genetics.

Aim of the Study: This study aims to review the clinical features, classification criteria, treatment options, and long-term prognosis of periodic fever syndrome, aphthous stomatitis, pharyngitis, adenitis, and other common autoinflammatory diseases. Additionally, it will discuss the impact of advances in molecular sciences and genetics on the definition and management of these diseases.

Methodology: This is a retrospective and analytical study based on data from patients hospitalized between 2010-2020. Clinical and genetic data were collected from hospital records and analyzed according to internationally accepted classification criteria for autoinflammatory diseases. Statistical analysis was performed using SPSS software, applying appropriate tests to evaluate correlations between various disease factors and clinical outcomes.

Results: During the study period, 120 cases of autoinflammatory diseases were identified, most of which had recurrent episodes of periodic fever associated with aphthous stomatitis and pharyngitis. Genetic analysis revealed mutations linked to variations in the innate immune system, which affected the severity of the disease. The majority of patients showed a positive response to potential treatments, including the use of targeted therapies to address chronic inflammation.

Discussion: The definition of autoinflammatory diseases has undergone significant changes over the past two decades, and advances in molecular sciences have led to a better understanding of the mechanisms of these diseases. The new classification of these diseases allows for more targeted treatments and predicts a clearer prognosis for patients. However, the diagnosis and management of these diseases require multidisciplinary support and further development of genetic therapies.

Conclusion: Autoinflammatory diseases are associated with a deficiency in the innate immune system and can affect multiple systems of the body. Advances in genetics and molecular science have led to improvements in the classification and management of these diseases, but accurate diagnosis and treatment remain a significant challenge. Increased attention is needed for the

management of these diseases in the clinical environment and continuous efforts are required to improve therapeutic options.

Keywords: Autoinflammatory diseases, periodic fever, aphthous stomatitis, pharyngitis, adenitis, genetics, treatment, classification.

Sickle Cell Anemia: Does the Management of a Child with This Pathology Change as They Grow Older and Gradually Become an Adult? Follow-up Model

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Introduction: Sickle cell anemia, one of the most studied hemolytic anemias, remains a prevalent health problem in our country. All blood cells, not just erythrocytes, may initiate a continuous vaso-occlusive and hemolytic process, which causes a vicious cycle with ischemic consequences, organ necrosis, and persistent pain if we do not intervene with medication urgently. Recent scientific data show that leukocytes and platelets, in addition to erythrocytes, are involved in this process, which begins with the upregulation of P-selectin and other selectins that contribute to the development of several biochemical interactions. Sickle cell disease is now considered a disease that can be controlled with a personalized treatment model. Some medications provide a positive response by minimizing the chronic process, in addition to standard therapies. Sickle cell disease today is considered a condition that can be managed with personalized treatment. Individuals suffering from this hemoglobin synthesis disorder must be managed in a timely manner, diagnosed as early as possible in childhood. Non-steroidal anti-inflammatory drugs and opioids, as well as gabapentin, are key elements in managing pain, along with hydration, local pain control, and other non-pharmacological modalities. Other disease-modifying therapies such as hydroxyurea and crizanlizumab can prevent the polymerization of hemoglobin S, thereby reducing the occurrence of pain crises.

Objective: To present an overview of sickle cell disease and our clinical and therapeutic approaches.

Results: Aiming for optimal treatment, we monitor every sign and symptom, every laboratory indicator according to a well-defined protocol. Aging itself has physiological consequences for every individual in society, and it is more sensitive in individuals with sickle cell disease. Untreated recurrent infarcts in vital organs can damage any organ to the point of disability. Early intervention in childhood, before any infectious attack, makes it possible to prolong life and ensure good quality of life. Our data show that 37% of individuals over the age of 18 manifest vaso-occlusive crises (VOC) that require hospital treatment, even though 57% of sickle cell patients are transfusion-dependent and administer hydroxyurea. Compliance with iron chelators ensures a better quality of life (control of ferritinemia with trends < 1000 ng/ml). The new era of biological drugs like crizanlizumab appears to ensure fewer episodes of VOCs.

Conclusions: A better understanding and more accurate monitoring of sickle cell events will help us manage individuals with this health issue, aiming to reduce sickle cell crises.

Keywords: Sickle cell anemia, hemolytic anemia, vaso-occlusive crisis, leukocytes, platelets, P-selectin, personalized treatment, hydroxyurea, crizanlizumab, pain management, non-

steroidal anti-inflammatory drugs, opioids, gabapentin, hydration, transfusion-dependent, ferritinemia, biological drugs, quality of life, disease-modifying therapies, pediatric diagnosis.

Conference Hall 3

Summary of Recent Developments in Root Canal Irrigants

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Purpose of Endodontic Treatment: The primary goal of endodontic treatment is the elimination of microorganisms accumulated in biofilms and the promotion of healing at the root apex or the preservation of its health. For a long time, root canal instrumentation was considered the main factor in canal disinfection, while the role of irrigants was viewed as secondary.

Methodology: However, over the years, scientific evidence has shown that instrumentation cannot reach all areas of the root canal system, and gradually, the importance of irrigation has been significantly re-evaluated.

Discussion: Today, root canal instrumentation is considered an essential phase of endodontic therapy aimed at facilitating the penetration of irrigants to the apical area of the tooth. This shift in perspective has sparked renewed interest in root canal irrigants, as evidenced by the large number of scientific studies dedicated to this topic.

Conclusions: The purpose of this presentation is to describe the evolution of root canal irrigants over time and provide a summary of the latest developments in this field.

Keywords: Endodontic treatment, root canal irrigants, biofilms, disinfection, instrumentation, irrigation, apical area, healing, microorganism elimination, recent developments.

Surgical Guidance in Bone Regeneration and Surgical Endodontics

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Introduction: Guided surgery is an innovative technique that has gained popularity in the fields of implantology and surgical endodontics. This process is not only a method for placing prosthetic implants but also plays an important role in bone regeneration and contributes to the improvement of surgical endodontic treatment outcomes. In this study, the goals and advantages of guided surgery for bone regeneration and the success of surgical endodontics will be examined.

Methodology: This study provides an evaluation of the use of guided surgery for bone regeneration and surgical endodontic treatment, including analyses of clinical cases performed in dental clinics. Various cases have been reviewed, where guided surgery assisted in bone repair and successful implantation, as well as the improvement of endodontic treatment results. The techniques and instruments used for this procedure are described in detail, making it a valuable tool for enhancing the success of these treatments.

Conclusions: Guided surgery has shown excellent results in bone regeneration and assisting in the success of surgical endodontics. It offers the potential for more precise and safer treatment, contributing to increased efficiency and speed in the regeneration process. This study suggests that guided surgery should become a standard tool in such treatments to improve outcomes and reduce postoperative complications.

Keywords: Guided surgery, bone regeneration, surgical endodontics, implantology, clinical cases, precision, healing, dental implants, treatment outcomes, postoperative complications.

Diagnosis and Treatment of Oral Pigmentations

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Introduction: Oral pigmentations represent visible changes in the color of the buccal mucosa and may appear as a result of various factors, including physiological processes, medications, smoking, and systemic diseases.

Objectives: This study examines the etiological factors, clinical features, and the importance of diagnosis and differential diagnosis of oral pigmentations. The analysis includes physiological pigmentations, considered normal, as well as pathological pigmentations, which may appear as a result of systemic conditions such as Addison's disease, Peutz-Jeghers syndrome, and neurofibromatosis.

Method: Special emphasis is placed on careful clinical and histopathological evaluation to differentiate benign pigmentations from those with malignant potential, thereby encouraging early diagnosis and treatment of affected patients.

Conclusions: Environmental and hereditary factors, physiological processes, systemic diseases, and the use of certain medications are among the initiating etiological factors of oral pigmentations. Strong collaboration between healthcare professionals and patients is essential for the early diagnosis of precancerous and cancerous pigmentations, enabling prompt and effective treatment.

Keywords: Oral pigmentations, diagnosis, differential diagnosis, systemic diseases, histopathology, benign lesions, malignant potential, etiological factors, clinical features, early treatment.

The Future of Endodontics

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Purpose: The aim of this presentation is to discuss recent advancements and future directions in Endodontics in the areas of diagnosis, treatment planning, clinical case management, and education of students and residents.

Methodology: Technological advancements in Endodontics—including AI, imaging technologies, robotics, and virtual reality—are transforming the field by enhancing diagnosis, treatment precision, and long-term patient outcomes. Artificial intelligence increases diagnostic accuracy, while robotics automates complex tasks, reducing practitioner fatigue and increasing consistency. Augmented and mixed reality, along with computer simulations, enhance education, diagnosis, and treatment planning, offering opportunities for more precise, personalized, and predictable care.

Discussion: However, challenges such as high costs, data security, and ethical concerns must be addressed. The future of Endodontics is promising, driven by innovations like artificial intelligence and avatars, which enable more efficient and patient-centered care. The integration of AI, advanced imaging, AR, and robotics is reshaping diagnosis, treatment planning, and patient outcomes.

Conclusion: To fully unlock their potential, it is essential to overcome existing barriers, maintain ethical standards, and promote collaboration between AI developers, engineers, and dental professionals. This collaboration will lead to more effective and personalized care. We are entering a transformative era in healthcare, powered by interdisciplinary collaboration and technological progress.

Keywords: AI, robotics, imaging, virtual reality, diagnosis, treatment planning, education, endodontics, personalization, innovation.

Antibacterial Treatment with Systemic Antibiotics as Part of Dental Therapy, Side Effects, and Antibiotic Resistance

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Introduction: For periodontal/endodontic pathologies, it is essential to identify the causative bacteria and then select the antibiotic that acts selectively against them. The clinical outcome of antibiotic application faces the challenge of its effects on the rest of the oral flora, where bacterial resistance is induced.

Objectives: This study aims to analyze the side effects of antibiotics given systemically and evaluate the role of guidelines around antibacterial treatment as part of periodontal and endodontic therapy. This study is a review-type study.

Methodology: Key words were applied to the PubMed medical articles page to find studies involving antibiotics, endodontic, and periodontal pathologies.

Results:

- 13% of the articles discuss specific names of antibiotics and the indications for their systemic prescription.
- 7% are in vivo studies conducted on patients.
- Endodontic pathologies treated with specific antibiotics make up approximately 47% of the total articles.
- Bacterial resistance occurs in 27% of cases where antibiotics are used to treat endo/periodontal pathologies.

Conclusions: For periodontal pathologies, scientific research is oriented around alternative treatment methods versus systemic antibiotic administration. There is a lack of articles addressing the comparison of these two alternative treatment methods. All articles emphasize that bacterial resistance and side effects of antibiotics are significant concerns. Gastrointestinal problems are the most frequent side effects, followed by allergic reactions. There is a lack of articles that focus on clear protocols and indications for the use of antibiotics for endodontic as well as periodontal pathologies.

Keywords: antibiotics, endodontic, periodontal, resistance, side effects, systemic treatment, guidelines, flora, therapy, infection.

Differential Diagnosis and Management of Gummy Smile

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Introduction: Gummy smile is a condition characterized by excessive exposure of the gums of the upper jaw during smiling. A smile plays an important role in creating positive first impressions. For many patients, a confident and attractive smile is a key aspect of self-esteem and social interactions, making the evaluation of the smile an essential part of the consultation process.

Objectives: Frontal examination is becoming increasingly important. Gummy smile is diagnosed when there is excessive exposure of the gums during a smile. This is not a disease but a condition that can be caused by various factors, including:

- Excessive gingival exposure: When the upper lip rises too much during smiling, exposing more gingival tissue than is typical.
- Vertical maxillary excess (VME): A condition where the upper jaw is longer than normal, increasing the visibility of the gums.
- Hyperactive upper lip: A lip that rises more than usual due to muscle activity, revealing more gum tissue.
- Gingival overgrowth: Conditions such as gingival hypertrophy can cause the gums to appear larger or more prominent.
- Tooth position: Short or irregularly protruding teeth can make the gums more visible.

Method: The treatment of gummy smile should be carefully planned, taking into consideration:

- Face type
- Vertical height and symmetry of the face
- Thickness, size, and profile of the lips
- Thickness of the alveolar bone
- Gingival biotype
- Size and shape of the teeth

Conclusion: An interdisciplinary approach is necessary for the treatment of gummy smile to achieve long-term results.

Keywords: diagnosis, vertical maxillary excess, hyperactive lip, gingival overgrowth, tooth position, treatment, aesthetics, interdisciplinary, facial analysis.

Practice and Provision of Physiotherapy in Albanian Intensive Care Units: A Comparative Analysis with European Countries

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Introduction: Evidence shows that physiotherapeutic techniques performed by physiotherapists in Intensive Care Units (ICUs) remain insufficiently applied.

Objective: The aim of this study is to compare the provision and practice of physiotherapy in Albanian ICUs with those in other European countries.

Methodology: Our study is part of a broader project involving 33 European countries, providing evidence on physiotherapy in ICUs (PEAiCE - *Physiotherapy Provision and Practice: A European Intensive Care Study*). Physiotherapists working with ICU patients completed a questionnaire about the frequency of various physiotherapeutic procedures (only one representative per unit responded).

Results: In 41% of the 915 ICUs across the 33 European countries, ICU physiotherapists work exclusively within those units. In contrast, in Albania, no physiotherapist works exclusively in ICUs. None of the Albanian physiotherapists are involved in suctioning or instillation of saline in mechanically ventilated (MV) patients, whereas 42% and 24% of their European counterparts, respectively, perform these procedures. Early mobilization techniques, such as sitting invasively ventilated patients at the edge of the bed, are performed by physiotherapists in 76% of European ICUs. In Albania, this procedure is performed exclusively by nurses, with no physiotherapist involvement.

Conclusions: The differences in physiotherapy practice in ICU patients highlight the urgent need to integrate more physiotherapists into the multidisciplinary team to ensure continuous (24/7) rehabilitation and respiratory management—especially for patients on invasive mechanical ventilation.

Keywords: physiotherapy, ICU, Albania, Europe, mechanical ventilation, early mobilization, respiratory care, multidisciplinary, rehabilitation, PEAiCE.

Anterior Cruciate Ligament (ACL) Injury: Physiotherapeutic Rehabilitation Before Return to Sport, Evaluation in Amateur and Professional Athletes

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Introduction: Anterior Cruciate Ligament (ACL) injuries primarily affect athletes, though amateur sports participants and the general population are not exempt. International literature cites ACL injuries as among the most common knee injuries, especially among athletes. Common symptoms reported by patients include reduced knee mobility, instability, and significant joint effusion.

Objective: To assess the prevalence, demographic distribution, age, and gender of individuals with ACL injuries among athletic populations.

Materials and Methods: A structured logical questionnaire was distributed electronically to active amateur and professional athletes. The study included subjects aged 18–35, who performed self-assessments related to potential knee injuries. This age group was chosen due to its association with peak athletic performance and biological factors. Participants were selected randomly.

Results: Among the study participants, there was a male predominance (86%). Based on the self-assessment questionnaire, 58% of the 316 respondents reported at least one knee injury, of which 39% specifically referred to an ACL injury.

Conclusions: Unilateral ACL injury is among the most frequent injuries in individuals involved in sports, particularly football. The average recovery time after initiating physiotherapy treatment spans several months. A premature return to sports without appropriate functional testing is associated with a high risk of re-injury.

Keywords: Anterior Cruciate Ligament injury, athletes, knee, instability, mobility, physiotherapy, recovery, secondary injury, football, trauma, athletic injuries, age group, rehabilitation, sports testing, active age.

Effectiveness of Mulligan Mobilization versus Proprioceptive Neuromuscular Facilitation in Reducing Pain and Improving Shoulder Mobility in Patients with Adhesive Capsulitis

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Introduction: Frozen shoulder (FS), or adhesive capsulitis, is a common condition characterized by pain and a progressive reduction in shoulder mobility. Physiotherapy plays a crucial role in managing and rehabilitating FS, with interventions tailored to the specific phase of the condition. Various treatment modalities have been explored to alleviate pain and restore range of motion (ROM); among them, Mulligan mobilization and proprioceptive neuromuscular facilitation (PNF) have gained significant attention for their effectiveness. Current guidelines support manual therapy, with Mulligan mobilization known for its benefits in shoulder conditions. This technique, which combines sustained passive gliding with active movement, has shown clinically significant improvements in pain reduction and joint mobility. Recently, PNF techniques have also been introduced in orthopedic management, demonstrating superior efficacy in pain relief and ROM enhancement, thereby broadening the scope of rehabilitation strategies.

Objective: This study aimed to compare the effectiveness of Mulligan mobilization versus PNF in reducing pain and increasing shoulder ROM in individuals with frozen shoulder.

Methodology: A total of 48 subjects, fully adhering to the study protocol, were divided into two groups: Group A (n = 25) and Group B (n = 23). Clinical parameters assessed included ROM (measured using a standard goniometer) and pain intensity (measured using the Numerical Pain Rating Scale – NPRS). Participants underwent a structured six-week treatment program, attending 2–3 sessions per week to ensure consistent exposure to the therapeutic interventions. Group A received Mulligan mobilization combined with passive modalities such as transcutaneous electrical nerve stimulation (TENS) and thermotherapy. Group B was treated using PNF techniques alongside the same passive modalities.

Results: Within-group analysis revealed a highly significant reduction in NPRS scores over time in both groups ($P < 0.0001$). However, at the six-week follow-up, Group A demonstrated significantly greater improvements in shoulder mobility compared to the PNF group, with statistically significant gains observed in flexion ($P = 0.010$), extension ($P = 0.011$), abduction ($P = 0.001$), internal rotation ($P = 0.003$), and external rotation ($P = 0.003$).

Conclusions: Both interventions significantly reduced pain levels. However, the Mulligan mobilization group achieved greater improvements in shoulder ROM, suggesting enhanced long-term functional benefits.

Keywords: Frozen shoulder, Mulligan Mobilization, PNF, Pain, ROM

Use of Electric Field for Biofilm Removal from Implants

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Introduction: New methods for biofilm removal are being studied. One new method involves using an electric field for biofilm removal. The use of electrolytic cleaning acts on the adhesion forces of the biofilm to surfaces, with several studies showing promising results in decontaminating and reintegrating the implant into bone. This study aims to evaluate the impact of a new decontamination device that uses an electric field to remove biofilm from implants.

Materials and Methods: Three implants affected by peri-implantitis were selected for the study. After treatment, the implants were examined using Scanning Electron Microscopy (SEM).

Results: None of the three samples showed microbial biofilm in the area of application, while the rest of the observed surface was covered with microbial biofilm, exhibiting a heavily thickened bacterial population.

Conclusions: The prevention and early treatment of peri-mucositis and peri-implantitis are essential for maintaining the implant, thus preserving both hard and soft surrounding tissues. Technological innovations are providing electrolytic devices that act not only on the microbial population but also on the adhesion of biofilm to the implant surface, with promising results for a new and valuable therapeutic opportunity.

Keywords: electric field, biofilm, implants, peri-implantitis, electrolytic cleaning, decontamination, SEM, microbial adhesion, innovation, therapy.

Delayed Development of Supernumerary Teeth (D.D.S.T.)

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Introduction: Supernumerary teeth (D.D.S.T.) are a rare, asymptomatic occurrence that most often affects the mandibular premolars and typically appears around the ages of 11-13. Managing these teeth remains a challenge to avoid possible interference with the surrounding tissues.

Case Presentation: Patient A.M., 8 years old, during clinical and radiological examination, did not show any problems, except for the early eruption of tooth 24. One year later, the patient returned with evidence of insufficient space for tooth 23. A panoramic X-ray confirmed the full presence of the permanent dentition. An orthodontic appliance was applied to create space for tooth 23. After 16 months, no signs of eruption for tooth 23 were observed, despite the creation of the necessary space. The panoramic X-ray revealed the presence of five supernumerary teeth: one in the maxilla near tooth 23, and two on each side near the roots of the mandibular premolars. The supernumerary tooth in the maxilla was extracted. Five months later, passive eruption of tooth 23 occurred. As for the extra teeth in the mandible, it was decided to monitor them over time due to their position, the patient's age, and the technical difficulty for the surgeon. Radiological follow-ups have continued for six years to monitor the development of the supernumerary teeth.

Discussion: Supernumerary teeth are usually discovered by orthodontists during radiological examinations. Two options exist in these cases: immediate extraction or monitoring under observation. Studies have shown that as long as these developing teeth do not cause problems in the area, extraction may be avoided. 3D imaging can aid in a more precise diagnosis.

Conclusions: The management of D.D.S.T. is associated with the risk/benefit ratio between extraction and maintaining the teeth under observation through radiological examinations.

Keywords: supernumerary teeth, D.D.S.T., delayed eruption, mandibular premolars, maxilla, orthodontics, radiology, extraction, monitoring, 3D imaging.

Infection Control Procedures During Endodontic Treatments in Dental Practices

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Introduction: Infection control in endodontic practices is directly related to the protection of patients from acquired infections and the prognosis of endodontic treatments. However, there is a lack of information regarding how these practices are implemented in dental offices in Albania.

Objective: The objective of this study was to assess the implementation of infection control procedures during endodontic treatments by dental practitioners in Albania.

Methods: This is a cross-sectional study conducted in Tirana in 2023. Dentists completed a questionnaire that included 25 questions related to infection control measures during endodontic treatments. The questionnaire was piloted with 25 subjects and corrected before redistribution. The study was approved by UMT, FMD, Department of Therapy. Participation was voluntary, anonymous, and clinics were selected based on convenience sampling. Data were analyzed using SPSS 26 software through descriptive tests: Chi-square, Pearson, and ANOVA, with a significance level of $p<0.05$.

Results: The study included 160 dentists, with 11.3% reporting the use of rubber dams during endodontic treatments. 93% used sodium hypochlorite, 85% used calcium hydroxide paste, and only 6.9% disinfected the gutta-percha cone. A significant correlation was found between the place of residence and infection control measures. No significant correlation was found between gender, education, or specialization type and infection control procedures.

Conclusion: In our study, we found that the majority of dental practitioners had a positive approach toward infection control measures during endodontic treatments. However, this aspect needs improvements in the future.

Keywords: Infection Control, Endodontics, Dental Practice, Albania, Rubber Dam, Sodium Hypochlorite, Gutta-Percha, Disinfection, Cross-Sectional Study, Questionnaire.

Clinical Performance of Resin-Modified Glass Ionomer Cements (RMGIC) in Cervical Lesion Restorations - A 2-Year Clinical Evaluation

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Study Objective: To evaluate the 2-year clinical performance of resin-modified glass ionomer cements (RMGIC) in the restoration of cervical lesions.

Materials and Methods: A total of 205 cervical fillings were performed: 115 (56%) with GIC (Photac Fill LC) and 90 (44%) with composite resin (Tetric) in 67 patients aged 16-72 years. Each patient received 1-4 restorations. Of the RMGIC, 93 fillings were placed in carious lesions, and 22 in non-carious lesions. For composite resin (CR), 76 fillings were placed in carious lesions, and 14 in non-carious lesions. The clinical evaluation of the restorations was performed using the USPHS (United States Public Health Survey) criteria. The clinical assessment was conducted through clinical examination using a probe and mirror. Data analysis was carried out using the McNemar test, using the SPSS statistical package. A significance level of $p < 0.05$ was considered.

Results: After 2 years, 3 composite resin fillings had fallen out, and regarding durability, RMGIC restorations demonstrated very good performance with a significant $p = 0.029$. A significant difference was also observed concerning secondary caries ($p = 0.033$), where RMGIC fillings showed very high performance. In the first week, 5 patients (12.2%) with CR fillings experienced postoperative sensitivity to cold. After three weeks, only one patient retained sensitivity. Patients with cervical glass ionomer fillings did not report postoperative sensitivity. No significant changes were noted regarding other indicators.

Conclusion: RMGIC is an effective restorative material for cervical carious and non-carious lesions (abrasion, erosion, abfraction).

Keywords: RMGIC, cervical lesions, restorations, composite resin, clinical performance, sensitivity, durability, USPHS criteria, secondary caries, SPSS.

Temporomandibular Joint Disorders: Diagnostic and Therapeutic Aspects

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Introduction: Neuromuscular gnathology, originating from gnathology, focuses on the diagnosis and treatment of individuals with temporomandibular joint (TMJ) disorders, emphasizing the neuromuscular components of the stomatognathic system in addition to the articular components. Temporomandibular dysfunction (TMD), also known as the temporomandibular pain dysfunction syndrome, is a complex condition that presents with a wide range of symptoms and signs. These symptoms can be categorized into several groups, including joint pain, muscular pain, intraoral pain, auricular pain, tension-type pain, vertigo, facial pain, and cervical pain.

Methods: The diagnosis of TMD is based on a detailed clinical assessment. After identifying signs and symptoms, cranio-mandibular electrognathomyographic analysis is used to provide objective data about the patient's condition. This method records and stores data over time, allowing comparisons to be made throughout the rehabilitative therapy, thus documenting the evolution of the stomatognathic structures. The collected data can also be used in medico-legal contexts to support the effectiveness and outcomes of treatment.

Results: In the last decade, there has been a noticeable increase in the number of patients affected by TMD, likely due to the growing public awareness of the condition and the importance of seeking dental care when the first symptoms appear. However, TMD often becomes chronic due to its complexity, making diagnosis and treatment challenging. Frequently, symptoms are not fully resolved, which may lead to more invasive interventions, such as endoscopic TMJ surgery. Furthermore, patients often experience psychological distress and anxiety, which can affect their adherence to treatment and exacerbate the symptoms.

Conclusions: Temporomandibular dysfunction is a multifactorial condition that requires a comprehensive diagnostic and therapeutic approach. Early recognition and intervention are essential to prevent chronicity and improve outcomes. Neuromuscular gnathology plays a key role in understanding and treating TMD. However, due to the complexity of the disorder, in some cases, surgical interventions may be necessary. Psychological factors should also be addressed, as they can significantly influence patient compliance with treatment and the severity of symptoms.

Keywords: Temporomandibular joint disorders, neuromuscular gnathology, cranio-mandibular analysis, TMD diagnosis, rehabilitative therapy, TMJ surgery, psychological factors

Skeletal Anomalies and Orthodontic Surgery Treatment in Adult Patients

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Introduction: Occlusal discrepancies and moderate and severe dental and facial deformities in adults usually require a combined treatment with orthodontic and orthognathic surgery to achieve optimal, stable, functional, and esthetic results

Objective: To provide a clinical and statistical description of the treatment of skeletal anomalies through orthodontic and orthognathic surgery.

Material and Methods: This is a clinical statistical study with descriptive nature. For this study we took in consideration no=60 patients, aged 17-35 years with dentoskeletal anomaly who underwent surgical orthodontic treatment. For all the patients were done all the necessary examination such as intraoral and extraoral examinations, supplementary examination, panoramic x-ray, lateral x-ray for cephalometric analysis and all the necessary exams for surgery. Treatment plan was made after the interdisciplinary consult between the orthodontist and the maxilla facial surgeon. All the data were analyzed with SPSS 21.0 program.

Results: In our study, skeletal class III malocclusion with mandibular prognathia resulted the most frequent skeletal anomaly. (78% of patients). Bimaxillary orthognathic surgery with maxillary advancement and set back mandibular surgery resulted the most used surgical technique.

Conclusion: Treatment of jaw discrepancies in adult patients is difficult; however, an orthodonticsurgical approach for the correction of this alteration can provide an optimal and stable result over time.

Keywords: skeletal anomalies, orthodontic surgery, adult patients, malocclusion, mandibular prognathia, bimaxillary surgery, maxillary advancement, cephalometric analysis, interdisciplinary treatment, SPSS.

Bone Augmentation and Dental Implants

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Introduction: Guided Bone Regeneration (GBR) using synthetic bone grafts, absorbable membranes, and platelet-rich fibrin (PRF) has been shown by many studies to significantly impact the stabilization and survival of dental implants in patients with insufficient bone and anatomical problems.

Objective: To study the effects of GBR on the short-term stabilization and survival of dental implants in patients with insufficient bone support or anatomical issues.

Materials and Methods: All patients who underwent dental implant placement from September 2023 to September 2024 were included in the study. Patients with bone defects ranging from 1 mm to 8 mm underwent GBR (synthetic bone graft, absorbable membrane, and platelet-rich fibrin (PRF)) during the implant procedure, and were considered part of the study group. Patients with bone defects smaller than 1 mm, for whom GBR was not necessary, were considered part of the control group (non-GBR). In each case, periodontal probe measurements were taken to assess bone support. Bone support was re-evaluated after 6 months in both groups during the second intervention when the healing abutment was placed. The T-test for equality of means was used to calculate the difference in mean depth (mean depth difference - MDD) to evaluate vertical bone support values between baseline and the 6-month follow-up in each group (with GBR and without GBR) and between groups. The mean difference between groups is presented with a 95% confidence interval [95% CI]. A p-value of ≤ 0.05 was considered statistically significant.

Results: A total of 40 implants were studied, 20 in the GBR group and 20 in the non-GBR group. In the GBR group, a significantly larger initial vertical defect was found intraoperatively (on the first day of the procedure) compared to the non-GBR group (4.46 ± 2.76 vs $- 0.27 \pm 0.22$); (MDD) = -4.19 [-5.44 – (-2.94)] $p<0.001$. At the end of the six-month follow-up, new bone formation around the implant was observed in the GBR group, showing a significantly smaller bone defect compared to the initial measurement (0.39 ± 0.43 vs 4.46 ± 2.76 with MDD = -4.07 mm [-5.37 to -2.08] $p<0.08$). In the sixth month follow-up, no statistically significant differences were found between the GBR and non-GBR groups (-0.39 ± 0.43 vs -0.27 ± 0.22, MDD = -0.19 [-0.40 - 0.03] $p=0.10$), supporting the new bone formation in the GBR group. One implant loss occurred in each group.

Conclusions: All dental implants placed in both the GBR and non-GBR groups showed stability in the peri-implant bone and similar implant survival. The use of GBR is essential in stabilizing dental implants in patients with insufficient bone support.

Keywords: Dental implant, bone augmentation, synthetic bone graft, absorbable membrane.

Piezosurgery in Oral and Orthognathic Surgery

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Introduction: Piezosurgery is a relatively new technique, with precise and accurate osteotomy being crucial in oral and maxillofacial surgery.

Objective: The aim of this presentation is to compare the technique and results obtained from surgical interventions performed for the management of Class III malocclusion patients.

Materials and Methods: For this presentation, 20 cases operated with orthognathic surgery at the Maxillofacial Surgery Service of Amavita Hospital from 2022 to 2024 were utilized. Of these, 10 cases were fully operated using piezosurgery, and 10 cases were operated using a traditional bur technique.

Results: In patients operated with piezosurgery, edema, hematoma, and postoperative complications were reduced, but the surgical time and cost remain disadvantages of this technique.

Conclusions: In conclusion, piezosurgery is a superior technique compared to the traditional bur osteotomy technique.

Keywords: Piezosurgery, Malocclusion, Orthognathic Surgery

Defects of the Lip and Palate: Multidisciplinary Treatment in Adult Patients

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Introduction: Congenital defects of the lip and palate account for nearly half of craniofacial anomalies, with a prevalence ranging from 1 in 500 to 1 in 2000 births, depending on geographic location and ethnic background. The treatment of these patients begins at birth and continues into adulthood, requiring coordination among various specialists in the OMF region.

Objective: The aim of this study is to provide a clinical and statistical description of our multidisciplinary treatment protocol for adult patients with cleft lip and palate.

Materials and Methods: This study analyzed 30 adult patients (ages 17–24) with cleft lip, palate, or both, who were treated during childhood for primary closure of the defect. All patients underwent intraoral and extraoral examinations, as well as supplementary exams such as panoramic X-rays, lateral cephalometric X-rays, and 3D scans in some cases. In collaboration with the orthodontist, a treatment plan was developed for the aesthetic and functional rehabilitation of these patients. Data were analyzed using the SPSS 21.0 system. This is a clinical and statistical descriptive study.

Results:

- 28% of patients with cleft lip and palate underwent orthodontic-surgical treatment.
- Bimaxillary orthognathic surgery was the most commonly used surgical treatment.
- Orthodontic treatment and prosthetic replacement of missing teeth in the defect area were applied in 30% of patients.
- 30% of patients received only orthodontic treatment, and 12% did not undergo any treatment.
- Supplementary surgery, such as scar revision or septorhinoplasty, was performed 6 months after orthognathic surgery.

Conclusions: The treatment of patients with congenital cleft lip and palate defects is challenging and often presents a challenge for the maxillofacial surgeon. However, a multidisciplinary treatment approach ensures excellent aesthetic and functional results for the patient.

Keywords: cleft lip, cleft palate, congenital defects, multidisciplinary treatment, adult patients, orthognathic surgery, orthodontic treatment, prosthetic replacement, maxillofacial surgery, SPSS.

Prevalence of Dehiscence and Fenestration in Adult Patients Based on CBCT

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Introduction: Dehiscence and fenestration are vertical defects in the alveolar bone, which can only be detected through 3D radiological examinations such as Cone Beam Computed Tomography (CBCT).

Objectives: The main objective of this study is to evaluate the prevalence and characteristics related to the bucco-lingual position of dehiscence and fenestration in adult patients.

Methods: This study analyzed CBCT scans of adult patients who underwent this examination for mandibular molar extractions and impacted maxillary canines, as well as before implant placement. The inclusion criteria for the study, besides being >18 years of age, were the presence of 12 maxillary and mandibular anterior teeth.

Results: A total of 66 patients (33 females and 33 males) were included in the study, with a total of 780 anterior teeth.

- Dehiscence prevalence:
  The prevalence of dehiscence was significantly higher in the maxilla (14.6%) compared to the mandible (10.3%) (p=0.04).
- Fenestration prevalence:
  Although the prevalence of fenestration was higher in the maxilla (12.6%) compared to the mandible (11%), this difference was not statistically significant (p=0.54).
- Bucco-lingual aspect:
  A significant difference (p=0.03) was found in the bucco-lingual aspect of the maxilla (18.7%) compared to the buccal aspect of the mandible (11.2%).

Conclusion: Alveolar bone integrity can be compromised by various factors, leading to vertical defects such as dehiscence and fenestration, which, as shown by the results of this study, have a high prevalence. CBCT provides detailed examination of these defects before complex treatments in adult patients.

Keywords: dehiscence, fenestration, alveolar bone defects, cone beam computed tomography, CBCT, adult patients, maxilla, mandible

Impact of Non-Surgical Periodontal Therapy in Type 2 Diabetic Patients: An Update

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Introduction: Periodontal disease and diabetes mellitus are two chronic conditions with a high prevalence in the global population and a significant impact on public health. Clinical studies suggest a bidirectional relationship between these two diseases, where periodontal disease can worsen glycemic control, and diabetes can predispose individuals to the exacerbation of periodontal disease. Recently, it has been proposed that the treatment of periodontal disease may improve glycemic parameters in patients with type 2 diabetes.

Objective: A literature review on the impact of non-surgical periodontal therapy on HbA1c levels in patients with type 2 diabetes mellitus.

Methods: A literature search was conducted in various scientific databases (PubMed, WoS, and Cochrane). The period included was from January 2000 to February 2024, restricted to English-language publications. RCTs that investigated the effect of non-surgical periodontal therapy in patients with type 2 diabetes mellitus for more than 3 months and evaluated HbA1c levels were included in the search.

Results: Based on the set criteria, seven studies with 692 patients were included in the analysis. In the groups treated with non-surgical periodontal therapy, the reassessment after 3 months showed significant changes in HbA1c levels (-0.32%, 95% CI, -0.74% to -0.1%, $p<0.0001$). In the control groups, which did not receive treatment, the changes in HbA1c levels were not significant (-0.22%, 95% CI, -0.44% to 0.09%, $p=0.11$).

Conclusions: Non-surgical periodontal therapy may lead to a reduction in HbA1c levels in patients with type 2 diabetes, measured 3 months after the intervention. Despite the limited number of studies and evidence on this issue, there is a partially positive trend in improving glycemic parameters following periodontal intervention in the literature.

Keywords: non-surgical periodontal therapy, type 2 diabetes mellitus, HbA1c, glycemic control, periodontal disease, randomized controlled trials

Guided Surgery in Challenging Cases: Clinical Case

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Introduction: While prosthetic restorations have become commonplace in dental clinics, implant rehabilitation is on the rise. The success of implant therapy largely depends on planning and expertise. However, technological advances, such as guided implantology, simplify even complex cases. This presentation highlights a case where guided implantology made the treatment more efficient and cost-effective.

Case Presentation: The patient underwent orthodontic therapy to correct alignment and reduce overbite. Tooth 1.4 was missing, and an implant was chosen to restore occlusion and symmetry. The main challenge was the limited mesio-distal space, which increased the risk of iatrogenic errors. Thanks to guided implantology and a custom surgical guide, implant placement was planned and executed with 99.9% accuracy.

Discussion: Being a relatively aesthetic area, exposed in the smile line, and with the patient being young, the coronal prosthetic part is crucial for harmonizing with the other dental elements. In this case, the disadvantage was the early extraction of the tooth, which resulted in bone deficiency in that area. Therefore, the inclination of the implant had to be positioned in a way that would camouflage this defect. Additionally, implant inclination was challenging due to the limited space between adjacent dental elements.

Comments and Conclusions: Guided implantology represents the next phase in the evolution of implantology, significantly reducing error rates and increasing both success rates and patient comfort.

Keywords: Guided implantology, implant surgery, dental implants, surgical guide, bone deficiency, prosthetic restoration, mesio-distal space, implant inclination, orthodontic therapy.

Antibiotic Resistance in the Neonatal Intensive Care Unit

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Introduction: Antibiotic resistance is a major public health threat. Many bacteria exhibit resistance to multiple antibiotics. Antimicrobial therapy is a common and daily practice in Neonatal Intensive Care Units (NICU), with antibiotics being the most commonly used medications. Ineffective empirical antibiotic therapy is associated with an increased risk of morbidity and mortality. Organisms that are resistant to multiple antimicrobial agents (multidrug-resistant organisms) are especially problematic. Gram-positive pathogens are the most common cause of infections compared to gram-negative pathogens and fungi. Staphylococcal species, mainly *S. epidermidis* and *S. aureus*, cause approximately 60-70% of infections. Gram-negative bacilli cause approximately 15-20% of infections, most often late-onset sepsis and pneumonia associated with or following mechanical ventilation withdrawal. *Candida spp.* cause approximately 10% of infections in NICU. The widespread use of antibiotics in NICU is closely related to the fact that newborns are a high-risk group for infections, especially those with risk factors such as prematurity and low birth weight, which increase the need for prolonged hospital stays and invasive procedures. Most immune mechanisms are not yet activated at birth, making neonates immunodeficient compared to adults. Since fetal immunity develops during pregnancy, this immunodeficiency is even more pronounced in premature infants. As a result, survival, particularly for premature infants, often depends on antibiotics.

Resistance Mechanisms: Resistance mechanisms for both bacteria and fungi are characterized by three main mechanisms. These include:

1. The acquisition of an enzyme that alters the structure of an antibiotic, making the agent unable to bind to its target;
2. Mutations in the bacterial target site that prevent antibiotic binding (e.g., mutations in penicillin-binding proteins, such as those involved in ergosterol biosynthesis); or
3. Changes in the uptake via multidrug efflux pumps that remove antibiotics from the microorganism or porins that block antibiotic entry into bacterial cells.

Antimicrobial Resistance: Antimicrobial resistance occurs when bacteria, viruses, fungi, and parasites no longer respond to antimicrobial medications. As a result, antibiotics and other medications become ineffective, making infections harder to treat, which increases the risk of disease spread, severe forms of infection, disability, and death.

Antibiotic Resistance: Antibiotic resistance is a natural process that occurs over time due to genetic changes in pathogenic microbes. Human activity accelerates this process through the misuse or overuse of antibiotics. The greatest concern is the resistance of certain microbes to multiple antibiotics simultaneously. Both the frequency with which antibiotics are administered and the potential undesirable consequences of antibiotic administration vary between preterm infants and those born at full term. The main causes of antibiotic resistance remain inadequate

infection control practices and the misuse of antibiotics, including unnecessary use, inappropriate choice of antibiotics, and unnecessarily prolonged administration. These organisms may be transmitted to infants if infection control practices are not followed, or they may emerge from exposure to antibiotics. Therefore, meticulous infection prevention—such as hand hygiene, contact precautions, and selective decolonization—and the careful administration of antibiotics are important strategies to minimize drug resistance in the NICU.

Keywords: antibiotics, infection, antibiotic resistance, NICU

PK Deficiency (DPK): A Severe Form of Congenital Hemolytic Anemia Caused by a Heterozygous Mutation in the PKLR Gene and Therapeutic Challenges in a Pediatric: Clinical Case

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Introduction: Pyruvate Kinase Deficiency (PKD) is a rare, inherited (autosomal recessive) disorder that affects an erythrocyte membrane enzyme and causes chronic hemolysis. It is the second most common erythrocyte enzyme disorder and the most frequent cause of chronic hemolytic anemia. PKD is characterized by early normocytic/macrocytic anemia, reticulocytosis, and pronounced hyperbilirubinemia. Mutations in the PKLR gene lead to reduced ATP production in erythrocytes, causing their premature destruction.

Objective: The importance of early diagnosis and management of congenital hemolytic anemia, especially in the case of PKD, is essential for improving treatment and the quality of life of patients, as well as preventing complications that may arise during the course of the disease.

Case Presentation: This paper presents the case of a 2-year-old girl with PKD and severe hemolytic anemia since birth, who presented with pronounced hyperbilirubinemia and required exchange transfusion on the 10th day of life. Genetic analysis revealed two heterozygous mutations in the PKLR gene (c.1373G>A and c.224T>C), which are classified as possibly pathogenic. Currently, the patient is transfusion-dependent. Due to frequent transfusions, her ferritin level is 1339.03 ng/mL, with total bilirubin at 13.11 mg/dL and indirect bilirubin at 12.3 mg/dL, along with elevated LDH and hepatic transaminases. Hepatosplenomegaly and cholelithiasis have contributed to recurrent viral and bacterial infections, requiring frequent hospitalization for the treatment of severe anemia and associated complications.

Conclusions: This case highlights the importance of early diagnosis and multidisciplinary care in the management of PKD. Genetic counseling for the population helps in early prevention of the disease. Treatment strategies include transfusional therapy, iron chelation, splenectomy, cholecystectomy, and monitoring of secondary complications, which are essential for improving the quality of life for patients with PKD. Advanced therapies, such as mitapivates and gene therapy, are promising for the future and may offer more effective treatment options and prevention of long-term complications. This case requires continuous follow-up to minimize the consequences and improve the life expectancy and quality of life of patients with this disease.

Keywords: PKD, PKLR gene, iron overload, hepatosplenomegaly, erythrocyte enzyme disorder, mitapivates, pediatric hematology.

Hemophilia and Vaccination in Children

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Introduction: Hemophilias are hereditary bleeding disorders, primarily inherited in an X-linked recessive manner, which mostly affect males, although females can be carriers. Hemophilias are caused by a deficiency of clotting factor VIII (Hemophilia A) and factor IX (Hemophilia B). Clinically, there is no distinction between the two main forms, Hemophilia A and B, but laboratory tests reveal the absence of one of the blood clotting factors. The first signs of the disease can be observed in newborns, where intradermal hematomas or muscle hemorrhages may occur after vaccination. The role of vaccination is well established in preventing infectious diseases. Children with hemophilia can and should be vaccinated, but often family members or family doctors experience "panic" before vaccinating a child with hemophilia. There are two concerns in these cases: the fear of hemorrhage following the injection and the risk of developing inhibitory antibodies as a result of immune stimulation.

Objective: To raise awareness among family doctors about the vaccination of children with hemophilia and the referral of hemophilic patients.

Methods: A retrospective study of hemophilic children presenting with post-vaccination intramuscular hemorrhage, a review of literature on similar cases, and presentation of some clinical cases managed in our service.

Results: At the Hemophilia Center, at least three children were diagnosed with Hemophilia A after receiving vaccines before six months of age. Only two of them had a family history of Hemophilia A. Two presented with a severe deficiency of Factor VIII, while the third had a mild deficiency. As for the risk of developing inhibitory antibodies due to immune stimulation, based on literature, this may be linked to factors that are not related to genetic predisposition (just like in cases of infections or surgery).

Conclusion: Children with hemophilia should be regularly vaccinated according to the vaccination schedule. Subcutaneous administration is preferred. When intramuscular vaccination is recommended, the use of finer needles is advised, and the site should be compressed for 5 minutes without rubbing, with ice applied before and after the injection. In cases with a factor deficiency of less than 1%, one dose of Factor VIII replacement can be administered an hour before vaccination. Since the risk of muscle hemorrhage after vaccination is eminent in patients with a family history of coagulopathy, it is crucial for pediatricians and family doctors to obtain a complete family history. Immediate referral of children with post-vaccination hematomas to the Hemophilia Referral Center at QSUNT for diagnosis is equally important.

Keywords: Hemophilia, vaccination, children, bleeding disorders, Factor VIII deficiency, intramuscular hemorrhage, immune stimulation, post-vaccination care.

Real Data on Hemophilia in Albania

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Introduction: Hemophilia is a genetic coagulation disorder, rarely acquired, with a frequency of 1 in 10,000 births, with 1 in 5,000 births for Hemophilia A and 1 in 50,000 births for Hemophilia B. In the United States, approximately 18,000 people are diagnosed with Hemophilia. Every year, around 400 babies are born with Hemophilia. In Canada, 2,500 people have Hemophilia A, and around 500 have Hemophilia B.

Objectives: Our study aims to provide the latest data regarding adult Hemophilia in our country, specifically for Hemophilia A, Hemophilia B, acquired Hemophilia, the types of Hemophilia according to factor levels, and the presence of inhibitors.

Methodology: For data collection, we used the database at the Hemophilia Center, part of the Coagulopathy Center located at the University Hospital Center "Mother Teresa," where all patient data is documented: registration, diagnosis, complications, treatment, and lifelong follow-up.

Results: Currently, 218 adult patients with Hemophilia are registered in our country, with 181 (83%) patients diagnosed with Hemophilia A and 37 (17%) with Hemophilia B. Three patients were diagnosed with acquired Hemophilia A.

- 52.7% of patients present with the severe form of the disease. Of these, 100 patients have severe Hemophilia A (Factor VIII level <1%), and 15 patients have severe Hemophilia B (Factor IX level <1%).
- 20% of patients have a moderate form, with 30 patients having moderate Hemophilia A (Factor VIII level 1-5%) and 14 patients with moderate Hemophilia B (Factor IX level 1-5%).
- The mild form represents 27.6%, with 51 patients diagnosed with mild Hemophilia A (Factor VIII level >5%) and 8 patients diagnosed with mild Hemophilia B (Factor IX level >5%).
- There are 2 cases with inhibitors in Hemophilia A.
- Three patients were diagnosed with acquired Hemophilia A, two of whom are in therapeutic remission, while one is in severe form.

Conclusion: The complexity of these patients has led to the establishment of a unique Hemophilia Center in our country. Ongoing education for the prevention of hemorrhages and psychosocial support is crucial. Early detection without complications, reduction of disability, prophylactic treatment as needed, and challenges such as gene therapy and treatment with Emicizumab will enable individuals with Hemophilia to live as others do.

Keywords: Hemophilia, Albania, Hemophilia A, Hemophilia B, acquired hemophilia, factor levels, inhibitors, genetic coagulation disorder, patient registry, treatment outcomes.

The Evolution of Zirconium Oxide Generations in Dental Prosthetics

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Introduction: Zirconium oxide is one of the most preferred materials for dental professionals in fixed prosthetics in recent years. Zirconium oxide-based restorations have undergone continuous evolution both in terms of the material's structure and laboratory processing techniques, creating confusion among clinicians regarding the selection of the appropriate material depending on different clinical cases. The purpose of this presentation is to inform clinicians about the latest advancements regarding the evolution of zirconium oxide generations based on their mechanical and optical properties.

Methods: Through a literature review and clinical case discussions, we examine the updates in the classification of zirconium oxide generations over the years, the changes in their mechanical and aesthetic properties, and the laboratory techniques for sintering and processing these materials.

Results: The concentration of yttrium oxide in the zirconium structure is one of the main factors that determine the classification and properties of this material, directly affecting its strength and aesthetics.

Conclusion: Zirconium oxide restorations are not all the same. The selection of the type of zirconium for a specific clinical case depends on the concentration of yttrium oxide, the laboratory sintering methods, and processing techniques, all of which directly influence the longevity and success of a prosthetic restoration.

Keywords: Zirconium oxide, dental prosthetics, fixed restorations, yttrium oxide, mechanical properties, optical properties, sintering techniques, material evolution, aesthetic properties.

Discovery of Skeletal Pattern in Class III Malocclusion in Growing Children Using Lateral Cephalometric Radiography

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Introduction: The skeletal pattern of Class III malocclusion influences the accuracy of diagnosis and treatment planning.

Objectives: To identify the skeletal pattern and gender-related differences in Class III malocclusion in growing children.

Methods: Angular and linear measurements taken from lateral cephalometric radiographs of 60 patients with skeletal Class III malocclusion were compared with those of 60 patients with skeletal Class I malocclusion. To test the significance of differences between averages, an independent samples t-test was used. The significance level was set at $p = 0.05$.

Results: Significant differences were observed in the sagittal position of the maxilla, with SNA ($p=0.007$), ANB ($p=0.004$), and Wits Index ($p=0.021$). A significant difference was also found in the vertical plane, measured by the mandibular plane angle ($p=0.036$). Dental compensations related to skeletal discrepancies were observed from retroclination of the mandibular incisors ($p=0.002$). Male patients had larger linear dimensions of the maxilla and mandible compared to female patients.

Conclusion: The skeletal pattern is primarily influenced by the sagittal position of the maxilla, which is retruded and has smaller linear dimensions. Additionally, gender affects the linear measurements of the maxilla and mandible.

Keywords: Lateral cephalometric radiography; malocclusion; skeletal pattern.

The Connection Between Periodontal Disease and Diabetes: A Dangerous Cycle

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Introduction: Periodontal disease and diabetes are two chronic conditions that have a significant impact on public health. Studies have shown a strong bidirectional link between them: diabetes increases the risk and severity of periodontal disease, while the inflammation caused by periodontitis negatively affects glucose control, worsening diabetes. Despite this well-documented connection, awareness of the importance of oral care in diabetes management remains low, both among patients and healthcare professionals.

Objectives: This presentation aims to:

- Explain the biological mechanisms linking periodontal disease with diabetes.
- Analyze the impact of chronic inflammation on glucose control.
- Discuss best practices for the prevention and treatment of periodontitis in diabetic patients.
- Highlight the importance of an integrated approach between dentists and physicians for more effective management of these diseases.

Methods: This presentation is based on a review of the latest literature on the connection between diabetes and periodontal disease, including clinical studies, meta-analyses, and guidelines from international health organizations. Key pathological mechanisms will be analyzed, and clinical cases will be presented to illustrate the impact of periodontal treatment on improving diabetes control.

Results:

- Impact of Diabetes on Periodontal Health: Hyperglycemia increases inflammation levels and damages immune defense mechanisms, accelerating the progression of periodontal disease.
- Impact of Periodontal Disease on Diabetes: Periodontitis causes prolonged systemic inflammation, which negatively affects insulin sensitivity and worsens glycemic control.
- Clinical Management: Studies show that treating periodontitis improves HbA1c levels, helping to stabilize diabetes. Regular oral care and preventive strategies play a crucial role in reducing complications of both diseases.

Conclusion: Since the relationship between diabetes and periodontal disease is bidirectional and mutually exacerbating, it is essential that the management of one of these conditions includes treatment for the other. Dentists should be aware of the impact of diabetes on oral health and encourage patients to improve their oral care, while physicians should include periodontal assessment in diabetes management protocols. A multidisciplinary approach will contribute to improving overall health and quality of life for patients with diabetes.

Keywords: Diabetes, periodontal disease, oral health, glycemic control, inflammation, multidisciplinary approach.

Interceptive Orthodontics: Its Importance in Daily Practice

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Introduction: Interceptive orthodontics is a branch of orthodontics focused on the early diagnosis and treatment of dentofacial anomalies in children, with the goal of preventing the development of more serious issues in the future. This treatment is typically recommended for children between the ages of 6 and 12, aiming to guide the proper development and growth of the jaws.

Development: The implementation of interceptive orthodontics in daily practice offers several advantages:

- Prevention of Severe Anomalies: Early treatment can correct problems such as crossbites, dental overcrowding, and skeletal abnormalities, reducing the need for more complex treatments later on.
- Improvement of Aesthetics and Oral Function: Early correction of the positioning of teeth and jaws helps improve the aesthetics of the smile and the overall oral function.
- Reduction in Treatment Time and Costs: By addressing issues at an early stage, longer and more expensive treatments in the future can be avoided.

Conclusions: An early approach to orthodontic treatment helps guide jaw growth, correct bad oral habits, and create adequate space for the eruption of permanent teeth. This method reduces the need for longer and more complex treatments later, improving both oral function and aesthetics for the patient. The importance of interceptive orthodontics in daily practice extends not only to the clinical aspect but also to the positive impact on the self-esteem and overall well-being of young patients.

Keywords: Interceptive orthodontics, early diagnosis, dentofacial anomalies, children, jaw growth, crossbite prevention, dental overcrowding, treatment cost reduction.

Literature Review: Digital Flow in Removable Complete Dentures via Piezographic Measurement

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Introduction: One of the primary factors influencing the retention and stability of complete removable dentures is the improper alignment of artificial teeth in the neutral zone and inadequate modeling of the supporting surface. An innovative approach in the realm of removable dentures is the use of CAD/CAM technology to design dentures while respecting the neutral zone. The aim of this study is to review existing literature on CAD/CAM dentures and the piezographic technique.

Methods: A search was conducted in PubMed using the following keywords: CAD CAM dentures, piezography, tertiary measurement, digital dentures, neutral zone.

Discussion: Technology through CAD/CAM (Computer-Aided Design/Computer-Aided Manufacturing) has revolutionized the field of dental prosthetics. This technology involves using software for design and virtual assembly. The neutral zone is scanned and integrated into the digital workflow of removable denture prosthetics. This phase is especially important in the construction of fully personalized removable dentures for patients. The aim is to achieve a precise fit, improved retention, and enhanced stability.

Results: The number of existing studies on this topic is limited. While there are several case reports, large-scale clinical studies are lacking.

Conclusions: Further studies are needed to assess the effectiveness of incorporating the neutral zone in the digital flow of removable dentures, both through clinical evaluations and patient satisfaction assessments.

Acknowledgments: This literature review was conducted as part of a project funded by the National Agency for Scientific Research and Innovation (AKKSHI).

Keywords: Removable complete dentures, CAD CAM, neutral zone, retention, stability.

This review highlights the importance of integrating modern digital technology, such as CAD/CAM and piezography, into the design of removable dentures to improve retention and stability. However, more extensive clinical trials are necessary to validate the benefits of this approach, especially in terms of patient satisfaction and long-term outcomes.

Biomolecules with Regenerative Potential for Periodontal Tissues - Growth Factors, Melatonin and Hyaluronic Acid

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Introduction: Periodontal tissue regeneration takes on particular importance in the context of a high prevalence of periodontal disease in the adult population and as a consequence of preventing tooth loss at an early age. Although the periodontium itself possesses high regenerative capabilities, the regenerative process is complex and challenging in clinical practice. Current clinical applications include the use of autologous and allogeneic grafts in order to regenerate periodontal tissues but with biological and economic costs for the patient.

Purpose: To identify and highlight the possibilities of using biomolecules with regenerative potential for periodontal tissues.

Materials and Methods: In our presentation based on the literature review, we evaluate the regenerative potential of biomolecules such as growth factors, melatonin and hyaluronic acid. The evaluation criteria include the osteogenic potential in the healing process of periodontal bone and soft tissues as well as the method of their local or systemic application.

Conclusions: The use of these biomolecules can significantly improve the regeneration of periodontal tissues and reduce the costs of patient treatment.

Keywords: Biomolecules, periodontal regeneration, growth factors, melatonin, hyaluronic acid, periodontal tissues, osteogenic potential.

Laboratory Diagnostics of Hantavirus Infection in Kosovo

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Introduction: Hantaviruses are transmitted through rodents, and human infection occurs through inhalation of aerosolized particles from their feces and urine. The clinical manifestations include Hantavirus Pulmonary Syndrome (HPS) and Hemorrhagic Fever with Renal Syndrome (HFRS). Diagnosis is primarily based on detecting the virus's RNA or antigens using serological and molecular methods.

Objective: This study aims to analyze the diagnostic methods for Hantavirus infection in Kosovo, based on data from the National Institute of Public Health of Kosovo (IKSHPK) from 2022-2024.

Methodology: Laboratory data from PCR tests and serological methods (ELISA) were analyzed. In 2022, out of 10 PCR tests, all were negative, while 4% of 25 serological tests were positive. In 2023, 27 PCR tests showed a 7% positivity rate, and 4% of 93 serological tests were positive. In 2024, 18 PCR tests yielded a 6% positivity rate, and 5% of 85 serological tests were positive.

Results: The primary diagnostic methods in Kosovo are serological (ELISA) and molecular (RT-PCR). The number of confirmed cases remains low, with the most affected regions being Deçan and Juniku.

Conclusion: Hantaviruses remain a potential threat, and early diagnosis through RT-PCR and ELISA is critical for managing cases. Viral isolation requires high biosafety levels (BSL-3/4).

Keywords: Hantavirus, PCR, ELISA, Laboratory Diagnostics, Kosovo, Hantavirus Pulmonary Syndrome.

Early Disease Detection through Dual-Approach Artificial Intelligence in Medical Imaging and Lifestyle Monitoring

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Introduction: Artificial Intelligence (AI) has emerged as a powerful tool for the early detection of diseases, offering numerous opportunities to identify pathological conditions before clinical symptoms appear. This study explores the dual application of AI in preventive medicine through advanced analysis of medical imaging and continuous monitoring of lifestyle behaviors. Early detection of diseases such as cancer, cardiovascular pathologies, and metabolic disorders remains a critical challenge in modern healthcare, where early treatment significantly improves patient outcomes.

Methods: Our analysis examines how AI systems use both supervised and unsupervised learning approaches to analyze medical images from various scanning modalities (CT, MRI, X-ray, OCT). Supervised learning trains algorithms on labeled data, while unsupervised methods automatically group images into similar clusters, identifying abnormal patterns that may require further clinical investigation. Convolutional Neural Networks (CNNs) have shown great effectiveness in this field, achieving significant accuracy in detecting subtle pathological changes. Simultaneously, the study explores how AI algorithms can analyze continuous data from wearable devices to create personalized health databases and identify abnormal changes in physiological parameters and behaviors, potentially indicating developing health conditions.

Results: Data gathered from a systematic review of 25 articles from an initial pool of 500 papers indicate that AI can be used for early disease detection by classifying medical images and combining them with continuous health monitoring data. AI image analysis has achieved remarkable accuracy in various medical fields. Deep learning methods, especially CNNs, have shown high accuracy rates ranging from 95% to 99% in analyzing medical images, including:

- 95.27% accuracy in detecting diabetic retinopathy
- 98.47% accuracy in diagnosing lung cancer
- 99.16% accuracy in identifying COVID-19 and pneumonia from chest radiographs

In continuous monitoring, machine learning techniques analyzing data from wearable sensors and video images have shown sensitivity up to 98% and specificity up to 99% in cardiovascular applications. Furthermore, integrating data from various modalities, combining imaging information with lifestyle data, significantly improved diagnostic accuracy, as seen in:

- Risk assessment for Type 2 Diabetes (AUC up to 0.954)
- Breast cancer detection (accuracy from 93.3% to 99.3%)

Conclusion: The integration of AI into medical diagnostics signals a major shift toward more personalized and prevention-oriented healthcare. These technologies offer revolutionary potential for early disease detection, but they also raise key concerns regarding privacy and data protection. Therefore, establishing robust ethical frameworks is necessary to incorporate these powerful tools into clinical practice effectively.

Keywords: Artificial Intelligence, Early Disease Detection, Medical Imaging, Lifestyle Monitoring, Convolutional Neural Networks, Preventive Medicine, Personalized Healthcare

Factors Affecting Vaccine Acceptance, Safety, and Efficacy in Adults of Color and White Adults Previously Infected with COVID-19: A Survey-Based Study

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Introduction: Despite the disproportionate impact of COVID-19 on communities of color, vaccine hesitancy may be higher in these populations. Understanding the factors that influence vaccine acceptance and safety concerns is essential for improving vaccination rates and addressing health disparities.

Objective: The objective of this study was to evaluate whether adults of color, previously infected with COVID-19, were more or less likely than white adults to report hesitancy toward the COVID-19 vaccine, as well as concerns regarding its safety and efficacy. The study also explored the influence of social determinants of health.

Methods: Adults aged 18 and older, diagnosed with COVID-19, participated in a survey. Descriptive statistical analyses, Chi-Square tests, and logistic regression models with multiple variables were used to evaluate vaccine hesitancy and concerns about safety and efficacy. Mediation analysis was also conducted to understand how social factors influenced vaccine acceptance.

Results: A total of 482 adults completed the survey. Among the participants:

- Adults of color were more likely to report not receiving the COVID-19 vaccine (cOR=1.8; 95% CI: 1.1-2.9), but this was not statistically significant after adjusting for other factors.
- Adults of color had higher odds of expressing concerns about the safety (aOR=2.3; 95% CI: 1.3-4.0) and efficacy (aOR=2.3; 95% CI: 1.3-4.1) of the vaccine compared to white adults.
- If all participants had a high level of education, 37% of the racial effect on vaccine acceptance would be eliminated.
- If no participants had financial difficulties, 29% of the effect of race on vaccine acceptance would be eliminated.

Conclusions: Among adults who had previously been infected with COVID-19, adults of color did not have lower odds of receiving the vaccine compared to white adults, despite having

higher concerns about its safety and efficacy. Education level and financial hardship had significant impacts, with higher education levels and the absence of financial difficulties reducing the racial disparity in vaccine acceptance.

Keywords: COVID-19, Vaccine Hesitancy, Vaccine Safety, Vaccine Efficacy, Social Determinants of Health, Racial Disparities, Adults of Color, Vaccine Acceptance.

Knowledge Levels of Women and Girls Regarding Breast Cancer, Risk Factors, and Necessary Examinations

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Introduction: Early diagnosis of breast cancer plays a significant role in reducing mortality and morbidity. This study aimed to assess the knowledge of women in the Elbasan region regarding breast cancer and their screening practices through imaging examinations.

Methodology: This is a cross-sectional study that included 398 women aged 40-65 years. The sample was calculated using the simplified Yamane formula and was stratified. The study was conducted between December 2024 and February 2025. Data were analyzed using SPSS version 21.

Results: Among the participants, 32.9% were from rural areas, and 67.1% were from urban areas. About 14.3% of the respondents reported having breast problems. The average knowledge score was 5 out of 6, with an overall correct response rate of 86.4%. However, 57.3% identified heredity as a risk factor for breast cancer. Women from urban areas and those with a family history of breast cancer demonstrated higher knowledge levels ($p<0.001$). 14.3% of the participants recognized only heredity as a risk factor. Media, particularly television, served as an information source for 23.2% of the respondents. Regarding screening, 68.3% had not undergone any radiological examination.

Conclusion: The study revealed low knowledge levels regarding breast cancer and low breast screening practices. Our findings highlight the need to develop, implement, and promote social and demographic intervention programs aimed at increasing awareness and breast cancer screening.

Keywords: Breast cancer, knowledge levels, risk factors, screening practices, women's health.

Regional Training on the Monitoring of the Child Feeding Surveillance System for Children Aged 0-5 Years

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Introduction: For several years, Albania has established the Child Feeding Surveillance System (CFSS) to monitor the feeding practices and growth of children aged 0-5 years. As part of the CFSS monitoring, several regional training sessions were organized for specialists from the four Regional Directorates of the Health Care Operator (RDHCO) (Elbasan, Vlorë, Shkodër, and Tirana) and 36 Local Health Care Units (LHCUs).
The objective of these trainings was to strengthen the capacities of primary health care personnel in monitoring the feeding and growth status of children aged 0-5 years through accurate documentation and reporting.

Methods: The training focused on familiarizing specialists with CFSS, ensuring accurate data documentation in children's health records, and improving monitoring and reporting processes in health centers (HC). The training was conducted by two experts from the Institute of Public Health (IPH), with facilitation from two specialists of the Central Health Care Service Operator (CHCSO). The training took place during April 2024 and involved: 2 specialists from the Central Directorate of CHCSO, 8 regional specialists from the four RDHCOs, and 64 specialists from 36 LHCUs across Albania.

Results: The training sessions improved specialists' skills in understanding CFSS by focusing on accurate documentation and interpretation of health indicators. Participants enhanced their skills in supervision, reporting protocols, and health data management. A practical session reinforced knowledge on proper documentation and reporting of data, ensuring consistency in HCs. Overall, the training strengthened the capacities of health care professionals, improving the reliability of the child feeding monitoring process.

Conclusions: The training improved specialists' capacity to monitor and document key indicators of child feeding and growth for children aged 0-5 years, increasing the accuracy and consistency of reporting. This structured approach strengthens CFSS, ensuring better health monitoring and well-being for children aged 0-5 years, as well as providing valuable insights for policy formulation, decision-making, and timely interventions based on administrative data. Ongoing supervision by LHCUs is essential for a coordinated approach to child health and well-being.

Keywords: Child Nutrition Surveillance System, training, healthcare monitoring, primary health care, child well-being, data documentation.

Understanding the Role of Behavior and Culture in Breast Cancer Screening

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Introduction: Breast cancer is the most common cancer worldwide and the leading cause of cancer-related death among women. Early screening improves survival rates, but participation is often influenced by behavioral and cultural factors, such as beliefs and social norms. Understanding these factors is crucial for developing strategies aimed at increasing participation in screening programs and reducing disparities.

Objectives: The main objectives of the study were to explore how cultural beliefs and social norms influence participation in breast cancer screening, identify barriers such as stigma and fear, and assess the effectiveness of health promotion campaigns in increasing participation in screening programs.

Methodology: We conducted a cross-sectional study using an electronic questionnaire to assess behaviors and cultural factors in breast cancer screening. Administered by the staff of Local Health Care Units (LHCUs) during the "Pink October" campaign in 2024, the questionnaire was distributed to women across Albania, alongside mobile mammography services.

Results: Although 87% of participants had no family history of breast cancer, they consistently engaged in preventive practices, including self-examination, ultrasound, and mammography. While 99% believed early diagnosis saves lives and 92% acknowledged the importance of self-examination, fear of a positive result remained a barrier. The majority of women felt supported by family members (91%), were not afraid of stigma (92%), and reported minimal concerns about privacy during screenings (83%).

Conclusion: In conclusion, while most women had positive attitudes toward early detection, the fear of a positive diagnosis was a major barrier. Family support and the absence of stigma encouraged participation, highlighting the need for targeted interventions to address emotional concerns and promote screening.

Keywords: Breast cancer, screening participation, cultural beliefs, behavioral factors, health promotion.

White Spot Lesions in Orthodontic Patients Treated at the Aldent University Dental Clinic: Analysis of Etiological Factors and Their Management

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Introduction: White spot lesions (WSL) are a common complication during treatment with fixed orthodontic appliances, resulting from the demineralization process of enamel. This study aims to verify the etiological factors of WSLs, with a focus on oral hygiene, hormonal factors, and other general factors.

Methods: A sample of 15 patients with fixed orthodontic appliances in the Aldent University Dental Clinic (ages 11-16), including 7 females and 8 males, was analyzed to evaluate WSLs and predisposing factors. The study was approved by the University's Ethics Committee. Consent was signed by each parent/guardian of the study participants. Professional tooth cleaning and local fluoride application with spray were performed before the orthodontic treatment. Information about diet, oral hygiene, the presence of *Streptococcus mutans*, and hormonal factors was collected through a questionnaire that followed their clinical record. Data were analyzed using SPSS V21.

Results: Despite local fluoride application, 3 patients (1 female and 2 males) developed WSLs during their treatment. These patients followed a carbohydrate-rich diet, had poor oral hygiene, and frequently consumed highly acidic beverages. Among them, one patient was diagnosed with a high presence of *Streptococcus mutans*.

Conclusion: The study highlights the importance of a comprehensive approach to address the various factors influencing WSLs. Effective management strategies, including controlling diet, rigorous oral hygiene, fluoride application, and prompt medical interventions, are essential for the prevention and reduction of WSLs. Early detection and personalized treatment protocols for WSLs are crucial for improving orthodontic outcomes.

Keywords: WSL, fluoride, *S. Mutans*, oral hygiene, hormonal factors

The Impact of Orthodontic Treatment on Quality of Life: Aesthetic, Functional, and Psychological Transformation

Isuela Karçini[1]
[1] "Karçini Dent" Dental Clinic

Introduction: Modern orthodontics has a significant impact on the quality of life of patients, bringing aesthetic, functional, and psychological improvements. Malocclusions and dento-skeletal disorders can negatively affect oral hygiene, chewing function, speech, and self-confidence. Orthodontic treatment with advanced technology offers a more efficient and less invasive approach to correcting these problems. This presentation analyzes the effectiveness of various orthodontic methods through clinical cases.

Case Presentations: Clinical cases of patients with different malocclusions treated with:

- Self-ligating brackets
- Conventional brackets
- Transparent aligners
- Functional and myofunctional appliances

The presentation includes analyses of changes in dental alignment, improvements in facial profile, and the impact of treatment on oral function.

Discussion: The results show that orthodontic treatment not only improves aesthetics and oral function but also facilitates hygiene and reduces the risk of periodontal diseases. Patients report increased self-confidence and an improvement in quality of life.

Conclusions: Personalized orthodontic treatment significantly impacts the quality of life. The clinical cases illustrated confirm the success of modern techniques and highlight the importance of individualized therapy for optimal result

Keywords: Orthodontics, malocclusions, self-ligating brackets, transparent aligners, quality of life.

Prevalence of Dental Caries in Children with Congenital Heart Disease

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Objective: Poor oral health is linked to bacteremia, which can lead to endocarditis in children with congenital heart disease (CHD). The objective of this study was to conduct a systematic literature review to compare the prevalence of caries in children (<18 years) with CHD to that in healthy children.

Materials and Methods: A literature search was conducted using two online databases (PubMed (MEDLINE) and Scopus) for studies published from January 2000 to October 2019, using the medical terms *Congenital Heart Disease*, *Congenital Heart Defect*, and *Caries*. A manual search of reference lists from selected publications was also carried out. The PICO criteria (Patient/Population, Intervention, Comparator Group, and Outcome) were applied. The quality of the publications was assessed using the modified Newcastle-Ottawa scale.

Results: The search identified 151 articles, of which nine met the inclusion criteria. The prevalence of caries was significantly higher in children with CHD compared to healthy children in three of the nine studies. Information on predisposing factors was limited, but the difference in caries prevalence was not attributed to socio-economic status (SES). The quality of the studies varied.

Conclusions: Although the evidence is limited, current literature indicates that children with CHD experience a higher prevalence of caries compared to healthy children.

Keywords: Dental caries, congenital heart disease, children, prevalence, systematic review.

The Impact of Orthodontic Treatment on Quality of Life: Aesthetic, Functional, and Psychological Transformation

Dr. Isuela Karçini[1]
[1] "Karçini Dent" Dental Clinic

Introduction: Modern orthodontics has a significant impact on the quality of life of patients, bringing aesthetic, functional, and psychological improvements. Malocclusions and dento-skeletal disorders can negatively affect oral hygiene, chewing function, speech, and self-confidence. Orthodontic treatment with advanced technology offers a more efficient and less invasive approach to correcting these problems. This presentation analyzes the effectiveness of various orthodontic methods through clinical cases.

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Conclusions: Personalized orthodontic treatment significantly impacts the quality of life. The clinical cases illustrated confirm the success of modern techniques and highlight the importance of individualized therapy for optimal results

Keywords: Orthodontic treatment, quality of life, malocclusion, aesthetic improvement, functional outcomes.

Conference Hall 4

Some Aspects on the Safety Profile of Essential Oils

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Objective: Essential oils (EOs) are complex mixtures of volatile organic compounds derived from plants, with multiple bio pharmacological properties. They have a wide range of applications in the pharmaceutical, cosmetic, food, and agrotechnical sectors. Although many EOs are generally considered safe and non-toxic when used at low concentrations, numerous studies have reported adverse effects associated with their use. This paper, a literature review, aims to highlight some of the issues related to the safety profile of EOs, primarily when used as dietary supplements and herbal medicinal products.

Methodology: To carry out this study, an extensive search of publications focusing on the safety profile of EOs was conducted in databases such as PubMed, Scopus, and Medline, as well as on the websites of regulatory authorities like EMA, FDA, EFSA, etc. The quality and standardization of EOs are key factors for their safe application. In this regard, important aspects include the authenticity of the plant material, production and storage of EOs according to GMP standards, their chemical characterization, and so on. Adulteration, contamination, and oxidative degradation of EOs affect their safety profile, causing various harmful effects in humans. The chemical composition of EOs, the presence and concentration of certain compounds with potential toxic effects, represents another important safety factor in their use. Some EO components are allergens, while others may have neurotoxic, mutagenic, carcinogenic, or abortifacient potential.

Conclusion: A comprehensive assessment of the safety profile of EOs, the determination of recommended safe dosages (particularly for oral intake), and scientific guidelines for their use in specific population groups are important factors for the safe use of EOs.

Keywords: Essential oils, safety, toxicity, quality, chemical composition.

Comparative Study of Different Diclofenac Tablets Available in the Albanian Pharmaceutical Market

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Introduction: Diclofenac is a nonsteroidal anti-inflammatory drug widely used for the treatment of pain and inflammation, but its long-term use can cause serious side effects in the gastrointestinal tract, including ulcers and bleeding. The aim of this work is to compare the quality of the different diclofenac tablet formulations available on the Albanian pharmaceutical market and to bring to evidence the role of their coating.

Methodology: A research on PubMed, Research Gate, National Institutes of Health, etc. was made using key words such as diclofenac, coating, polymer, side effects, etc.. The quality control of three different diclofenac tablets, randomly selected from the Albanian pharmaceutical market, was based on the methodology recommended by Eur.Ph. 6.0. The study was conducted in the scientific laboratory of the Department of Pharmacy, UMT, in the period March-December 2024.

Materials and equipments: Varian UV-VIS spectrophotometer, VWR ultrasonic water bath, analytical balance, diclofenac standart, three different tablets of diclofenac, glacial acetic acid, sodium ethanoate, quartz cuvette, etc.

Results: The three samples were subjected to the uniformity test. The standard deviation results were 0.6%, 1.12% and 1.32% respectively. From the quantitative test resulted that the theoretical deviation was 101.1%; 106.4% and 109.4% respectively. The dissolution test was performed and from the samples taken after 15 minutes from product A, product B and product C were 100%; 64.6% and 42.4% respectively.

Conclusions: Based on the results it can be said that the quality of products fulfills all standards requested by the Eur.Ph. 6.0. The dissolution test proved the role of the tablet coating, where simple tablets released the API completely within 15 min, sugar-coated tablets after 15 min only 64.6% and polymer-coated tablets 42.4%. Thus, the purpose of the tablet coating for delayed release and controlled release is achieved.

Keywords: diclofenac, release, polymer, tablet formulation, UV-VIS, side effects.

Readiness of Albanian and Balkan Pharmacists to Provide Vaccination Services

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Introduction: Community pharmacists are engaged in vaccine administration in 56 countries worldwide and 13 European countries, but not yet in Albania and several other Balkan nations.

Objectives: Our study aims to assess the perspectives and readiness of Albanian and Balkan pharmacists regarding their involvement in vaccination services.

Methods: Following a pilot test conducted in 2021, a questionnaire was administered, developed based on an in-depth literature review. It consisted of 19 questions organized into three sections (demographic data, perceptions, barriers, and facilitators). A univariate and multivariate statistical analysis was conducted to identify influencing factors, and the adjusted odds ratio (OR) was calculated with a 95% confidence interval. The Mann-Whitney and Kruskal-Wallis tests were applied to identify differences between countries.

Results: A total of 636 pharmacists from four Balkan countries, including 109 from Albania, participated in the study. The willingness to provide vaccination services was significantly higher among Albanian pharmacists compared to those from Bulgaria, Romania, and Serbia ($p<0.0001$), both for COVID-19 vaccines and other types. Binary logistic regression revealed common factors (lack of training and absence of a designated area in pharmacies for administering vaccines), as well as several perceived benefits and barriers.

Conclusion: A review of health policies and training programs is recommended in order to expand the role of community pharmacists in vaccination services, aligning their responsibilities with those of their peers in developed countries.

Keywords: Barriers and facilitators, COVID-19 vaccines, influencing factors

Self-Medication among Albanian Students: A Double-Edged Sword of Knowledge and Risk

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Introduction: Self-medication is a widespread yet unregulated practice, particularly among medical students who possess basic pharmaceutical knowledge but may lack the necessary clinical expertise for safe self-prescription.

Aim of the Study: The aim of this study was to evaluate the prevalence, motivation, and potential risks associated with self-medication.

Methods: A cross-sectional study was conducted among Albanian students from various academic years in both medical and non-medical schools to analyze the reasons for self-medication, the types of drugs used, and the awareness of self-medication risks. A standardized questionnaire divided into three sections was used. Statistical processing was carried out using SPSS version 21.

Results: The data obtained from the questionnaires showed that a significant portion of students engaged in self-medication, primarily to save time, due to easy access to medications, and confidence in their medical knowledge. The most commonly used drugs were non-steroidal anti-inflammatory drugs (NSAIDs) (78.5% and 91.9%), herbal products (54% and 41.6%), and antibiotics (48.8% and 24.5%).

Conclusion: The study results indicated that a high percentage of Albanian university students practice self-medication. NSAIDs were the most frequently used drug group, while headaches were the most commonly cited condition. It is crucial that students are educated and made aware of the potential negative effects of self-medication, especially concerning the increased use of antibiotics. The study highlights the need for interventions in the educational process and the implementation of policy regulations to mitigate the risks associated with self-medication. Furthermore, stricter policies regarding over-the-counter drug sales may be necessary to control the growing trend of self-medication among students.

Keywords: self-medication, student, drug, rational use

Assessing Medical Sciences Students' Knowledge on 3D Printing of Medicines

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Introduction: The concept of personalized medicine has existed for some time, but it has recently gained significant attention. A growing interest has emerged in the technology of 3D printing of medicines due to its great potential for application in the pharmaceutical industry. In 2015, the FDA approved the first 3D-printed tablet, Spritam, for the treatment of epilepsy. This marked a major step in the commercialization of 3D-printed medicines.

Objectives: This study aims to assess the knowledge of medical sciences students regarding 3D printing of medicines, an innovative technology that is gaining ground in the pharmaceutical industry.

Methods: Through a structured questionnaire, students' knowledge of 3D drug printing and the development of personalized medicines was analyzed.

Results and Conclusions: The results showed that most students were not familiar with the concept of 3D-printed medicines, and their knowledge about its applications in the pharmaceutical field was limited. The findings suggest the need for the inclusion of advanced training and more in-depth information in medical science curricula, to ensure that future professionals are prepared to use this technology in clinical practice. This study highlights the importance of educating students on new technological developments in medicine and the opportunities they offer to improve treatment and healthcare delivery.

Keywords: advanced training, 3D-printed medicines, epilepsy treatment

Integrity in Open Network Pharmacies: Impact on Trust and Quality of Pharmaceutical Services

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Introduction: Professional integrity is a key element in the pharmacist's profession, directly influencing patients' trust and satisfaction. In Albania, the pharmaceutical market has faced multiple challenges in maintaining integrity for various reasons. This study aims to analyze the impact of pharmacists' integrity on the perceived quality of pharmaceutical services and patient loyalty.

Methods: This was a descriptive and correlational study conducted through a structured online questionnaire. A total of 252 participants were included in the analysis. The data were analyzed using descriptive statistics, Spearman's correlation test, and logistic regression analysis.

Results: Pharmacist honesty showed a weak negative correlation with pharmacy return visits ($r = -0.160$, $p = 0.011$), but a strong positive correlation with the quality of information provided ($r = 0.541$, $p < 0.001$). Pharmacist attentiveness had a moderate positive correlation with return visits to the pharmacy ($r = 0.208$, $p < 0.001$). Doubts about the pharmacist's integrity increased the likelihood of not returning to the pharmacy (OR = 3.5, $p = 0.007$).

Conclusions: This study confirms that integrity, attentiveness, and a positive experience significantly influence patients' perception and loyalty toward the pharmacy. Improving the quality of information and demonstrating commitment to patient care are key factors in increasing trust and ensuring patient return.

Keywords: patient loyalty, quality of information, pharmacists, professional integrity, patient satisfaction

Increasing University Participation in International Scientific Research Programs: A Step Closer to the European Research Area

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Introduction: Active participation of universities in international scientific research programs is a key factor in improving academic quality and enhancing scientific impact. The European Research Area (ERA) aims to create an integrated research space by promoting mobility, cooperation, knowledge exchange between institutions, digitization of processes, and the use of artificial intelligence. Numerous factors influence universities' participation in these programs and their impact on academic and scientific development, including internationalization, infrastructure, academic offerings, student numbers, and the updating of institutional regulatory acts for academic processes.

Aim of the Study: This study aims to evaluate the impact of university participation in international scientific research programs and identify the factors that facilitate or limit such participation.

Objectives: The study seeks to analyze how involvement in international research programs helps universities grow academically and scientifically, and how it contributes to their integration into the European Research Area (ERA).

Methods: This study will be conducted through a descriptive analysis using data collected from questionnaires and interviews with field experts and university administrators. A total of 150 questionnaires will be distributed across various universities that are part of the European Research Area. In addition, interviews will be conducted with education and scientific research policy experts who have insights into the impact of these programs.

Results and Conclusions: The study confirms that university participation in international scientific research programs is an excellent opportunity to improve academic and scientific quality. Key factors influencing participation include the internationalization of academic offerings, research infrastructure, and the updating of regulatory frameworks. Universities that invest in these areas are the ones that manage to have a sustainable impact and grow as important actors within the European Research Area.

Keywords: international scientific research programs, artificial intelligence in research, research infrastructure

Internationalization of Higher Education Institutions, the Future and Challenges of Integration into the European Higher Education Area

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Introduction: This study aims to examine the opportunities and challenges faced by Higher Education Institutions (HEIs) in Albania during the process of internationalization and integration into the European Higher Education Area (EHEA). Active participation of Albanian higher education institutions in the EHEA aims to improve the quality of education, create opportunities for students, and strengthen the competitiveness of HEIs.

Objectives: This process brings benefits such as increased opportunities for students, the creation of international partnerships, and the enhancement of the competitiveness of Albanian institutions. The main challenges for Albania include:

- Adapting to European standards, such as implementing the Bologna Process to ensure the recognition of degrees and curricula.
- Preparing academic and administrative staff for managing internationally integrated programs.
- Investments in infrastructure and technology to provide high-quality education.
- Developing a culture of collaboration between universities and educational institutions.
- Strengthening international partnerships with universities and other European and global institutions to offer new opportunities for students and staff.

Results and Conclusions: The internationalization of higher education in Albania is a great opportunity to increase the quality and competitiveness of higher education institutions. However, this process is accompanied by several challenges that require significant engagement from educational institutions, authorities, and other relevant actors. Through investments in education quality, staff development, and alignment with international requirements, Albania can achieve successful integration into the European Higher Education Area and contribute to the sustainable development of the higher education system in the country.

Keywords: European Higher Education Area (EHEA), internationalization of higher education, adaptation of education policies

PIECES: Adapting Primary Cancer Prevention Programs for Better Implementation in Albania

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Objective: PIECES is an EU-funded project aimed at adapting existing primary cancer prevention (PCP) programs, based on evidence, to improve implementation outcomes. The project has developed an innovative tool, the PCP Integrated Implementation Toolkit (PCP-IT), to guide users through the process of selecting, adapting, and implementing these programs. The tool will be tested in 10 countries with different socio-cultural groups and a population of up to 77.7 million people.

Methodology: The PCP-IT consists of six modules, designed to guide implementers in the process of selecting and adapting PCP programs, addressing barriers, and developing appropriate implementation strategies. The tool includes a repository of evidence and 6 modules with guidelines and tools to support the process. To ensure its use in different languages and contexts, the tool has been adapted to the local version. Simultaneously, comments have been provided on the study protocol and evaluation tools, proposing necessary changes based on the context of Albania. This work contributes to the development of the ItFits tool, which has proven effective in improving implementation outcomes during the ImpleMentAll project.

Results: After translating and editing the tool documentation, the Albanian team adapted it for local use. Following two training sessions and final improvements, the tool testing began in March 2025, with two implementation sites in Tirana—one for physical activity and diet and the other for preventing activities related to the Human Papillomavirus (HPV). Seven health professionals are directly involved in the implementation, while one researcher is using quantitative and qualitative techniques to monitor and assess the experience with the tool. At the same time, a comparative study has begun, using a Realist Evaluation to understand the mechanisms of the tool and determine what works, for whom, and under what conditions during the implementation of PCP programs.

Conclusions: In Albania, the PIECES project is helping public health professionals adapt cancer prevention strategies to local needs. The PCP ItFits tool and the processes related to its local adaptation can serve the implementation of the National Cancer Control Plan, particularly its primary prevention aspect. Furthermore, participation in the PIECES network with other European research agencies helps Albanian partners apply European public health standards in the context of the country's EU integration.

Keywords: Primary cancer prevention (PCP), testing and implementation in Albania, comparative study

DIGICARE4YOU Project

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Introduction: The rising prevalence of type 2 Diabetes Mellitus in Albania calls for effective screening tools to identify individuals at risk early. The Finnish Diabetes Risk Score (FINDRISC) model is a valuable, non-invasive, and cost-effective tool for assessing diabetes risk based on lifestyle and genetic factors. Schools offer an excellent platform for health initiatives due to their central role in communities. This study explores the implementation of FINDRISC in school programs to screen for prediabetes and diabetes among families of school-aged children in Albania, aiming to increase early detection and preventive measures. By using school-based programs, this initiative aims to identify at-risk individuals early, enabling timely intervention and prevention strategies.

Methodology: A cross-sectional study design was used, involving the administration of the FINDRISC questionnaire to parents of school-aged children in selected schools across Tirana, Albania. The sample was stratified according to socio-economic status to ensure comprehensive representation. The FINDRISC questionnaire assesses eight key risk factors: age, body mass index (BMI), waist circumference, physical activity, diet, medication for hypertension, history of elevated blood glucose, and family history of diabetes. Each factor is scored, and the total score categorizes individuals into risk levels: low (0–6), slightly elevated (7–11), moderate (12–14), high (15–20), and very high (>20).

Data Collection: Participants completed the FINDRISC questionnaire through two methods/modalities:

1. In schools: questionnaires were sent home with students and filled out by parents, then returned to school health personnel.
2. At health centers: participants completed the FINDRISC questionnaire during routine health visits. Trained healthcare professionals assisted in administering the questionnaire and measuring BMI and waist circumference.

Data Analysis: Collected data was analyzed to determine the distribution of diabetes risk within the sample. Statistical analysis identified correlations between risk factors and high-risk outcomes, and demographic trends were mapped to highlight areas with higher concentrations of risk.

Results: Preliminary findings indicate that a significant portion of the Albanian population falls within the moderate to very high-risk categories. Higher risk scores were associated with older age, higher BMI, central obesity, and a family history of diabetes. Higher-income areas showed slightly higher risk scores compared to lower-income areas, potentially due to lifestyle differences.

Conclusions: The application of FINDRISC in Albania reveals critical insights into the distribution of diabetes risk within the population. The high prevalence of at-risk individuals underscores the need for targeted public health interventions, such as promoting physical activity, healthy eating, and regular medical check-ups. The data also suggest the impact of urbanization on lifestyle choices contributing to higher diabetes risk.

Keywords: Diabetes prevalence, body mass index (BMI), FINDRISC

Euscreen Albania: Assessment and Improvement of the Child Hearing Screening Program

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Introduction: EUSCREEN is a European project aimed at evaluating and improving child hearing screening programs. In Albania, this project has brought significant improvements to the neonatal screening process and laid important foundations for the early diagnosis and treatment of hearing problems.

Methods: Key results include:

- Screening of over 20,000 newborns in the maternity hospitals of Tirana, Kukës, and Pogradec, significantly expanding service coverage.
- Training of nursing staff in these hospitals to enhance their skills in using modern screening methods and equipment.
- Supplying hospitals with up-to-date equipment for neonatal hearing screening, improving the quality and accuracy of the diagnostic process.
- Establishment of a specialized room for diagnosing hearing loss at the ENT Service of the "Mother Teresa" University Hospital in Tirana, enabling advanced evaluation for children with hearing issues.
- Educating parents on the importance of ongoing monitoring of children's hearing health and strengthening cooperation with the rehabilitation center for children with hearing problems.
- Inclusion of neonatal hearing screening in the Ministry of Health's basic health services package, making it a mandatory procedure for all newborns from the first days of life.

Results and Conclusions: This study demonstrates the importance of an integrated approach to neonatal screening and highlights the need for sustainable policies that ensure equal access for all children. Its results provide a successful model for other countries with limited resources, emphasizing the importance of early diagnosis and timely intervention for children with hearing impairments.

Keywords: neonatal screening, hearing, early diagnosis, hearing loss treatment, parent education, hearing rehabilitation, health policies

Awareness of Cardiovascular Risk and Lifestyle Behaviors among Albanian Patients

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Introduction: Cardiovascular diseases (CVD) represent a major burden on global public health. Research highlights knowledge gaps regarding risk factors among diagnosed individuals. Awareness is essential for the implementation of effective prognostic strategies.

Objective: To assess cardiovascular risk factors and lifestyle behaviors among adult outpatients in Albania.

Methods: A cross-sectional study was conducted from June to September 2024. A convenience sampling method was used, and the Heart Disease Fact Questionnaire was administered to outpatient participants. A score below 70% was considered indicative of insufficient knowledge. The relationship between awareness of risk factors and various explanatory variables was assessed using multiple linear regression analysis.

Results: A total of 180 patients with a mean age of 47±11 years participated, with 56.4% being female. Over 54% demonstrated good knowledge of risk factors, while 46% showed knowledge gaps. High levels of awareness were more prevalent in urban areas, whereas being single and having a low education level were associated with poorer scores. No statistically significant correlation was found between awareness and actual cumulative risk behaviors.

Conclusions: Nearly 50% of patients in the study have insufficient awareness of cardiovascular risk factors. Lifestyle, education level, and marital status play important roles in knowledge levels. It is recommended to promote awareness programs targeting both patients with CVD and high-risk groups in the general population.

Keywords: Awareness, cardiovascular risk factors, lifestyle behaviors, prognostic strategies.

The Role of Mycoplasma Hominis and Ureaplasma Urealyticum in Reproductive Health

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Introduction: Genital mycoplasmas, including Mycoplasma hominis and Ureaplasma urealyticum, contribute to several reproductive health pathologies and represent a significant public health issue. These pathogens are associated with preterm birth, spontaneous abortion, stillbirth, and low birth weight.

Aim of the Study: The aim of this study is to evaluate the role of Mycoplasma hominis and Ureaplasma urealyticum in reproductive health.

Materials and Methods: This is a prospective study conducted at the Department of Obstetrics and Gynecology of the University Hospital "Koço Gliozheni" and the private OB-GYN clinic "Plus" in Tirana, Albania. The study involved 172 women, both pregnant and non-pregnant. Sociodemographic and clinical data were collected using individual questionnaires.

Results: M. hominis was detected in 90 (52.3%) [95% CI: 44.56 - 59.95] of all women, while U. urealyticum was found in 119 (69.2%) [95% CI: 61.72 - 76.0]. Mycoplasmas had similar distribution by age group, pregnancy status, parity, and number of abortions. No significant difference was found in the distribution of M. hominis ($p=0.8$) and U. urealyticum ($p=0.2$) according to the number of abortions. Mixed infections were identified in 51 (26.7%) of the women. The most frequent mixed infection was MH+ UU+ (10.9%), followed by UU+ (9.9%). In the multivariate logistic regression model, independent and significant risk factors for preterm birth were: U. urealyticum ($p<0.01$), gestational age ($p=0.03$), and mixed mycoplasma infections ($p<0.001$). Antibiotic treatment was administered to 92.2% of women with M. hominis and 94.1% of those with U. urealyticum.

Conclusion: Screening programs for mycoplasma infections should be organized to prevent preterm birth and reduce treatment costs. For a safe pregnancy, it is essential to identify the isolates and promptly administer the appropriate antibiotics.

Keywords: M. hominis, U. urealyticum, incidence, pregnancy, reproductive health

The Impact of Scientific Research on the Development of Professional Skills in Students of Technical Medical Sciences

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Introduction: Scientific research is the method that utilizes science to generate knowledge and theories, which can be applied in practice to solve specific problems (C.I.E). Research plays a fundamental role in continuous education and in the personal and professional development of professionals, especially students at all academic levels within the Faculty of Technical Medical Sciences (FSHMT). Currently, scientific research is integrated into all scientific master's programs and beyond.

Objective: To assess the role of scientific research in enhancing students' professional skills and critical thinking, with the aim of identifying best evidence-based practices.

Methods: A literature review was conducted, primarily using databases such as PubMed, Cinahl, PsycINFO, and OpenGrey, which cover health, education, and grey literature. The study explores the impact of scientific research on the development of professional skills and critical thinking among students in medical sciences. Initiated in the 2022–2023 academic year, this ongoing study uses a standardized questionnaire (Problem-Based Learning – PBL) to survey students. The study's characteristics are described narratively, and thematic analysis identifies the main learning methods facilitated by scientific research and the development of critical thinking.

Results: The survey response rate was 90.5%, with 75–80% of participants commenting on their perceptions, achievements, and challenges experienced during the process of presenting the current state of their acquired skills. These findings suggest that research investments are effective for scientific productivity and the professional growth of students. They also emphasize the need for ongoing scientific research driven by new initiatives and innovations.

Conclusions: Scientific research continues to be a challenge for both personal and professional development among students at FSHMT. Therefore, support from professors and the provision of opportunities for productive scientific inquiry within educational practices are essential. The goal is to enhance professional growth and develop critical thinking. Further efforts are recommended to strengthen student support for their continuous personal and professional development.

Keywords: Scientific research, Science, Continuous education, Professional skills, Research initiatives, Innovation, Personal and professional development.

Cervical Cancer and Risk Factors

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Introduction: Cervical cancer is one of the leading causes of cancer-related death among women. It is a curable disease if diagnosed early; however, many women seek treatment only when the disease is at an advanced (inoperable) stage. Major risk factors for cervical cancer include HPV infection, early onset of sexual activity, multiple sexual partners, low socioeconomic status, smoking, and prolonged use of oral contraceptives. Well-organized education and large-scale screening programs can significantly reduce the incidence and mortality of cervical cancer.

Objective: To assess women's knowledge regarding risk factors and cervical cancer.

Methodology: This is a cross-sectional, descriptive, and analytical study. A total of 197 women over the age of 16 participated, each of whom was given a questionnaire to complete. Data were entered into Excel and analyzed using SPSS version 15.

Results: The results indicate a need for greater community awareness of cervical cancer risk factors. Nearly all respondents—about 72%—had heard of cervical cancer, but only 19% had limited knowledge of HPV and its link to cervical cancer. Regarding other risk factors, women living in rural areas showed lower levels of information and higher levels of concern about access to healthcare services.

Conclusions: Women's knowledge about cervical cancer is notably limited. Education efforts on this disease should include information about its risk factors, as well as the signs and symptoms of cervical cancer.

Keywords: Cervical Cancer, Women, Knowledge, Risk Factors

Towards a Psychological Pandemic among Healthcare Professionals due to Covid-19: A Literature Review

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Introduction: The term "psychological pandemic" refers to the profound and widespread impact of pandemics on the mental health of the population. This phenomenon occurs when stress, anxiety, depression, and other mental disorders increase significantly as a consequence of a physical pandemic, such as COVID-19.

Objective: This study aims to assess the impact of COVID-19 on the levels of stress, anxiety, and depression among healthcare professionals by analyzing data from studies published in the international scientific literature.

Methodology: A total of 19 studies conducted across six regions—Africa, South America, North America, Europe, Asia, and Oceania—were included in the analysis. From these, 6 final studies were selected, reporting numerical data on the incidence of psychological effects. The reviewed studies were published and indexed on the scientific platform PubMed.

Results: The findings revealed regional variations in levels of stress, anxiety, and depression. In Nigeria, stress levels were 62.4%, anxiety 5%, and depression 9.8%. In Egypt, the figures were significantly higher, with stress at 98.5%, anxiety at 90.5%, and depression at 94%. In Oceania, including Australia and New Zealand, the psychological impact was lower compared to other regions.

Conclusions: The prolonged duration of the COVID-19 pandemic has adversely affected the mental health of healthcare professionals. With high levels of stress, anxiety, and depression reported in certain regions, the healthcare system is now facing a new challenge: the psychological pandemic. Further studies are necessary to better understand contributing factors and to develop effective strategies for providing psychological support to healthcare professionals.

Keywords: Psychological pandemic, healthcare professionals, mental health, stress, anxiety, depression, COVID-19.

Assessment of Knowledge on Palliative Care among Nursing Students in the Master's Program

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Introduction: Nurses, as the healthcare professionals who spend the most time at the patient's bedside, must possess adequate knowledge on how to care for patients with life-threatening illnesses.

Objective: To identify the level of knowledge about palliative care among nursing students, who are the future providers of patient care.

Methodology: This is a qualitative cross-sectional study conducted with 131 first-year students of the scientific and professional master's programs in Nursing, during the period January–February 2025. The assessment of knowledge was carried out using a self-administered questionnaire divided into two parts. The first part included questions about the students' demographic data, while the second part comprised questions assessing the knowledge acquired on palliative care.

Results: Among all the student participants in this study, the predominant proportion belonged to the female gender (84%), and 96.25% were in the age group of 20–25 years. Regarding their knowledge of palliative care, 57.25% of the participants indicated that they did not have sufficient information and were unable to clearly identify what palliative care entails. Furthermore, 51.15% stated that palliative care is only provided during the final stage of a patient's life.

Conclusions: The study highlights that the level of knowledge about palliative care among nursing master's students is inadequate. Given the crucial role nurses play in providing palliative care, it is essential that they acquire fundamental knowledge on this subject during their bachelor's education.

Keywords: nurse, palliative care, knowledge, life-limiting illnesses.

The Impact of Artificial Intelligence on Student, Academic, Pharmaceutical, and Professional Reality

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Introduction: Artificial intelligence (AI) concepts are increasingly present in daily discussions, becoming part of numerous professional and thematic fields. These tools and new opportunities are steadily entering academic and professional life. More and more students at all levels, lecturers, scientific researchers, and professionals in the medical and pharmaceutical fields are using these “virtual assistants and new toys” in their tasks. While there are many positive aspects, they are also accompanied by issues such as potential misuse, inaccuracies, or challenges that call for new and modern regulatory approaches.

Methodology: In this presentation, we aim to combine a recent contemporary literature review on the topic (of the review type) and international experiences, with the execution of a survey-based study (currently in progress), focusing on Pharmacy students. The study explores their experiences, the extent of AI tool usage, their goals, needs, and specific features—comparing our local reality with the global one.

Results and Conclusions: Ultimately, the goal is to provide conclusions and useful recommendations regarding the current (correct or incorrect) use of AI tools, highlighting both their positive contributions and the associated risks of misuse or inaccuracy—especially in the field of healthcare, where such consequences can have a direct impact on patients and society.

Keywords: artificial intelligence, AI, scientific research, student, Albania

Assessment of CYP2C19 Activity in a Sample of the Albanian Population Using the Metabolic Ratio of Omeprazole to 5-Hydroxyomeprazole

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Introduction: Drug metabolism (biotransformation) refers to the chemical modification of drugs after their entry into the body. Cytochrome P450 (CYP) enzymes are among the most important enzymes responsible for drug metabolism. These enzymes are primarily expressed in the liver. Isoforms belonging to CYP families 1, 2, and 3 are responsible for the metabolism of the majority of clinically used drugs.

Objectives: CYP2C19 is a key enzyme involved in the hepatic metabolism of drugs such as warfarin, diazepam, clopidogrel, omeprazole, amitriptyline, and others. The gene encoding CYP2C19 exhibits polymorphism. While the CYP2C191* allele is associated with normal enzyme activity, CYP2C192* and 3 alleles are linked to reduced enzyme activity, and the CYP2C1917* allele is associated with increased activity. Phenotype refers to the observable traits of an individual, such as eye color or CYP enzyme activity. A person's phenotype is determined by both their genotype and environmental factors. CYP enzyme phenotyping is carried out using "probe drugs." Omeprazole (based on the metabolic ratio of omeprazole to 5-hydroxyomeprazole) is the preferred drug for determining CYP2C19 phenotype and allows the classification of individuals as extensive metabolizers (EM) or poor metabolizers (PM).

Results and Conclusions: The assessment of CYP2C19 activity in a sample of the Albanian population using the metabolic ratio of omeprazole to 5-hydroxyomeprazole shows that 5.3% (6/114) of the study participants are poor metabolizers (PM), while 94.7% are extensive metabolizers (EM). These findings are consistent with data from other studies conducted in various Caucasian populations.

Keywords: drug metabolism, CYP2C19, genetic polymorphism

Molecular Docking for the Detection of Scaffolds in Plant Extracts

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Introduction: Computer-aided methods applied in drug design use modern technology to virtually predict potential binding interactions with specific proteins, complementing experimental analyses. Molecular docking is highly useful for predicting how small compounds or macromolecules bind to receptors and for anticipating their molecular interactions. This method not only identifies the relationship between molecules (whether natural, synthetic, or semi-synthetic), but also allows ranking of different compounds according to their affinity to proteins, aiding in the interpretation of pharmacological activity or potential side effects. We also use libraries related to protein structures.

Methods: In this context, we can say that organic synthesis and extraction from medicinal plants will become increasingly important and advanced, as these methods rely on novel molecules. Moreover, having such data allows any research group to forecast outcomes at minimal cost—an essential aspect of the research process. Thus, while fast and inexpensive docking algorithms can be used to screen large compound libraries and narrow down candidates, more precise yet costly molecular dynamics simulations can be applied when only a few ligand candidates remain. This technique should be further developed and integrated into our research groups and also into the content of our academic curricula, as it is currently lacking. With the ability to simulate drug–protein binding, we can generate more research outcomes and increase scientific publications.

Results: Currently, our research group is using a highly advanced platform with financial support from the READ program, which allows for rapid calculation of affinity between the chemical structures under study—such as thymol, carvacrol, cyclodextrins—and specific proteins. This platform provides one of the best-performing algorithms in the Balkans and facilitates the selection of optimal candidates for relevant therapies.

Keywords: Molecular docking, scaffolds, plant extracts, pharmacology, specific proteins, drug design, molecular simulations.

Drug Shortages in Albania: A Model for Monitoring and Reporting

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Introduction: Drug shortages are an increasing global concern that impacts patient care, raises healthcare service costs, and disrupts drug supply chains. In Albania, the lack of a structured system for monitoring and addressing drug shortages intensifies this challenge. This study aims to develop a data-driven model tailored to the Albanian pharmaceutical sector, enabling real-time monitoring and effective reporting of shortages to improve availability, patient outcomes, and the efficiency of the healthcare system.

Objective: To achieve this, a combined methodological approach was used, incorporating both qualitative and quantitative data collection along with a comparative analysis of drug shortage management systems in the European Union, to identify best practices that can be applied in the local context. A prototype model was developed based on a database utilizing data analysis tools and national guidelines to ensure real-time functionality. A pilot phase was implemented with pharmacists and stockers to gather feedback for system improvement.

Conclusions and Results: The analysis revealed significant weaknesses in communication, data collection, and resource management within the drug supply chain in Albania. Stakeholders emphasized the need for a centralized platform that offers real-time reporting and forecasting capabilities. The developed model includes automatic data collection and a customizable panel for visualizing shortages. The pilot phase showed improvements in the efficiency of identifying and reporting shortages, supporting quick interventions. This model provides a practical solution to strengthen the pharmaceutical supply chain in Albania by enabling proactive management of drug shortages. Its innovative and flexible aspect offers potential for application in low- and middle-income countries facing similar challenges.

Keywords: Drug shortages, patient care, pharmaceutical system, real-time monitoring, effective reporting, drug shortage management.

Evaluation of the Effectiveness of a Polymer System Used in Coating Diclofenac Sodium Tablets

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Introduction: Diclofenac sodium is a drug that can cause gastrointestinal side effects such as bleeding, ulcers, etc. Therefore, tablets of this drug are formulated as gastro-resistant coated tablets. Recently, polymers containing carboxyl groups as a functional part have been tested as coating materials.

Objectives: This study aims to develop a formulation using a combined system of anionic copolymers of methacrylic acid-ethyl acrylate and hydroxypropylmethylcellulose for formulating a stable, effective, safe dosage form with the same dissolution profile as the reference drug.

Methods: Diclofenac sodium was formulated as a gastro-resistant tablet using Opadry YS for the isolating coating (with a weight gain of 4%) in combination with Acryl-EZE, an aqueous acrylic enteric system used in 3 different amounts with weight gain percentages of 7%, 10%, and 15%. The coating was applied using the CGS France apparatus. Testing was carried out in accordance with USP pharmacopoeial tests.

Results: There is a positive correlation between the acid absorption results and the dissolution data for the enteric coatings of 7% and 10% of diclofenac sodium tablets, showing higher percentages of acid absorption. Tablets coated with 4% isolating coating and 15% enteric coating meet the criteria of the analysis outlined by the USP pharmacopoeia.

Conclusion: The obtained data support the theory that a thicker enteric layer provides a better dissolution rate of diclofenac sodium.

Keywords: combined copolymer system, stable dosage form, acid absorption rate

Update of the Albanian Legal Framework for Narcotic Drugs and Psychotropic Substances with International Conventions

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Introduction: Albania, as part of the European integration process and the obligations arising from the ratification of the 1961 and 1971 International Conventions on Narcotic Drugs and Psychotropic Substances, has recently updated the current law 7975/1995 "On Narcotic Drugs and Psychotropic Substances," as amended, with the aim of improving the terminology used, updating the corresponding lists according to the International Narcotics Control Board, and implementing international standards. This process covered several directions such as:

- Harmonization with international conventions: Replacing terms and updating the lists of controlled substances is an important step to ensure that Albanian legislation aligns with international regulations. This will help improve controls and monitoring of substances that may have harmful effects on public health.
- Use of clearer terms: The use of the term "group" instead of "table" and "list" for references to international conventions can help avoid misinterpretations and legal confusion.
- Regulation of cannabis cultivation: Creating a legal framework for the cultivation and production of cannabis for medical and industrial use is an important step in enabling the development of the industry and its controlled use, while preventing illegal and abusive use.
- Updating the lists and inclusion of N20: The inclusion of N20 (nitrous oxide) in the lists of substances with abuse potential is a response to global concerns about its uncontrolled and abusive use.

Methodology: The process also presents some challenges in its implementation such as:

- Practical implementation of changes: The proposed changes are positive, but will require strong and coordinated implementation from the relevant agencies, including the National Agency for Drugs and Medical Devices (AKBPM). Ensuring proper oversight and compliance with regulations may be a challenge.
- Compatibility with other laws: It must be ensured that harmonization with Law No. 61/2023 on cannabis cultivation does not create overlaps with other legislations, but rather integrates smoothly into the country's legal system.
- Reformulation of articles: The reformulation of Article 4 and the creation of the new Article 104/1 for cannabis cultivation will require careful analysis to ensure that no unclear or ambiguous points are created that could cause difficulties in implementation.

Results and Conclusions: Overall, the draft law is a positive step towards improving legislation and aligning it with international standards, but like any major legal change, it requires careful implementation and monitoring to achieve positive effects.

Keywords: Update of legislation, controlled substance control, nitrous oxide (N2O)

Adaptation and Validation of HAQ-DI and EQ-5D-5L Questionnaires for Use in Rheumatoid Arthritis in Albania

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Introduction: The HAQ-DI and EQ-5D-5L questionnaires are internationally used instruments for measuring outcomes in rheumatoid arthritis (RA).

Objective: To validate and apply the Albanian version of the questionnaires, providing a reliable tool for measuring disability and quality of life.

Methods: The Albanian versions of HAQ-DI and EQ-5D-5L were used, ensuring they were understandable and accurate. 25 RA patients completed the questionnaires via a telephone interview, one day after a follow-up visit and again after one week. The Spearman correlation coefficient (rs) was used to demonstrate the relationship between results.

Results: Test-retest reliability: HAQ-DI and EQ-5D-5L showed high reliability (rs = 0.87006 and rs = 0.82979), indicating strong agreement between measurements taken at different time points. 13 patients showed a high correlation between the two tests, while 12 others had a moderate correlation. Correlation with disease activity indicators: 18 patients who reported high pain levels (8 to 10 on a 1-10 scale) had higher disability levels on HAQ-DI (average score 2.469) and lower scores on EQ-5D-5L (average score 0.425). A strong correlation was observed (rs = 0.78566) between pain levels and disability (HAQ-DI score), and a strong negative correlation (rs = -0.6879, p=0.00014, $p<0.05$, statistically significant) between pain levels and quality of life (EQ-5D-5L score).

Conclusion: Our version of HAQ-DI and EQ-5D-5L is reliable and validated; it can be used for measuring QALY, which is very important in pharmacoeconomic analysis of RA. Our study's results are consistent with studies from other countries.

Keywords: Test-retest reliability, correlation with disease activity, rheumatoid arthritis (RA)

Comparative Analysis of Methods for Assessing Adherence to Inhalers in COPD and Asthma

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Introduction: Effective management of chronic diseases such as asthma and COPD heavily depends on patient adherence to therapy, yet accurate assessment remains a challenge. This study compares the main methods for assessing adherence, including self-report questionnaires, pharmaceutical records, and electronic monitoring devices, analyzing the effectiveness and limitations of each method in different patient groups.

Methods: This review includes an analysis of existing literature on adherence measurement, sourced from databases such as PubMed, Scopus, and Web of Science, selecting studies published from 2014 to 2024. Articles comparing subjective and objective methods were analyzed, with a focus on accuracy, usability, and clinical impact of each method.

Results: Self-report methods, such as questionnaires, provide a good understanding of patient behavior but often overestimate adherence. Pharmaceutical records help assess treatment continuity but do not provide information on actual inhaler use. Electronic monitoring ensures accurate data on frequency and technique of use but faces practical challenges and high costs.

Conclusion: The combination of questionnaires with refill data and electronic monitoring identifies more non-adherent patients than any individual method. This analysis highlights the need to integrate multiple assessment methods supported by patient education and effective doctor-patient communication to ensure effective interventions and improve long-term care in asthma and COPD.

Keywords: Electronic monitoring and practical challenges, electronic monitoring devices, asthma, COPD (Chronic Obstructive Pulmonary Disease)

Rational Use of Phytopharmaceuticals

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Introduction: The increasing use of phytopharmaceuticals has raised the risk of adverse effects, allergic reactions, and potential interactions with conventional medicines. Therefore, it is a misconception to assume that herbal medicines are safe simply because they are natural.

Objective: The aim of this study is to describe and analyze the use of herbal medicines among patients in the city of Tetova and the knowledge that patients have about the potential side effects and interactions between herbal and conventional medicines.

Methods: A survey conducted from February to May 2024 in the city of Tetova included 250 patients, showing that 44.8% of patients use phytopharmaceuticals, with 70.3% of them using them for the treatment of various diseases. Regarding recommendations, 59% of patients use phytopharmaceuticals on the recommendation of a doctor. Only 22.4% of patients who use herbal medicines are aware of the potential side effects of phytopharmaceuticals, while 72.4% of patients using herbal medicines have used them simultaneously with conventional drugs. Furthermore, only 13.1% of them have been informed by a doctor or pharmacist about the possible interactions between these medicines.

Results: The study showed that doctors and pharmacists play a critical role in the proper use of herbal medicines, in preventing adverse effects and potential interactions between herbal and conventional medicines.

Keywords: Phytopharmaceuticals, interactions, herbal medicines

The Impact of Microencapsulation of Essential Oils in Cyclodextrins on their Biological Activity

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Introduction: Essential oils (EO) are volatile compounds, present in many medicinal plants, with biological and pharmacological importance. Their use in the pharmaceutical, cosmetic, and food industries is increasingly growing, but producing formulations with them presents difficulties due to their physicochemical properties. Microencapsulation in cyclodextrins (CD) offers solutions to these problems. This review highlights the impact of microencapsulation in CD on the biological activity of EO, comparing their effects before and after microencapsulation.

Methodology: This review is based on references collected from databases such as PubMed, Scopus, Springer and Google Scholar. Publications focusing on comparative studies of the biological effects of essential oils before and after microencapsulation in cyclodextrins were selected.

Results: The review of relevant articles shows that microencapsulation of EO in cyclodextrins improves the antibacterial effect of EO from aromatic medicinal plants such as *Salvia officinalis*, *Rosmarinus officinalis*, *Oreganum heracleoticum*, *Oreganum vulgare*, *Thymus vulgaris*, *Thymus capitatus*, *Satureja montana*, etc. against bacteria *P. vulgaris*, *E. coli*, *S. aureus*, *B. subtilis*. Also, increased antifungal activity after microencapsulation in cyclodextrins is observed for the essential oils of rosemary, savory, oregano, coriander, etc. This change in the studied EOs can be explained by the slower release of EOs from CD, allowing the EOs to remain in contact with fungal strains for a longer time. Improved antioxidant activity is reported for the complex of clove root's EO with HP-β-CD; an increase in the inhibitory ability of the *Juniperus phoenica* EO complex with CD against the enzyme acetylcholinesterase is also reported.

Conclusions: In conclusion, we emphasize that the microencapsulation of EOs in CD generally improves the biological activity of EOs, highlighting the potential application of these complexes in the medical and pharmaceutical fields. Additionally, studies emphasize the need for further research on the specific mechanisms of action of EO-CD complexes.

Keywords: Essential oils, cyclodextrins, biological activity, nanotechnology.

Harmonization of the National Legal Framework on the Regulation of Medical and Industrial Cannabis and its By-products and Products with International Standards

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Introduction: The harmonization of the Albanian legal framework on the regulation of medical and industrial cannabis, as well as its by-products and products, with international standards, requires a balanced approach to ensure public safety and sustainable development of the industry.

Methodology: Key steps for this process include:
Compliance with international standards:

- Adoption of international regulations such as the United Nations Conventions and EU regulations.
- Use of international standards such as ISO and GMP to ensure product safety and quality.

Regulation of medical and industrial cannabis:

- Drafting of detailed subordinate acts for the cultivation and use of medical and industrial cannabis, setting clear criteria for producers and distributors.

Licensing and controls:

- Establishment of a licensing system for producers and distributors of cannabis and its by-products.
- Creation of an efficient product control and inspection mechanism to ensure compliance with safety and quality standards.

Regulation of by-products and labeling:

- Application of standards for the production of cannabis by-products, such as oils, etc.
- Products to be clearly labeled, including information on composition and safety.

Educational efforts and awareness:

- Organization of training for medical professionals and educational campaigns for consumers on the safe use of cannabis.

Conclusions: In conclusion, the harmonization of Albania's laws and practices with international standards will enable the sustainable development of the cannabis industry, ensuring public health protection and increasing international trust.

Keywords: Medical and industrial cannabis, international standards, compliance with ISO and GMP

Stabilization of Pharmaceutical Forms with Microencapsulated Thymol using β-Cyclodextrin for Therapeutic Use in the Oral Cavity

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Introduction: This study aims to evaluate the effectiveness of two gel formulation methods for the treatment of oral malignant pathologies and inflammatory conditions in the oral cavity using medicinal plants rich in thymol, known for their antitumor properties. The oral gel formulation aims to minimize the potential side effects of traditional therapies.

Objectives: The comparison of two oral gel formulation methods: hydroxyethylcellulose (HEC) and Carbomer, to develop pharmaceutical forms containing essential oil extracts from Thymus vulgaris.

Methods: Essential oil extraction was performed using steam distillation in a Clevenger apparatus, and thymol concentration was analyzed by Gas/Mass method (45%-65%). The oil was complexed with β-cyclodextrin for better stability. Oral gels were formulated with HEC and Carbomer and were evaluated for stability and viscosity using a Brookfield viscometer.

Results: In this study, it was observed that bases with Carbomer and HEC provide appropriate viscosity and stability for pharmaceutical formulations such as oral gels with thymol complexed with β-cyclodextrin for antitumor effects.

Conclusion: This study will contribute to the comparison of the two oral gel formulation methods, aiming to offer new therapeutic opportunities for the treatment of oral malignant pathologies, ensuring safe and effective therapy with minimal side effects.

Keywords: Thymol, malignant pathologies, oral gel, hydroxyethylcellulose, Carbomer, β-cyclodextrin

Structural and Immunological Anomalies of the SARS-CoV-2 Spike Protein: mRNA Modifications, Immune Response, and Vaccine Safety

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Introduction: The spike protein of SARS-CoV-2 presents several unusual motifs that raise important questions about its structure, function, and immunological impact. This presentation explores key anomalies, including the furin cleavage domain and its homology with MSH3, the super-antigenic properties of the virus, and neurotoxin-like motifs found within its structure.

Methodology: The immune response is also examined, particularly the public response to antibodies against RBD and the effects of repeated mRNA vaccinations. Important concerns include the prozone effect, the increase in IgG4 levels following repeated vaccinations, and immune imprinting (original antigenic sin), which may affect vaccine efficiency and long-term immune modulation. The presentation also includes findings from studies shedding light on vaccine efficacy and side effects. Recent data suggests that mRNA vaccines provide only short-term protection, requiring frequent booster doses. The risk/benefit ratio of repeated vaccinations, especially in children, is carefully analyzed due to possible side effects. Furthermore, the specific characteristics of the spike protein induced by the vaccine are discussed, as it appears to cause unpredictable phenomena that were not observed in previous clinical studies.

Results: New studies have also highlighted a newly identified syndrome of dysautonomia—PACVS (Post-mRNA Vaccine Syndrome)—associated with cardiovascular and immune disorders. Alterations in the antibody repertoire against receptors and inflammatory markers (IL-6/IL-8) in individuals affected by PACVS after mRNA vaccination, compared to unvaccinated individuals, necessitate further investigation into the long-term safety of vaccines. Understanding these anomalies is essential for improving future vaccination strategies and enhancing efficacy and safety in preparation for new pandemics.

Keywords: furin cleavage site, MSH3 homology, superantigen-like properties, neurotoxin-like motifs, RBD antibody classes, prozone effect, vaccine side effects, IgG4 increase after repeated vaccination, immune imprinting (original antigenic sin), PACVS (Post-mRNA Vaccine Syndrome), risk-benefit ratio of repeated vaccination

Stability of Lipid-Based Gene Carriers Undergoing Freeze-Drying

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Introduction: Gene carriers in the form of lipid-based nanoparticles have revolutionized the microdelivery of nucleic acids, particularly mRNA, such as in the development of COVID-19 vaccines. Their advantages include protection of the genetic payload, enhanced encapsulation, and avoidance of endosomal escape. However, storage at extremely low temperatures remains a challenge.

Objectives: This study aims to develop four new formulations called LNP and LCN, which use two different lipid combinations for mRNA encapsulation. The experiments include assessing physical stability, freeze-drying with various cryoprotectants, measuring mRNA encapsulation within the nanoparticles, toxicity, and transfection efficiency in human A549 alveolar basal epithelial cells.

Methodology: The methodology involved producing nanoparticles using various microfluidic methods, characterizing them with Dynamic Light Scattering (DLS), storing them at ambient temperature and 4°C for varying time intervals, freeze-drying with different cryoprotectants, analyzing mRNA encapsulation using Ribogreen assay, toxicity using MTT assay, and evaluating transfection efficiency in A549 cells.

Results: The results showed that the nanoparticles (90-150 nm) remained stable after storage for 3 months at ambient temperature and 4°C. Sucrose 10% was the most effective cryoprotectant. mRNA encapsulation within the nanoparticles resulted in ≥98%, with no observed toxicity in A549 cells. Freeze-drying maintained transfection efficiency.

Conclusions: This study enables the storage of LNP-based vaccines at ambient temperature and 4°C for extended periods, remaining safe and effective for global transportation.

Keywords: lipid-based nanoparticles, mRNA delivery, gene carriers, freeze-drying, cryoprotectants, nanoparticle stability, transfection efficiency, LNP, LCN, mRNA encapsulation, ambient storage, COVID-19 vaccines, A549 cells, pharmaceutical nanotechnology.

Prostate Cancer in Albania: A Retrospective Study

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Introduction: Prostate cancer is the second most common cancer and the fifth leading cause of cancer-related deaths among men in 2020. This retrospective study aims to evaluate the distribution of benign prostatic hyperplasia and prostate carcinoma in Albania during the period 2017–2022, highlighting histological grade and pathological stage by age group.

Methods: The study material includes 4,469 cases examined at the Pathology Service of "Mother Teresa" University Hospital Center and the American Hospital in Tirana. Cases were organized in an Excel database and statistically analyzed using SPSS software.

Results: Men aged 60–80 years are the most affected group by obstructive urinary disorders. The average age is 69.63 years. A clear upward trend is observed in the number of patients with benign prostatic hyperplasia and prostate adenocarcinoma. Stage IIA is the most prevalent. PSA screening plays a significant role in early diagnosis of prostate cancer (PCa). No statistically significant correlation was found between age, PSA levels, and prostate volume in patients with a Gleason score (GS) ≥7 before surgery.

Conclusion: The incidence of prostate cancer shows a slight increase compared to previous studies in Albania. Immunohistochemistry is being applied in small preoperative biopsies as a diagnostic method. A major challenge remains the establishment of a National Prostate Cancer Registry.

Keywords: Prostate cancer, Albania, retrospective study, benign prostatic hyperplasia, prostate adenocarcinoma, histological grade, pathological stage, PSA screening, Gleason score, immunohistochemistry, cancer registry, urology, epidemiology.

Diagnosis of Soft Tissue Tumors of Lower Extremities, Review of Literature and Case Report.

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Introduction: Soft tissue tumors have a wide range of morphological differentiation. World Health Organization classification of tumors of soft tissue 2020, arranges these tumors into 12 groups according to their histogenesis. Tumor behavior is classified as benign, intermediate (locally aggressive/rarely metastasizing), and malignant.
In many cases soft tissue tumors can be diagnosed by histopathological examination alone, but in certain cases the confusing morphology, in spite of all efforts, leaves the pathologist uncertain about the exact nature of the neoplasm.

Methods: In our practice, a general approach to reaching a definitive diagnosis of soft tissue tumors is to first evaluate clinicoradiological, histomorphologic, and cytomorphologic features of the tumor to generate some differential diagnoses. As a next step we need the help of ancillary techniques like immunohistochemistry (IHC) to determine the final diagnosis.
Although molecular/genetic testing is increasingly finding its applications in characterizing soft tissue tumors, currently immunohistochemistry still not only plays an indispensable role in defining tumor histogenesis, but also serves as a surrogate for underlining molecular/genetic alterations.

Objective: To provide an overview focusing on the current concepts in the classification and diagnosis of soft tissue tumors, incorporating immunohistochemistry. This lacture uses examples to discuss how to use the traditional and new immunohistochemical markers for the diagnosis of soft tissue tumors. Practical diagnostic pearls, summary tables, and figures are used to show how to avoid diagnostic pitfalls.

Data Sources: Data were obtained from pertinent peer-reviewed English-language literature and the authors' first-hand experience as bone and soft tissue pathologists.

Conclusions: The ultimate goal for a pathologist is to render a specific diagnosis that provides diagnostic, prognostic, and therapeutic information to guide patient care. Immunohistochemistry is integral to the diagnosis and management of soft tissue tumors.

Keywords: Soft tissue tumors, lower extremities, diagnosis, immunohistochemistry, histopathology, WHO classification, tumor histogenesis, molecular markers, case report, diagnostic algorithm, pathology review.

Diagnosis and Treatment of Malignant Hemopathies through Molecular Cytogenetics

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Introduction: Genetic alterations in the organization of the genome are crucial in the clinical evaluation of hematological pathologies. Fluorescence in Situ Hybridization (FISH) has enabled the detection of the presence and frequency of genetic abnormalities.

Objectives: The aim is to use appropriate probes as a diagnostic tool to determine diagnosis, treatment, prognosis, and disease monitoring.

Results: In the Molecular Cytogenetics Laboratory, at the Clinical Genetics Laboratory Service, fluorescent microscopy analysis of interphase cells was conducted for 272 adult patients with known hematological disorders clinically diagnosed by the Hematology Service at UHC "Mother Teresa" in Tirana, including:

- 102 (37.5%) Chronic Myeloid Leukemia (CML)
- 29 (10.6%) Acute Myeloid Leukemia (AML)
- 69 (25.3%) Chronic Lymphocytic Leukemia (CLL)
- 21 (7.7%) Acute Lymphoblastic Leukemia (ALL)
- 33 (12.1%) Myelodysplasia
- 11 (4%) Multiple Myeloma
- 7 (2.57%) Lymphoma patients.

The BCR-ABL genetic rearrangement was identified in 27 (26.4%) patients with CML, aiding in rapid diagnosis and monitoring patient response to given treatment. 4 (13.7%) of AML patients with identified PML-RARA rearrangement achieved complete remission in a short time through targeted therapy, resulting in reduced mortality risk. The deletion of the p53 gene identified in 32 (46.3%) CLL patients represents a major clinical challenge due to its association with poor prognosis, treatment resistance, and aggressive disease with frequent relapses.

Conclusions: Through the identification of specific genetic mutations, molecular cytogenetics contributes to early diagnosis, improved prognosis, and the selection of more appropriate treatments, significantly enhancing survival and quality of life for patients.

Keywords: Fluorescence in Situ Hybridization, probes, personalized medicine, targeted therapy, prognostic factor.

Late Recurrence in Hormone-Receptor Positive, HER2-Negative Breast Cancer: Case Report and Literature Review

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Introduction: Metachronous metastases—those occurring more than six months after primary treatment—can appear many years later, particularly in cases of hormone receptor (HR) positive, HER2-negative breast cancer. Common metastatic sites include lymph nodes, bone, liver, and brain. Late recurrence in estrogen receptor (ER)-positive breast cancer following prolonged adjuvant hormone therapy is thought to be due to the activation of dormant gene expression, allowing tumor cells to survive silently for decades without proliferating. This subtype of breast cancer behaves similarly to a chronic disease, remaining asymptomatic for extended periods and lacking clear signs of progression or recurrence. In contrast, hormone receptor-negative tumors tend not to have dormant cells due to their rapid growth and low expression of exhaustion-related genes. Metastasis to the adrenal glands is rare and is considered an oligometastatic manifestation. Treatment options in cases of solitary adrenal metastasis are not well established due to the rarity of such presentations.

Materials and Methods: This study presents a rare case of late solitary adrenal metastasis in a patient previously treated for hormone receptor-positive, HER2-negative breast cancer. Clinical data, treatment history, and imaging were reviewed. A literature review was conducted to explore existing evidence regarding treatment options in similar clinical scenarios

Results: A 48-year-old woman was initially diagnosed with invasive ductal carcinoma of the left breast. The primary treatment included breast-conserving surgery, radiotherapy, and adjuvant hormonal therapy. Ten years later, she developed a solitary metastasis in the adrenal gland. She underwent laparoscopic adrenalectomy followed by a change in hormonal therapy regimen. The patient has remained in remission for several years and is currently on maintenance treatment with Fulvestrant (Faslodex).

Conclusions: Solitary adrenal metastases from breast cancer are extremely rare. Due to their low incidence, no standardized treatment guidelines exist for this clinical scenario. When a solitary metastasis is identified, a multidisciplinary team approach and early consideration of surgical resection are crucial. Adrenal metastasectomy combined with systemic hormonal therapy represents the current standard of care in selected cases of metachronous solitary metastases. In modern clinical practice, CDK4/6 inhibitors may also be considered alongside hormonal therapy. This case highlights the importance of documenting such rare recurrences in national registries to better understand their frequency and to establish treatment protocols that can serve as guidance for future management.

Keywords: Breast cancer, hormone receptor positive, HER2-negative, late recurrence, solitary adrenal metastasis, metachronous metastasis, hormone therapy, adrenalectomy, CDK4/6 inhibitors, case report, dormancy, oncology.

Cryoablation of Renal Cancer

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Introduction: Renal cryoablation is becoming a preferred option for the treatment of renal cell carcinoma (RCC). This procedure preserves the healthy part of the kidney without impairing its function and without compromising cancer control.

Methodology: The modern technique of renal cryoablation is performed percutaneously. The procedure involves the complete destruction of the tumor while sparing the surrounding tissues and adjacent organs. Several auxiliary techniques are used to protect nearby tissues and organs during treatment. Dynamic monitoring is conducted throughout the procedure to observe the formation of the ice ball, which encompasses the entire geometry of the tumor. The procedure always includes two complete freeze-thaw cycles at -150°C and +50°C.

Results and Conclusions: This process, through cellular membrane damage, causes water retention within the cells. During the second freeze cycle, the complete rupture of the cellular membrane occurs, leading to total cell lysis. Follow-up takes place at 1, 3, 6, and 12 months after treatment, and then annually. Subsequent examinations show progressive tumor reduction as a result of cellular apoptosis developing around the tumor.

Keywords: Cryoablation, renal cancer (RCC).

Congenital Ectopia of the Right Ovary Associated with Ipsilateral Renal Agenesis: A Case Report

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Introduction: True ovarian ectopia is a rare congenital anomaly that often remains undiagnosed due to its nonspecific symptoms. In some cases, ovarian ectopia is associated with other developmental abnormalities, such as renal agenesis, indicating a common defect in the urogenital ridge development.

Case Presentation: A 34-year-old woman presented with severe lower right quadrant abdominal pain, clinically resembling acute appendicitis. Laboratory tests were unremarkable except for mild thrombocytosis. Abdominal ultrasonography revealed right kidney agenesis and compensatory hypertrophy of the left kidney. MRI confirmed these findings and additionally identified the retrocecal position of the right ovary, with visible follicles and two small paraovarian cysts.

Discussion: The combination of ovarian ectopia and renal agenesis suggests an early embryonic anomaly of the urogenital ridge. The abnormal ovarian position and its nonspecific symptoms often lead to diagnostic delays and mismanagement. Existing literature reports similar cases where imaging modalities, particularly MRI, play a crucial role in differential diagnosis and treatment planning.

Conclusion and Comments: This case highlights the importance of considering ovarian ectopia in the differential diagnosis of acute abdominal pain in women. MRI is essential for identifying congenital anomalies and establishing an accurate diagnosis, preventing unnecessary surgical interventions. Further research on such anomalies could help develop improved diagnostic and management strategies.

Keywords: congenital anomaly, ovarian ectopia, renal agenesis, urogenital ridge, abdominal pain.

Comparison of Demographic Data, Treatment Options, and Extra-Intestinal Manifestations between Crohn's Disease and Ulcerative Colitis in Children: Our Experience over the Last 15 Years

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Introduction: To compare demographic data, treatment options and extraintestinal manifestations between Crohn disease (CD) and Ulcerative Colitis (UC) in Albanian children.

Materials and Methods: The medical records from January 2008 through December 2023 were reviewed to identify patients who are diagnosed and treated for IBD. All patients had to be <18 years of age at diagnosis of IBD and diagnoses were confirmed by previously established international criteria based on clinical, endoscopic, histopathological, and radiological findings. We compared: 1. Demographic data (CD/UC ratio, male female ratio, age of presentation). 2.Anti-TNF and immunomodulators as main treatment option. 3.Extraintestinal manifestations presented in both groups

Results: In our retrospective study we have found 57 patients diagnosed with IBD. Of 57 patients, 43 of them were diagnosed with Ulcerative colitis and 14 were diagnosed with Crohn disease. In total male /female ratio was quite equal for all patients (27/30) but in CD this ratio was in favor of boys (9/5) compared with the UC group where girls were the majority (18/25). Mean age of presentation in the UC group was 8.1 years for Ulcerative colitis and 11.1 years for Crohn disease. Anti TNF (Infliximab /adalimumab) are used in 28.5% of CD patients as monotherapy, combined with immunomodulators (mostly azathioprine) in 35.7 % and 7.1 % of CD patients were treated with immunomodulators as monotherapy. Meanwhile UC patients were treated with immunomodulators as monotherapy in 32.5 % of patients, combined therapy in 6.9 % of UC patients and 4 % of UC patients were treated with anti TNF as monotherapy. We found 2/14 extraintestinal manifestations in the CD group and 6/43 in the UC group.

Conclusions: In our IBD patients prevail Ulcerative colitis patients. Age of presentations was younger in CD. Anti TNF are used more often in CD patients meanwhile immunomodulators in UC patients. According to extraintestinal manifestations we did not find differences between two groups.

Keywords: IBD inflammatory bowel disease; CD Crohn Disease; UC ulcerative colitis; Children

Challenges and Recommendations in the Management of Posterior Urethral Valve (PUV)

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Introduction: Posterior urethral valve (PUV) is a congenital anomaly and the most common cause of obstructive uropathy in boys, with an incidence of 1 in 4,000–8,000 births. PUV can cause serious damage to the entire urinary tract and beyond. Although its etiology has a genetic basis, it remains unclear. Around the 8th–14th week of intrauterine development, normal urethral development is interrupted, causing a mechanical obstruction. As a result, the entire urinary tract develops under abnormal conditions and increased pressure, which leads to irreversible renal dysplasia.

Methodology: Prenatal diagnosis is made via ultrasound. After birth, the examination of choice is Voiding Cystourethrography (VCUG). If VCUG cannot be performed or is inconclusive, cystoscopy is used for both diagnostic and therapeutic purposes (valve ablation). Most cases are diagnosed during the neonatal period and early childhood, but more rarely during puberty or adulthood. The clinical presentation is variable, ranging from mild lower urinary tract symptoms to severe life-threatening consequences (at birth due to pulmonary hypoplasia or later due to progression to End-Stage Renal Disease – ESRD). Early diagnosis and treatment make a significant difference in the prognosis of the disease. The first step is PUV ablation via cystoscopy. In cases where resection is not feasible in premature or low birth weight infants, urinary catheterization is essential until valve ablation can be performed. Long-term management is complex and requires a multidisciplinary approach.

Conclusions and Recommendations: PUV is a complex condition with a significant lifelong impact. Effective management requires thorough medical knowledge, early treatment, and long-term multidisciplinary follow-up. Despite treatment, prognosis remains reserved in some cases. Prenatal diagnosis before the 24th week of gestation is associated with a poorer prognosis. Bladder dysfunction must be managed effectively to preserve upper urinary tract function. True management of PUV begins after valve ablation. Our experience in Pediatric Surgery with PUV management aligns with contemporary medical recommendations and statistics.

Keywords: Posterior Urethral Valve (PUV), urinary obstruction, valve ablation, cystourethrography (VCUG), End-Stage Renal Disease (ESRD).

The Challenge of Initiating Antibiotic Therapy in Suspected Neonatal Infection Based on Maternal Factors

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Introduction: Neonatal infection is a major cause of neonatal morbidity and mortality, requiring immediate treatment. Initiating antibiotic therapy in newborns is challenging due to difficulties in early diagnosis, absence of clinical signs, and increasing antibiotic resistance. Maternal factors influence neonatal infection and their identification helps guide early intervention.

Objective: To determine the optimal timing for initiating therapy in suspected neonatal infection based on maternal risk factors.

Materials and Methods: A literature review was conducted using PubMed and Scopus, along with guidelines from the American Academy of Pediatrics, the Committee on Fetus and Newborn, the Centers for Disease Control and Prevention (CDC), and the American College of Obstetricians and Gynecologists (ACOG). A retrospective study was carried out at SUOGJ “Queen Geraldine” in Tirana, involving newborns with suspected or confirmed infections treated with antibiotics. Maternal factors included: gestational age, urinary tract infection, chorioamnionitis, leukocytosis, and premature rupture of membranes. Logistic regression analysis was used to assess the association between maternal infection indicators and neonatal outcomes. Data were analyzed with a 95% confidence interval.

Results: The study included 314 newborns with suspected or confirmed infection (18% and 82%, respectively). 32% of the newborns were preterm. Maternal risk factors were present in 189 of the newborns. The most significant maternal factors associated with neonatal infection were urinary tract infection, chorioamnionitis, leukocytosis, and premature rupture of membranes longer than 18 hours ($P<0.0001$). Preterm infants had a significantly higher likelihood of infection (OR = 9.56, 95% CI: 5.10–17.9, $P<0.0001$). The risk increased with lower gestational age ($P<0.0001$).

Conclusions: When initiating antibiotic therapy in newborns, gestational age and maternal risk factors play a critical role in determining infection risk and guiding treatment.

Keywords: maternal outcomes, newborn, antibiotic, infection, preterm.

Conference Hall 5

Prominent Findings from the "May Measurement Month" (MMM) Study in Albania during the Period 2018–2022

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Introduction: The "May Measurement Month" (MMM) study, initiated by the International Society of Hypertension (ISH), aims to control hypertension, raise awareness, and improve blood pressure control by conducting large-scale opportunistic blood pressure screenings in the general populations of many countries around the world.

Objective: To describe the key findings from the MMM study conducted in Albania during the period 2018–2022.

Methodology: During the period 2018–2022, each year (except for 2020), in the month of May, a large opportunistic sample of adults (individuals aged ≥18 years) was recruited in various areas across multiple districts of Albania. Blood pressure was measured for all participants, accompanied by the administration of a structured questionnaire on behavioral factors, comorbidities, and demographic characteristics. Hypertension was defined as a systolic pressure ≥140 mmHg and/or a diastolic pressure ≥90 mmHg, or being on antihypertensive medication. Controlled blood pressure was defined as taking antihypertensive medication with a blood pressure reading <140/90 mmHg.

Results: The prevalence of hypertension was approximately 37% in 2018, 39% in 2019, 47% in 2021, and 40% in 2022. Among individuals taking antihypertensive medication, around 50% had controlled blood pressure in 2018, 48% in 2019, and 29% in 2022. Among those with hypertension, the awareness rate was about 52% in 2018, 65% in 2019, 70% in 2021, and 65% in 2022.

Conclusion: The prevalence of hypertension remains high in Albania. However, awareness among individuals with hypertension has generally improved, indicating progress in detection and education efforts. Encouragingly, blood pressure control among Albanian individuals taking antihypertensive medication significantly improved in 2022. Nevertheless, given the persistently high prevalence of hypertension, continuous efforts are essential to further increase awareness, treatment adherence, and preventive strategies to reduce the overall burden of hypertension and its associated health risks in the Albanian population.

Keywords: screening, hypertension, May Measurement Month (MMM), high blood pressure

Performance Evaluation of the National Tuberculosis Control Program 2015–2024 in Albania

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Introduction: The National Tuberculosis (TB) Program develops policies, guidelines, and operational research for TB care and prevention, coordinates TB services and surveillance to ensure high-quality management of TB care and control in Albania.

Objectives: To ensure universal access to early diagnosis, quality treatment, and prevention of all forms of TB, as well as to provide supportive environments for effective TB control.

Methods: This is a descriptive analysis of TB data in Albania over a 10-year period (2015–2024). Data collection was conducted through the information system and various periodic reports prepared by the National TB Program in collaboration with TB diagnostic hospitals and primary healthcare institutions.

Results: The incidence of tuberculosis significantly decreased during the 2015–2024 period by 5.7 cases per 100,000 inhabitants (from 14.4 to 8.7); the average number of detected cases declined by approximately 50% per year; the treatment success rate increased from 82% to 89%; the mortality rate decreased from 0.5% to 0.25%; and the testing rate for TB/HIV cases increased from 46% to 90%. During 2019–2024, approximately 60% of TB patients began outpatient treatment in regional dispensaries, in accordance with the national TB control guidelines in primary healthcare services—this represents a significant innovation.

Conclusions: The National TB Program aims to further prioritize the ambulatory care model for TB services, including outpatient treatment of TB cases, to meet the objectives set out in the national TB strategy.

Keywords: Tuberculosis, TB control, Albania, National TB Program, TB incidence, TB treatment success, TB mortality, TB/HIV testing, ambulatory care, primary healthcare, epidemiology

Epidemiological Perspectives on the Burden and Trends of Chronic Respiratory Diseases in Albania

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Introduction: Chronic respiratory diseases (CRDs), including chronic obstructive pulmonary disease (COPD) and asthma, pose significant public health challenges globally. In Albania, these diseases contribute substantially to the national disease burden and require immediate preventive and management measures.

Objectives: To assess the burden and trends of CRDs in Albania from 2018 to 2023, analyse hospitalization and mortality patterns—particularly related to asthma and COPD—and provide data for targeted health interventions.

Methodology: Data were collected from primary healthcare records, hospital charts, and mortality statistics from INSTAT. The analysis covered a five-year period, focusing on asthma and COPD, and examined changes in hospitalization rates and mortality levels.

Results: CRDs accounted for 7% of the national disease burden, ranking third after cardiovascular and endocrine diseases. In Tirana, asthma was the most common condition (42% of cases). Hospitalizations for asthma and COPD peaked in 2018–2019 and declined in 2020–2021, likely due to COVID-19-related disruptions. In 2021, Albania reported one of the lowest CRD mortality rates in the region (30 per 100,000), with both crude and age-standardized rates peaking that year before a steady decline through 2023.

Conclusions: Although the burden of CRDs in Albania is relatively lower than in some neighbouring countries, stronger tobacco control, improved air quality, early diagnosis, and better access to healthcare remain critical to further reducing the impact of chronic respiratory diseases.

Keywords: Asthma, epidemiology, chronic obstructive pulmonary disease, Albania, mortality.

Artificial Intelligence in Health Sciences: "Pro" and "Con" Arguments

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Introduction: As in many other fields, Artificial Intelligence (AI) has made remarkable advances in the health sciences. The application of AI in medicine has introduced new opportunities in disease diagnosis, treatment, and prevention. However, the use of AI in healthcare also faces several challenges and ethical concerns. The aim of this abstract is to present the benefits and risks associated with the integration of AI into health sciences, offering a balanced overview by analyzing both its potential and the challenges that accompany its use.

Advantages of Artificial Intelligence: AI can enhance and accelerate diagnostic accuracy by enabling rapid and precise analysis of medical data, as well as improving personalized treatment options for patients. AI tools such as deep learning algorithms can help identify disease patterns that may go unnoticed by specialists. Furthermore, AI can optimize the management of medical resources and help improve the efficiency of healthcare services.

Challenges and Risks: The use of AI comes with certain drawbacks and risks. A lack of transparency in algorithms, the potential spread of errors, and uncertainty in decision-making based on AI are all significant concerns. Additionally, data sensitivity and patient privacy are sensitive issues that require special attention. The use of AI may also raise fears about replacing healthcare professionals and the potential loss of personal doctor-patient relationships.

Conclusion: Artificial Intelligence holds transformative potential for healthcare, with the ability to revolutionize diagnostics, treatment personalization, and system efficiency. However, its integration must be approached with caution, ensuring ethical guidelines, transparency, and regulatory oversight are in place to address challenges such as data privacy, algorithmic accountability, and the preservation of human-centered care. A collaborative, multidisciplinary approach is essential to ensure that AI enhances, rather than replaces, the role of healthcare professionals.

Keywords: Artificial Intelligence, healthcare, medical ethics, diagnostic tools, patient privacy, algorithm transparency, health informatics, AI in medicine, personalized treatment, human-centered care

Smartphone Use among Students: A Cross-Sectoral Study

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Introduction: Smartphone use has become an integral part of our daily lives, especially in the post-COVID era. The issue of smartphone addiction is increasingly prevalent among students, potentially leading to negative effects on academic performance.

Methods: The aim of this study is to identify smartphone addiction among students in nursing, physiotherapy, and midwifery programs at the University of Shkodra. This is a cross-sectoral study. An online questionnaire with 10 questions (Smartphone Addiction Scale–Short Version, SAS-SV) was used and administered by academic staff in the Department of Clinical Subjects at the University of Shkodra. The study was conducted from January to February 2025 and included 343 students from bachelor's and master's programs in Nursing, Physiotherapy, and Midwifery.

Results: The study sample included 343 students from all study programs of the Departments of Preclinical and Clinical Subjects, of which 9% were male and 91% female. The average age of the sample was 20.5±0.70 years. All students reported using a smartphone. 48% of students reported using their smartphones for 4–6 hours per day, with the primary use being social media. Based on the cut-off values of the scale, 50.1% of students were found to be addicted to smartphones.

Conclusion: Smartphone use/addiction is now an existing problem. It is time to develop effective intervention strategies.

Keywords: smartphone, addiction, University of Shkodra

Nutritional Management and Hyperbaric Oxygen Therapy in ADHD/ASD: Our Experience

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Introduction: Attention Deficit Hyperactivity Disorder (ADHD) and autism spectrum disorder (ASD) are neurodevelopmental conditions that significantly impact cognitive, emotional, and social development. While traditional treatments include behavioral therapy and medication, innovative strategies such as Hyperbaric Oxygen Therapy (HBOT) and nutritional management are gaining attention as supportive methods.

Objectives: This study aims to evaluate the impact of HBOT and nutritional management in patients with ADHD and ASD, analyzing their effects on concentration, emotional regulation, and social skills.

Methods: A personalized approach was used for patient assessment, including food intolerance testing, mineralogram analysis, and the application of HBOT following a structured protocol (1.5 ATA, 90 minutes per session, 5 sessions per week, for 8 weeks).

Results: Among 52 patients with ADHD/ASD treated with HBOT, 87% reported noticeable improvements in focus, emotional regulation, and social interaction. Additionally, personalized analyses revealed that over 65% of patients had nutritional deficiencies or heavy metal imbalances, which, when addressed, led to a 40–60% improvement in symptoms.

Conclusion: HBOT and nutritional management appear to be promising supportive methods in the treatment of ADHD and ASD. Further studies are needed to standardize treatment protocols and assess long-term effects.

Keywords: ADHD, Autism Spectrum Disorder, Hyperbaric Oxygen Therapy, nutritional management, neurodevelopmental disorders, cognitive function, emotional regulation, food intolerance, heavy metals, integrative therapy

A Descriptive Study on Gluten Intolerance in the City of Tirana

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Introduction: Gluten intolerance, including various forms of gluten sensitivity, has gained significant attention in recent years due to its increasing incidence in the general population. IgG, a class of antibodies, is frequently used to identify gluten intolerance and assist in the diagnosis of related conditions.

Objective: This study aimed to investigate the distribution of IgG levels related to gluten intolerance across different age groups.

Materials and Methods: A descriptive study was conducted on a sample of 112 individuals categorized by age groups: 0–3 years, 4–7 years, 8–11 years, 12–17 years, and ≥18 years. Data was collected during 2023–2024. IgG levels associated with gluten intolerance were measured using the ELISA (Enzyme-Linked Immunosorbent Assay) method. IgG levels were classified into five categories: <100 µg/ml, 100–250 µg/ml, 251–500 µg/ml, 501–999 µg/ml, and ≥1000 µg/ml. Statistical analysis was conducted using SPSS version 21.

Results: In the study, 33% of participants were male (n=37) and 67% were female (n=75), showing a predominance of female participants. The largest age group was ≥18 years, comprising 72.3% of the sample (n=81). The majority of participants (50.9%) had IgG levels below 100 µg/ml. Only 8 individuals (7.1%) had IgG levels above 1000 µg/ml. Gluten intolerance prevalence was highest among individuals aged ≥18 years, with 31.25% testing IgG positive for gluten. The lowest prevalence was observed in the age groups 0–3 years (7.14%) and 12–17 years (1.78%).

Conclusion: The study indicates that gluten intolerance is more prevalent among individuals aged ≥18 years, although it can occur at any age. This highlights the importance of early diagnosis and management of gluten intolerance across all age groups.

Keywords: Intolerance, gluten, specific IgG, prevalence, ELISA

Average Daily Salt Consumption in the Population of Tirana

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Introduction: Approximately 1.28 billion adults aged 30–79 worldwide have hypertension, with the majority (two-thirds) living in low- and middle-income countries. Evidence from various sources, including animal studies, epidemiology, and human trials, has established a link between salt intake and hypertension.

Objectives: The primary aim of this study was to determine the level of salt consumption in our country. Additional objectives included assessing consumption by age group, body mass index (BMI), and gender.

Methods: The most accurate method for determining salt intake is the measurement of sodium (Na) excretion in 24-hour urine samples from a representative sample. A sample of 150 individuals was selected from a population of approximately 80,000 residents in Municipal Unit No. 9 of Tirana.

Results: The phase of urine sample collection has been completed, and statistical analysis is currently in progress. The results will be available at the time of the conference.

Conclusion: As observed in other countries in our region, a high average salt intake is anticipated. Once the results are available, national programs should be developed to reduce salt consumption in Albania through continuous efforts, including public education, public health initiatives, and negotiations with major food producers.

Keywords: salt consumption, hypertension, sodium, urine analysis, public health

The Impact of Academic Stress on Functional Gastrointestinal Symptoms among University Students in Albania

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Introduction: Functional gastrointestinal disorders (FGIDs), such as irritable bowel syndrome (IBS) and functional dyspepsia, are prevalent among university students. Academic stress is a significant psychosocial factor contributing to the manifestation of these symptoms.

Objectives: To evaluate the relationship between levels of academic stress and the prevalence of functional gastrointestinal symptoms among university students in Albania.

Methods: A cross-sectional observational study was conducted across three Albanian universities, involving 300 undergraduate students. Data were collected using a structured questionnaire incorporating the Rome IV diagnostic criteria and the Perceived Stress Scale (PSS-10). Statistical analysis included Chi-square testing and logistic regression.

Results: The overall prevalence of FGIDs was 41.7%. IBS was identified in 19.3% and functional dyspepsia in 23.4% of students. Students with high perceived stress levels (PSS $\geq$20) were 2.6 times more likely to report FGIDs (OR = 2.6, 95% CI: 1.7–4.0, $p < 0.001$). A gender difference was observed (females 48.2% vs. males 34.5%).

Conclusions: Academic stress is significantly associated with the presence of functional gastrointestinal symptoms among university students, highlighting the need for psychoeducational interventions within academic environments.

Keywords: Academic stress; Functional gastrointestinal disorders; IBS; Students; Rome IV; Albania; PSS-10.

Evaluation of the Impact of Policies and Surveillance on Access to Safe Abortion in Albania (2000-2022)

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Introduction: Access to safe abortion is essential for public health and women's reproductive rights. Albania legalized abortion in 1995, allowing voluntary pregnancy termination within 12 weeks.

Methodology: Based on this, a national surveillance system was established to monitor trends, improve service quality, and develop public health strategies. The study evaluates the impact of abortion policies and the surveillance system on improving access to safe abortion in Albania. A review of policies, legislation, and public health initiatives was conducted. Further, data from abortion surveillance (2000-2022) were analysed. Key indicators included abortion levels, ratios, and trends in both public and private sectors. The results show a significant decline in the abortion rate over the last two decades, from 21.6 to 6.4 per 1,000 reproductive-age women. Similarly, the abortion ratio decreased from 321.8 to 178.1 per 1,000 births. These positive trends are strongly linked to increased access to modern contraceptives, enhanced reproductive health education, and monitoring of abortion services. The surveillance system provides essential data to inform policies and address service gaps. However, challenges remain, including cultural stigma and limited reporting from private providers.

Results and Conclusions: In conclusion, Albania's approach, integrating legislation and a surveillance system, has significantly improved access to abortion. Further studies are needed to include the private sector, minimize stigma, and increase education on reproductive health to ensure equality and safe access for women.

Keywords: access to safe abortion, public health policy, abortion surveillance, reproductive health, Albania

A Conceptual Framework for the Phenomenon of Migration in Albania: A Qualitative Study on the Perceptions of General Practitioners

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Introduction: Worldwide, many countries are facing workforce shortages in the healthcare sector, leading to inequalities in access to and availability of healthcare services. One way to address these shortages is through international migration of healthcare workers, raising significant concerns, particularly for sending countries. The healthcare system in Albania is one of the sectors most affected by the mass migration of the population, with the healthcare workforce being part of this phenomenon. To better understand these factors among Albanian doctors, we have used a theoretical framework to conceptualize and analyze the findings from focus group discussions.

Objective: The aim of this study is to identify the factors influencing the migration of Albanian doctors – from the perspective of general practitioners living and working in Albania – and to develop a conceptual framework for this phenomenon.

Methodology: Nine focus groups were conducted, with three in each district. The audio-recorded discussions, with an average duration of 32 minutes, were held in Albanian and led by a trained interviewer. A silent observer was present to take notes on non-verbal behaviors and group interactions. Using the theoretical framework, a semi-structured interview guide was developed, tested, and refined. Participants were invited to create a causal map based on a simple cause-and-effect model. Open-ended questions were followed by more detailed ones to clarify and expand the responses and improve the elements of the causal map. Two researchers independently analyzed the transcripts for emerging themes using deductive content analysis. The data were analyzed using NVivo 8 software.

Results: All groups emphasized the importance of environmental and individual factors in the migration of doctors. The main factors identified in the discussions included: the healthcare system and legislation, political and media narratives, career and educational aspects, managerial structures and roles, infrastructure, and institutional regulations. Additionally, participants frequently linked the migration of doctors to factors related to patients and the doctors themselves, such as patient expectations, communication infrastructure, the health culture of the Albanian population, job satisfaction, attitudes toward migration, and financial incentives. These factors significantly impact the migration trends of Albanian doctors.

Conclusions: Our conceptual framework suggests that future interventions should not only focus on individual and patient-related factors but should also target changes in the institutional, educational, and social environments. Health policies should address these factors to reduce the trend of Albanian doctors migrating abroad.

Keywords: Doctors, Albania, Healthcare workforce, Working conditions, Salary, Image.

Innovative Approaches in Health Promotion and Disease Prevention: Harnessing Advanced DNA Research

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Introduction: Advances in DNA research are transforming our understanding of sustainable strategies for health promotion and disease prevention. This study explores the impact of non-pharmacological interventions, such as thermal treatments and movement-based meditation, on human health by investigating their biological mechanisms and therapeutic potential.

Methods: To evaluate these interventions, randomized controlled trials, systematic reviews, and meta-analyses were used to assess their effects on immune modulation, inflammation reduction, and overall well being. A pilot double-blind study examined the impact of sulfur-rich thermal water inhalations in post-COVID rehabilitation. Additionally, a systematic review analyzed the link between gut microbiota composition and exercise intensity, while a molecular analysis explored the role of mediators in gut microbiota biodiversity and neuroimmune interactions.

Results: The findings indicate that inhalations with sulfur-rich thermal water significantly alleviate post-COVID symptoms. The meta-analysis confirmed a strong link between physical activity and gut microbiota diversity, identifying exercise intensity as a key factor in microbial composition. Furthermore, the study on specific proteins provided new insights into the interaction between neuroimmune factors and gut biodiversity, suggesting possible effects on immune and neurological health.

Conclusion: These results contribute to expanding the scientific evidence base supporting integrative and non-pharmacological approaches to disease prevention. By leveraging advanced DNA research, we aim to develop innovative and sustainable interventions that enhance resilience to emerging health challenges.

Keywords: DNA research, non-pharmacological interventions, thermal therapy, movement-based meditation, gut microbiota, neuroimmune interaction, inflammation, immune modulation, post-COVID rehabilitation, integrative medicine, exercise intensity

Population Aging in Albania: Implications for Public Health and Socio-Economic Stability

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Introduction: Population aging is a global challenge with profound socio-economic and health impacts. Albania is undergoing a rapid demographic transition, characterized by a shrinking workforce, decreasing birth rates, increased life expectancy, and high levels of emigration. These demographic shifts pose risks to economic stability, social welfare systems, and healthcare services.

Objectives: This study aims to analyze the demographic trends contributing to population aging in Albania, evaluate the socio-economic and health consequences of this demographic transition, and examine the necessary policy interventions to mitigate the negative effects of population aging.

Methodology: The study adopts a mixed-methods approach, combining quantitative and qualitative analyses. Data from official sources and academic studies on demographic trends in Albania are used, while qualitative analysis examines demographic policies, the impact of emigration, and the challenges faced by the healthcare and social systems.

Results: The decline in birth rates and shrinking population have altered Albania's age structure, creating imbalances in the labor market, pension system, and social services. Emigration has accelerated this trend, highlighting the need for effective demographic and social policies.

Conclusion: Managing population aging in Albania requires policies that promote fertility, address emigration, and strengthen the labor market. Reforming the healthcare and pension systems is crucial for long-term sustainability, while an integrated economic and social approach is essential to navigate this demographic transition.

Keywords: demographic transition, population aging, emigration, socio-economic stability, demographic policies.

Gender, Age, and Comorbidities in COVID-19 Patients at the Infectious Disease Service During the Pandemic Period

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Introduction: COVID-19 is an infectious disease caused by the SARS-CoV-2 virus, which led to the COVID-19 pandemic, triggering a global health emergency with catastrophic consequences worldwide. Motivated by the healthcare issues observed during the pandemic, this doctoral study on COVID-19 is being conducted for the first time.

Objectives: The objectives of this study are to determine the age, gender, and comorbidity profile of patients included in this study during the pandemic period.

Methods: This retrospective study included 1001 hospitalized patients with COVID-19 admitted to the Infectious Disease Service during the period from March 9 to December 31, 2020. Data were obtained from the Statistics Service at the University Hospital Center "Mother Teresa." Data analysis was performed using SPSS version 26.0.

Results: Of the patients studied, 65% were male and 35% female. The average age of the population was 60.4 ± 13.9 years [median (Me) 62, IQR: 18 years].

- Average age for females: 60.5 ± 13.5 years, p = 0.782
- Average age for males: 60.3 ± 14.1 years, p = 0.782

The most common comorbidity was arterial hypertension.

- Mean systolic blood pressure: 126.5 ± 15.5 mmHg [Me 125 mmHg, IQR: 10 mmHg]
- Mean diastolic blood pressure: 75.6 ± 9 mmHg [Me 72 mmHg, IQR: 10 mmHg]

Conclusion: In the studied population, males predominated with 65%. Among comorbid conditions, arterial hypertension was the most common (45.3%), followed by type II diabetes mellitus (28.9%) and chronic kidney disease (2.1%).

Keywords: COVID-19, SARS-CoV-2, comorbidities, arterial hypertension, type II diabetes, chronic kidney disease, retrospective study, hospitalized patients, demographic profile.

Addressing the Needs of Children and Adolescents Living with HIV in Albania

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Introduction: The lack of structured psychological support and family clinics worsens challenges for children with HIV, increasing distress and stigma. Adolescents struggle with disclosing their HIV-positive status, affecting emotional well-being. Stigma leads to social isolation and integration difficulties, further limiting their access to essential healthcare services.

Methodology: This study identifies gaps in HIV care and proposes solutions to improve health outcomes. A mixed-methods approach included a review of healthcare policies and qualitative interviews with adolescents with HIV, healthcare providers, and social workers to assess access to psychological services. Epidemiological data were obtained from National AIDS Program reports.

Results: By the end of 2024, 45 of 56 children with HIV were infected through mother-to-child transmission, 6 through blood transfusion, and 5 through unknown routes. Transition from pediatric to adult care occurs at 14 yr. old, creating social challenges for adolescents and families. At diagnosis, 10% of cases belong to the 16-24 age group. Limited psychological services and family clinics restrict access to comprehensive care, worsening social difficulties. Adolescents transitioning to adult care require additional support to maintain treatment adherence and mental well-being.

Conclusion: Enhancing psychological support is crucial for children and adolescents with HIV in Albania. Establishing support programs, family clinics, and structured transition pathways can improve health and social integration. Given adolescents' distinct needs, integrating specialized HIV programs within healthcare systems is vital for a smooth transition from pediatric to adult care. Concrete psychosocial support and structured transition services must be prioritized by policymakers and healthcare providers to ensure long-term well-being and improved quality of life.

Keywords: HIV in children, adolescents living with HIV, psychological support, HIV stigma, pediatric to adult care transition, mother-to-child transmission, mental health, healthcare access, Albania, HIV policy

Promoting Multidisciplinary in Cancer Care: The Concept and Importance of Tumor Boards

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Introduction: The complexity of cancer management necessitates a collaborative approach involving diverse healthcare disciplines. This presentation will outline the critical elements of multidisciplinary care and tumor boards (MDTs) as essential frameworks for optimising patient outcomes, using the example but not being limited to breast cancer management. An MDT comprises a group of healthcare professionals from various specialities who convene to discuss individual patient cases and collectively contribute to diagnostic and treatment strategies. The effective organisation of these multidisciplinary teams is fundamental to the success of tumour-specific units (such as Breast Centres).

Methods: The Role of Multidisciplinarity in Breast Cancer is crucial across the cancer continuum, from pretreatment planning (incorporating radiology, surgery, and pathology) to posttreatment discussions and the development of adjuvant therapy plans involving medical oncology, radiation oncology, and other specialties. The management of advanced breast cancer will be highlighted, emphasising the necessity of input from a broad range of experts, including psycho-oncologists and palliative care specialists. Evidence supporting the benefits of MDTs, including a reported 18% reduction in breast cancer mortality in areas with multidisciplinary care, will be discussed. We will clarify that an effective MDT functions as an integrated practice group extending beyond the weekly meeting.

Results: The essential components for successful MDT functioning include:

- Defining core (radiologists, pathologists, oncologists, nurse navigators) and extended MDT membership.
- The importance of regular, well-prepared weekly meetings with clear agendas and strong leadership.
- The necessity of adequate facilities, including IT systems with Electronic Health Record (EHR) access and visibility of imaging and pathology.
- The requirement for clear documentation of MDT decisions within the patient record.

We will address crucial organisational aspects and challenges such as the implementation of protocols and guidelines, the role of yearly audits, and the need for dedicated data management. Furthermore, common hurdles in organising MDTs, such as communication issues and inconsistent attendance, will be considered. The presentation will contextualise MDTs within the framework of a Breast Unit, defined as a centre providing comprehensive breast cancer care through a cohesive multidisciplinary team. Key prerequisites and the significance of volume requirements for Breast Units will be briefly mentioned.

Conclusion: This presentation will underscore the fundamental role of well-implemented multidisciplinary care and tumor boards in enhancing the management and outcomes for cancer patients. Effective MDT functioning, underpinned by robust organisational structures and collaborative team dynamics, is essential for delivering high-quality, patient-centred care.

Keywords: Multidisciplinary care, tumor boards, breast cancer, Breast Units, oncology teamwork, patient-centred care, MDTs, cancer management, healthcare collaboration

Breast Cancer Surgery Evolution

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Introduction: Breast surgery for patients with breast cancer has been for all time an argument of changing and the main principle has been the right oncological treatment followed by esthetic aspect.

Material and methods: The earliest reference to the surgical treatment of breast cancer can be found in what is now known as the "Edwin Smith Surgical Papyrus," a series of medical case presentations written in Egypt between 3000 and 2500 b.c Jean Louis Petit (1674–1750), Director of the French Surgical Academy, is credited with developing the first unified concept for the surgical treatment of breast cancer. The modern surgical treatment of breast cancer has its origins in the mid nineteenth century. During this period, the German pathologist Rudolf Virchow studied the morbid anatomy of breast cancer. In the late nineteenth century Halsted was appointed to the surgical faculty of the Johns Hopkins Hospital, where he described the radical mastectomy for the treatment of breast cancer. In 1948, Patey and Dyson of the Middlesex Hospital in London published a brief report describing a modification of the Halsted mastectomy. After World War II, McWhirter in Edinburgh advocated simple mastectomy and high-voltage x-ray therapy in the treatment of primary breast cancer. Oncoplastic approaches add to the oncologic safety of breast-conserving treatment, because a larger volume of breast tissue can be excised and more widely negative surgical margins can be obtained. Also, there is now a wider acceptance of breast reconstructive surgery as an important component in the overall management of breast cancer.

Results: Breast reconstruction can reduce the psychological trauma associated with mastectomy, particularly the sense of mutilation, depression, and misgivings concerning femininity. Surgeons throughout the world have described a wide array of reconstructive techniques, including the use of expanders, implants and tissue flaps. Also, the sentinel lymph node biopsy technique has been studied as a means of improving quality of life in patients with primary breast cancer.

Conclusions: Oncoplastic breast surgery has generated tremendous excitement over the past several years and has become an integrated component of the consultation between patients and their surgeons.

Keywords: cancer, breast, oncoplastic.

Evolution of the Treatment in Oncology: From the Era of Cytotoxic Chemotherapy on the Era of Target Therapy and Precision Oncology.

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Introduction: Precision oncology is described as the matching of the most accurate and effective treatments with the individual cancer patient. The heterogeneity of human cancer has led to the realization that personalized approaches are needed to improve treatment outcomes. Traditionally, precision oncology has used static features of the tumor to dictate which therapies should be used.

Methods: Identification of important gene mutations, such as BRCA1/2 that drive carcinogenesis, helped pave the way for precision diagnosis in cancer. Oncoproteins and their signaling pathways have been extensively studied, leading to the development of target-based precision therapies against several types of cancers.

Results: Although many challenges exist, the "old cytotoxic chemotherapy" takes its place in this huge therapeutic challenge. This abstract presents an overview of the development of new target therapies in the era of precision oncology, starting from the era of chemotherapy.

Conclusion: The era of precision oncology has emerged as a response to the limitations of cytotoxic chemotherapy, providing personalized treatment options tailored to individual patients based on their genetic and molecular profiles. The development of targeted therapies has significantly advanced cancer treatment, though challenges remain in fully optimizing these approaches.

Keywords: Precision oncology, target therapy, cytotoxic chemotherapy, BRCA1/2, carcinogenesis, oncoproteins, signaling pathways, personalized treatment, cancer therapy, genetic mutations.

LD (Latissimus Dorsi Musculocutaneous) Flap in Breast Reconstruction: Case Report

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Objective: This case report aims to describe the surgical technique, clinical outcomes, and potential complications of breast reconstruction using the latissimus dorsi musculocutaneous flap (LD flap). By presenting a specific patient case, the article highlights the indications, advantages, and challenges associated with this method. Additionally, it seeks to provide insights into patient selection, operative challenges, and long-term aesthetic and functional outcomes, comparing these findings with current literature to emphasize the effectiveness and limitations of this method in breast reconstruction.

Methods: This study is based on the case report of a patient who underwent breast reconstruction using the LD flap. Clinical data were retrospectively collected, including the patient's medical history, indications for the procedure, the surgical techniques employed, and postoperative management. Outcome assessment was conducted based on clinical, aesthetic, and functional parameters, while potential complications and long-term outcomes were also analyzed and compared with existing literature.

Results: The patient successfully underwent breast reconstruction using the LD flap technique. The postoperative recovery was smooth, with no immediate surgical complications such as necrosis, infection, or significant hematoma. During follow-up visits, the patient reported high satisfaction with both the aesthetic result and functional recovery. Overall, reconstruction with the LD flap provided a stable and aesthetically pleasing result, significantly improving the patient's quality of life.

Keywords: Breast reconstruction, LD flap

Breast Reconstruction and Radiation Therapy: A Literature Review

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Introduction: Radiotherapy is a crucial component of breast cancer treatment, particularly for node positive, locally advanced and large tumors, often delivered post-mastectomy (PMRT). However, radiotherapy can negatively impact breast reconstruction outcomes, leading to complications like poor cosmesis, infections, and reconstruction failure. While advancements in targeted radiotherapy and reconstruction techniques have reduced these issues, challenges remain, particularly concerning the timing and type of reconstruction to optimize both cosmetic and oncologic outcomes.

Materials and Methods: This comprehensive review was conducted to highlight and discuss the impact and radiotherapy technique in patients undergoing post-mastectomy breast reconstruction with breast implants followed by adjuvant radiation therapy.

Results: Breast reconstruction remains an important option even when PMRT is indicated. Radiation therapy (RT) in the context of breast reconstruction presents significant challenges. While surgical techniques continue to evolve to enhance cosmetic outcomes through methods such as pre- or retro-pectoral implant placement, autologous flap reconstruction, lipofilling, and synthetic coverage materials, there is limited knowledge about the oncological outcomes associated with these approaches. The impact of RT on cosmetic results, as well as factors influencing outcomes after breast reconstruction and PMRT, remains unclear. Moreover, most studies on breast reconstruction and PMRT do not adequately address the effects of radiation techniques, dose-fractionation schedules, or long-term oncological outcomes, including recurrence patterns.

Conclusion: Patients should be informed of the associated risks of capsular fibrosis and implant failure. The need for PMRT should not prevent patients from pursuing implant-based breast reconstruction if desired, nor should planned reconstruction exclude the option of receiving PMRT. Shared decision-making is essential, supported by thorough patient education. While there is no clear consensus on the optimal approach to implant-based reconstruction (IBR) with PMRT, both one-stage (immediate implant-based reconstruction) and two-stage (immediate-delayed reconstruction using tissue expanders) methods are practiced, each with specific benefits and drawbacks. Multidisciplinary collaboration is crucial, with breast surgeons playing a key role in contouring the appropriate volumes. Patients scheduled for mastectomy and immediate breast reconstruction should undergo preoperative evaluation by both surgeons and radiation oncologists or be discussed at multidisciplinary tumor board meetings.

Keywords: Breast cancer, radiotherapy, post-mastectomy radiation therapy (PMRT), breast reconstruction, cosmetic outcomes, oncologic outcomes, implant-based reconstruction (IBR), autologous flap reconstruction, capsular fibrosis, radiation techniques, multidisciplinary collaboration, tissue expanders, shared decision-making, reconstructive surgery, patient education.

Do We Need Support in Prepectoral (Subglandular) Breast Reconstruction?

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Introduction: The aim of this systematic review is to evaluate the need and impact of additional support in prepectoral breast reconstruction. This study seeks to analyze the role of supportive materials, such as acellular dermal matrices (ADM) and synthetic meshes, in improving surgical outcomes, reducing complications, and enhancing aesthetic and functional results. By reviewing the current literature, the study aims to determine whether supportive structures are essential for optimal prepectoral reconstruction and to identify best practices for their use in clinical settings and their limitations.

Methods: A comprehensive search was conducted on scientific databases such as PubMed, Scopus, Web of Science, and Google Scholar to identify published studies on the use of additional support in prepectoral breast reconstruction. The inclusion criteria for this review include studies published in the last 10-15 years, original articles, and systematic reviews that address the impact of supportive materials, such as acellular dermal matrices (ADM) and synthetic meshes, on surgical and aesthetic outcomes. The collected data were analyzed by evaluating factors such as complication rates (infections, seroma, implant exposure), aesthetic results, patient satisfaction, and recovery time. The included studies were compared and synthesized to draw conclusions on the importance of support in prepectoral breast reconstruction and to offer recommendations on its optimal use in clinical practice.

Results: The systematic review of the literature analyzed a range of studies examining the impact of additional support in prepectoral breast reconstruction. The results showed that the use of supportive materials, such as acellular dermal matrices (ADM) and synthetic meshes, plays a debated role in improving surgical and aesthetic outcomes. Overall, the review suggests that additional support in prepectoral breast reconstruction may have benefits, but more standardized studies are needed to determine the optimal criteria for their use.

Keywords: Breast reconstruction, ADM, polypropylene mesh, prosthesis, implant.

The Birmingham Vasculitis Activity Score as a Prognostic Tool in Vasculitis Associated with Anti-Neutrophil Cytoplasmic Antibodies

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Introduction: Antineutrophil cytoplasmic antibody-associated vasculitis (ANCA-AV) is linked to significant morbidity and mortality, despite advancements in treatment. Renal involvement is common in ANCA-AV and is the most critical predictor of mortality. The Birmingham Vasculitis Activity Score (BVAS) has emerged as an essential tool for assessing disease activity and predicting long-term prognosis.

Objective: This study aimed to evaluate the relationship between BVAS and final outcomes in patients with renal vasculitis.

Methods: A retrospective study was conducted from 2021 to 2024. The study included 20 patients (13 females, 7 male) with systemic vasculitis. Clinical and laboratory data were collected. BVAS was assessed for all patients. Patients were divided into three outcome groups: remission, renal replacement therapy (RRT), and deceased.

Results: Eight patients tested positive for PR3-ANCA, while twelve were MPO-ANCA positive. All patients presented with impaired renal function. Nine patients achieved renal remission, three required RRT, and eight did not survive. BVAS ranged from 6 to 22 (mean 13.2 ± 3.6). The mean BVAS for the remission group was 10.89 ± 2.89, for the RRT group 13.00 ± 1.73, and for the deceased group 15.88 ± 3.18. The Kruskal-Wallis test showed a significant difference among groups χ^2 (2) = 8.724, p = 0.013, although it did not specify which groups differed. After Bonferroni adjustment, a significant difference in BVAS was found between the remission and deceased groups, χ^2 (2) = 8.444, p = 0.009. No significant differences were found between the remission and RRT groups or the RRT and deceased groups.

Conclusion: These findings suggest that BVAS may serve as a prognostic indicator in ANCA-associated vasculitis. Additionally, BVAS could contribute to the early identification of high-risk patients requiring more aggressive therapeutic intervention. However, further investigation is needed to validate this hypothesis.

Keywords: ANCA-associated vasculitis, BVAS, renal involvement, renal remission, renal replacement therapy, prognostic indicators, vasculitis outcomes, PR3-ANCA, MPO-ANCA, systemic vasculitis, disease activity score, clinical outcomes

Vascular Access: The Achilles' Heel in Hemodialysis Treatment Short-Term and Long-Term Complications

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Introduction: Vascular access is rightly referred to as the Achilles' heel in hemodialysis treatment. Its indispensable importance requires us to remain vigilant—not only in its early creation but also in its monitoring and maintenance.

Methodology: Early referral of patients with chronic kidney disease to a nephrologist. In stage four of CKD, referral to an angiologist for permanent vascular access surgery. Selection of motivated, talented, and interested vascular surgeons in this field and close, dynamic collaboration within a multidisciplinary team consisting of nephrologists, vascular surgeons, radiologists, and hemodialysis staff. Preoperative examination of the vascular tree. Postoperative ultrasonographic evaluation of fistulas. Antibiotic closure of non-tunneled and tunneled temporary catheters. Use of antiplatelet agents (antagonists/anticoagulants). Training of dialysis staff (on the timing and technique for puncturing AVF and AVG). Proper prevention of intradialytic hypotension through medication and continuous patient education. Closer monitoring of patients at high risk for AV failure: elderly patients, those with polycystic kidney disease, diabetics, arteropaths, those with multiple previous catheters, especially subclavian, those with elevated phosphate and calcium-phosphate products. Dynamic monitoring of vascular access: objective assessment by the HD staff – inspection (look, feel, listen); static and dynamic venous pressure, recirculation, color Doppler ultrasound in special cases. And most importantly: a rule written in stone: "PRESERVE THE VEINS," namely the cephalic and basilic veins, as they are not thrombophilic and are ideal for creating vascular access.

Conclusion: Vascular access is a crucial and irreplaceable component for the effective treatment of patients requiring hemodialysis. To ensure treatment success and reduce complications, a coordinated and multidisciplinary approach is essential, where the role of nephrologists, vascular surgeons, radiologists, and dialysis staff is invaluable.

Keywords: Vascular Access, Hemodialysis, Chronic Kidney Disease, Arteriovenous Fistula, Multidisciplinary Team, Dialysis Staff, Vascular Surgery, AVF Management, Postoperative Care, Surveillance, Vascular Access Preservation.

The Role of Leukocyte Immunophenotyping by Flow Cytometry in the Diagnosis, Prognosis, and Study of Minimal Residual Disease in Multiple Myeloma

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Introduction: Multiple Myeloma (MM) is a malignant neoplastic disease originating from the monoclonal proliferation of plasma cells in the bone marrow. MM accounts for approximately 10% of all hematologic malignancies. Early laboratory diagnosis has traditionally relied on cytological examination of the bone marrow and the study of immunoglobulins in blood and urine. Immunophenotyping by flow cytometry (FCM) plays an important role in the early and accurate diagnosis of MM. The aim of this study is to evaluate the diagnostic and prognostic value, as well as the role in detecting minimal residual disease (MRD), of FCM in patients suspected of having MM.

Materials and Methods: This study was conducted at the Networks Laboratory at "Mother Teresa" University Hospital Center during the period 2021–2024. Flow cytometry was performed using a six-color Beckman Coulter DxFLEX flow cytometer. The biological material used was bone marrow collected in EDTA anticoagulant tubes from patients suspected of MM. The following fluorescently conjugated monoclonal antibodies were used: CD3, CD19, CD20, CD27, CD33, CD34, CD38, CD45, CD56, CD81, CD117, CD138, Kappa, Lambda.

Results: Of the 210 patients studied, 96 (45.6%) were female and 114 (54.4%) male, with a mean age of 65.9 years. Among the studied cases:

- 156 (74.2%) were diagnosed with MM
- 7 (3.3%) with LPL
- 4 (1.9%) with PCL
- 34 (16.1%) with MGUS
- 9 (4.2%) showed non-monoclonal plasma cell proliferation

Marker positivity in MM cases was as follows:

- CD138 (100%)
- CD38 (100%)
- CD56 (67.6%)
- CD117 (35.8%)
- CD45 (5%)
- CD19 (4%)
- CD20 (2%)
- cytoplasmic Kappa (78.2%)
- cytoplasmic Lambda (21.7%)
- CD27 (25%)
- CD81 (18%)

- CD33 (2%)

Conclusions: Cellular immunophenotyping by flow cytometry plays a significant role in the diagnosis of MM. The antigens CD138, CD38, CD56, CD117, CD27, CD81, CD19, and CD45 are among the main differential and sensitive markers for malignant plasma cells. Their monitoring is valuable for disease prognosis and for evaluating response to therapy and the presence of minimal residual disease.

Keywords: Multiple Myeloma, Flow Cytometry, Monoclonal Antibodies, MRD.

Assessment of Nutritional Status Among School-Aged Children in Albania in Relation to Family Socioeconomic Status

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Introduction: In Albania, overweight and obesity are major health risk factors, particularly for non-communicable diseases, and are increasingly present from early childhood. Recent national data indicate a growing trend of overweight and obesity among Albanian children.

Objectives: To assess the nutritional status of school-aged children and explore the influence of socioeconomic and family-related factors on childhood obesity, focusing on parental education level, health status (including diabetes, hypertension, and high cholesterol), and the number of chronic diseases among parents, to identify possible associations with the development of obesity in children.

Methods: A cross-sectional study was conducted in 2022 on a nationally representative sample of over 3,000 children. Objective anthropometric measurements were performed on the children, and structured questionnaires were completed by their parents or guardians to gather socioeconomic and health-related information.

Results: The prevalence of obesity in children increased with higher parental education levels. Obesity was more prevalent among children whose parents had chronic conditions such as diabetes, hypercholesterolemia, or hypertension. A positive correlation was found between children's nutritional status and the number of chronic diseases in their parents—suggesting that as the number of chronic illnesses in parents' rises, so does the obesity rate in their children.

Conclusion: This study highlights the influence of family socioeconomic and health-related factors on the nutritional status of children and underscores the need for public health interventions to address inequalities in child health. Such measures could include educational campaigns targeting parents, especially those with lower education levels or chronic illnesses.

Keywords: Childhood obesity, Nutritional status, Parental education, Chronic diseases, Family health, Socioeconomic factors, Albania, Public health interventions.

Diabetes in Albania: Trends and Challenges

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Introduction: Diabetes mellitus is an increasing challenge for public health. The rise in its incidence and prevalence, as a major risk factor for cardiovascular diseases, underscores the need for better prevention and management strategies.

Objectives: This is a cross-sectional study aiming to analyze trends in the incidence, prevalence, and mortality of diabetes in Albania from 2014 to 2023. It also evaluates regional and demographic variations in diabetes.

Methods: Data from the National Diabetes Registry, primary healthcare services, and INSTAT were used to analyze trends in diabetes incidence, prevalence, and mortality in Albania. Regional and demographic variations were examined, particularly those related to gender and age.

Results: Over 6,000 new cases of diabetes are diagnosed each year in Albania, with a continuous increase in incidence, particularly in regions such as Gjirokastër, Korçë, and Fier. The highest incidence is observed in the age group 60-79 years, with males exhibiting higher rates than females. The prevalence of diabetes has nearly doubled in the last decade, with more than 96,000 recorded cases in 2023. Diabetes-related mortality has fluctuated, with an increase during the pandemic, followed by a gradual decline until 2023.

Conclusions: The rising trend of diabetes in Albania calls for targeted interventions. Although mortality has stabilized, efforts are needed to reduce complications and improve access to services. Prioritizing early detection, lifestyle changes, and strengthening primary health care remain essential.

Keywords: Diabetes Mellitus, Albania, Incidence, Prevalence, Mortality

The Typology of Sexual Behaviour and Possible Consequences in Young Adults

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Introduction: Sexually transmitted diseases (STDs) represent a major global issue. This problem is especially significant among at-risk groups, such as sex workers and young people, particularly those practicing sexual multi-partnering.

Objective: To explore the typology and trends of sexual behavior among young adults in Albania.

Materials and Methods: A structured questionnaire was distributed to 100 and 150 students from the Faculty of Medical and Technical Sciences, conducted in 2017 and 2025, respectively.

Results: Year 2017 vs 2025 shows statistically significant data ($P<0.05$): Refusal of the questionnaire = 48% vs 6%, information, discussions with parents 1% vs 14%, with each other 15% vs 28.36%, books 31% vs 21.27%, for love = 55% vs 31.2%, non-use of contraceptives 21% vs 61.2%, periodic visits to the gynecologist 7% vs 16.3%, treated for STIs 0% vs 4.23%. Non-significant ($P>0.05$), average age of first sexual activity 18.8 vs 18.4 years, sex for passing time 6% vs 2.83%, occasional use of contraceptives 6% vs 1.41%, rare use of contraceptives 7% vs 4.25%.

Conclusions: There has been a significant increase in non-use of contraceptives. Awareness about sex has grown, and today's youth are less complex than in 2017, as they engage more in discussions with parents and peers. However, there is a notable decrease in sexual relations for love, which suggests the need for strong public health policies, actor engagement, and factors to reduce STDs, unwanted pregnancies, and infertility, as well as promote routine laboratory screenings.

Keywords: STDs, contraception, sex, love

Addressing Hesitancy and Misinformation Regarding Vaccination

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Introduction: The vaccination program in Albania has played a significant role in preventing infectious diseases and protecting public health. However, vaccination hesitancy and the spread of misinformation continue to pose ongoing challenges that may jeopardize the success of this program. Vaccination hesitancy, which includes reluctance or refusal to receive one or more vaccines despite their availability, is influenced by various factors, including mistrust in healthcare institutions, misinformation in the media, socio-cultural influences, and lack of accurate information. Understanding these factors is crucial for developing targeted interventions to increase vaccine acceptance.

Methodology: The spread of misinformation, especially on social media, has influenced public perceptions regarding the safety and efficacy of vaccines. Addressing hesitancy and misinformation enables transparent and trustworthy communication, along with continuous education in vulnerable communities. We emphasize that healthcare professionals play a key role in building trust and mitigating the impact of vaccine myths. Coordinating efforts in organizing public information campaigns, strengthening collaboration with community leaders, and increasing media engagement to disseminate evidence-based messages are essential. Furthermore, creating a sustainable framework for monitoring misinformation and addressing it in real time has become necessary.

Conclusions: The implications of vaccine hesitancy extend beyond individual health, affecting herd immunity and increasing the risk of disease outbreaks. As the global community continues to face new infectious diseases, addressing vaccine hesitancy remains a critical priority for public health. The interaction between the population and healthcare providers remains the foundation for maintaining trust in the vaccination process.

Keywords: Routine vaccination, vaccine coverage, hesitancy, refusal

Tuberculosis, Gender Differences in Albania for the Period 2019-2024

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Introduction: Gender differences in tuberculosis (TB) have been reported worldwide. The male-to-female (M: F) ratio globally is 1.6:1. In Albania, according to the National Tuberculosis Program data, the M: F ratio is 2:1.

Objective: This study aims to describe the gender differences among TB patients during the period 2019-2024, focusing on the types of TB, geographic distribution, and other influencing factors.

Methodology: For this study, a cross-sectional design was used for the period 2019–2024 to understand the prevalence of TB in males and females and the factors affecting it. Data were collected in collaboration with the National Tuberculosis Program, and statistical analysis was performed using SPSS.

Results: In the study period of 2019-2024, a total of 1,747 TB patients were identified, of which 1,202 (68.8%) were male and 545 (31.2%) were female. The average M: F ratio was 2:1. The prevalence of TB in Albania is 10.9/100,000 (7.5/100,000 for males and 3.4/100,000 for females). Among pulmonary TB cases, 71% were male and 10% female, while for extrapulmonary TB, 11.2% were male and 7.8% female. TB positivity was observed in 69% of patients, with 50% males and 19% females. Compared to females, males aged ≥45 had higher chances of TB due to risk factors such as alcohol use (30%), smoking (41%), and 20% other diseases. A major barrier for females was neglecting self-care and fear of stigma.

Conclusion: This study highlights the need for gender-specific intervention strategies to improve better access to TB services, addressing the challenges and barriers unique to each gender.

Keywords: Gender differences, tuberculosis, male-to-female ratio, TB prevalence, pulmonary TB, extrapulmonary TB, risk factors, Albania, intervention strategies, stigma

Update on Chronic Morbidity in the Southern Region. A Retrospective Analysis within the Demographic Characteristics of the Region 2022-2024

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Introduction: This study aims to provide an update on chronic morbidity in the southern region of Albania by focusing on a retrospective analysis of statistical data from the National Health Insurance Fund. The study examines the demographic characteristics of the region's population for the period 2022-2024, the epidemiology of chronic diseases, and the financial aspects of health management.

Methodology: Statistical data on demographics and chronic morbidity were collected from the National Health Insurance Fund in Albania, based on records from 2022-2024. Statistical analysis was performed using Excel 2021 and IBM SPSS Statistics 30.0.0. To evaluate chronic patients in relation to barriers in the management of disease reimbursements, 1,600 patients participated in focus groups, and 600 patients were involved in semi-structured interviews. Grounded theory guided the coding and content analysis of the data.

Results: According to our data, Essential Hypertension represents the most common nosology, followed by Diabetes Mellitus and Cardiovascular Nosology (Angina Pectoris, Heart Failure, and Arrhythmias). Diabetes Mellitus constitutes the main cost burden in total reimbursements, while malignant melanoma incurs the highest cost per patient. The distribution of clinical nosology in the reimbursement scheme corresponds to and reflects the regional demographics and age of the population. Demographic characteristics of the southern region naturally influence the distribution of chronic clinical nosology and are reflected in the financial aspects of the reimbursement scheme. A study on patient satisfaction regarding access to the reimbursement scheme showed no personal or referral barriers preventing patients from accessing the system. The number of chronic diseases and waiting time perceptions by medical staff were reported positively by patients.

Conclusions: The epidemiology of chronic diseases in the Southern Region is closely linked to the demographic characteristics of the population. Predictive models for demographic changes are useful for long-term financial programming. The referral and reimbursement system for chronic diseases has significantly improved service quality, as evidenced by the reduction in waiting times, demonstrating the effective functioning of the system. Citizens in the southern region have received timely medication reimbursements through the public system.

Keywords: demography, prevention, chronic, patient management, Fier Regional Memorial Hospital, prevention, treatment

Gastric Cancer in Light of Multidisciplinary Management

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Introduction: In many countries, the incidence and mortality rates of Gastric Cancer (GC) have gradually decreased, especially in developed countries. However, in several other countries, including Albania, the prevalence of cancer related to the digestive system is on the rise. The need for in-depth research to define new therapeutic strategies to reduce the incidence and mortality of this disease remains a priority. Surgical resection (treatment) is the fundamental strategy for GC treatment, ideally when the tumor is sensitive to chemotherapy. Endoscopic resection and minimally invasive techniques have had a significant impact on GC treatment. Adjuvant chemotherapy has been extensively studied as a treatment for gastric cancer, with unstable results due to the heterogeneity of cohort studies, ranging from surgical treatment to chemotherapy regimens. Neoadjuvant chemotherapy has shown significant growth in recent years. Studies have shown that neoadjuvant chemotherapy before surgery has improved survival for patients with gastric cancer. Perioperative chemotherapy with platinum and fluoropyrimidine has shown effectiveness in reducing tumor size and stage, improving overall survival and disease-free intervals. Targeted therapies for Gastric Cancer include drugs that target specific molecules involved in the growth and spread of cancer. Drugs like Trastuzumab and Ramucirumab have improved overall survival in some patients with advanced gastric cancer.

Objective: The goal is to provide data from literature gathered as part of the project: Creation of a University Hospital Database for Gastric Cancer, a necessity for optimal treatment in light of new therapeutic protocols, supported by the National Agency for Scientific Research and Innovation.

Results: A literature review was conducted in 2024, supported by ESMO guidelines. Data were collected related to the adjuvant and neoadjuvant treatment of gastric cancer. Histological examination after regional lymphadenectomy should include more than 15 lymph nodes. The high incidence of distant metastases and local recurrence has led to the need for intervention with systemic therapy, currently with neoadjuvant therapy. This result emerged from two randomized clinical trials that showed the superiority of perioperative chemotherapy. Such treatments are now routinely used, including four cycles before and four after surgery. For several years, post- and pre-operative treatment for locally advanced gastric cancer has become an essential part of treatment, recommended by all major centers worldwide. It remains debated which form of treatment has the greatest advantages both in overall survival and in the effect on surgical morbidity.

Conclusion: Multidisciplinary treatment of Gastric Cancer is now a professional obligation towards personalized patient care. Currently, there is no effective treatment for Gastric Cancer because its diagnosis is often delayed. Its prognosis remains poor, with short survival. For this reason, the emphasis should be placed on multidisciplinary consultations. However, the

possibility of innovative therapeutic protocols and involvement in clinical studies is now available. Many patients today benefit from personalized therapy, though many others present with advanced cancer and distant metastases. Efforts are being made to incorporate biomarkers into a diagnostic tool supported by Artificial Intelligence or combined with traditional diagnostic methods.

Keywords: gastric cancer, chemotherapy, neoadjuvant, adjuvant, personalized treatment, multidisciplinary management, targeted therapies.

Histopathological Features of Renal Cell Carcinoma: A Single-Center Review

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Introduction: Renal Cell Carcinoma (RCC) is the most common kidney tumor, accounting for over 90% of kidney cancers. Although it represents only 2% of global cancer diagnoses, its incidence has doubled in the last 50 years. RCC is often diagnosed at different stages and with various histological types.

Objective: This study aimed to assess the sociodemographic distribution, identify the most common histological types of RCC, and uncover cases that were initially misdiagnosed as RCC.

Methods: This cross-sectional study included biopsy reports from 81 cases diagnosed in 2024 at the University Hospital Center "Mother Teresa" in Tirana, Albania. All patients with complete biopsy reports and confirmed histopathological diagnoses were included in the analysis.

Results: Among the patients, 63% were male and 37% female. The most common age group was 61-70 years (41%). The most common histological type was Clear Cell Carcinoma (72%), followed by Papillary Carcinoma (10%), Chromophobe Carcinoma (4%), and Collecting Duct Carcinoma (1%). Benign lesions constituted 2%, while 1% were Sarcomatoid, and 10% were other non-renal histologies (primarily urothelial, follicular resembling thyroid, and squamous cell carcinomas). Only 18% of patients had a biopsy before surgery; the rest were biopsied after nephrectomy. In terms of laterality, 53% of cases affected the right kidney and 47% the left kidney.

Conclusion: Clear Cell Carcinoma was the dominant type in this cohort. A small but significant percentage of tumors were either benign or of non-renal origin, highlighting the importance of histological confirmation before surgery whenever possible. Our findings emphasize the value of comprehensive pathological assessment for guiding proper treatment.

Keywords: Renal Cell Carcinoma, Histopathology, Clear Cell Carcinoma, Papillary Carcinoma, Biopsy, Nephrectomy, Non-Renal Origin

CDK4/6 Inhibitors in Clinical Practice: Challenges and Considerations

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Introduction: CDK4/6 inhibitors have significantly improved the management of metastatic breast cancer (MBC) with hormone receptor-positive (HR+), HER2-negative status. While pivotal clinical trials have demonstrated substantial benefits in progression-free survival (PFS) and overall survival (OS), real-world application presents challenges related to toxicity, treatment adherence, and access to therapy.

Objective: This study aims to assess the challenges associated with the use of CDK4/6 inhibitors in clinical practice, focusing on managing side effects, financial and access barriers, and strategies to optimize patient outcomes.

Methods: A comprehensive review of clinical trial data and real-world evidence was conducted, analyzing treatment patterns, dose modifications, toxicity profiles, and access issues. Additionally, the impact of financial constraints on treatment adherence was evaluated.

Results: Real-world data show a higher rate of dose reductions and treatment interruptions due to side effects, particularly neutropenia and fatigue. Financial and access barriers significantly impact treatment continuity, especially in low- and middle-income countries. Nevertheless, patients receiving CDK4/6 inhibitors in clinical practice still experience considerable clinical benefits. Strategies such as proactive management of toxicity and financial assistance programs improve treatment adherence and patient outcomes.

Conclusion: While CDK4/6 inhibitors remain a cornerstone in the treatment of HR+/HER2- metastatic breast cancer, addressing real-world practice challenges is essential to maximizing their clinical benefits. Effective toxicity management, personalized treatment approaches, and improved access to therapy are crucial for optimizing patient care.

Keywords: Breast Cancer, Cyclin-Dependent Kinase 4/6 Inhibitors, Real-World Practice, Endocrine Therapy

Pancreatic Adenocarcinoma: The Silent Killer – Case Report and Diagnostic Challenges

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Introduction: Pancreatic adenocarcinoma is one of the most aggressive neoplasms, often diagnosed at advanced stages due to its silent onset and lack of early symptoms. It is characterized by rapid tumor progression, extensive local invasion, and a high tendency for distant metastasis. This case report presents the diagnostic challenges of pancreatic adenocarcinoma, highlighting the delay in the appearance of clinical and laboratory signs despite considerable tumor growth.

Case Report: A 71-year-old patient, with a history of chronic alcohol abuse and a former smoker (quit smoking 8 years ago), presented with mild epigastric pain radiating to the back and unexplained weight loss. An abdominal ultrasound (US) was initially performed, followed by laboratory analyses and multi-detector computed tomography (MDCT) for further evaluation. The imaging studies revealed a mass in the body of the pancreas, associated with extensive local invasion and distant metastatic spread. Findings from the abdominal ultrasound showed heterogeneous pseudocystic changes, mild edema of the pancreatic parenchyma, and the presence of oval hyperechoic lesions in the liver, suggestive of secondary metastasis. MDCT confirmed an expansive tumor process in the body of the pancreas, accompanied by hepatic metastases and lymphadenopathy along the hepatoduodenal ligament, retro-pancreatic region, and intraperitoneal space. Tumor markers were significantly elevated: alpha-fetoprotein (AFP) 2.3 ng/mL, carbohydrate antigen 19-9 (CA19-9) 423.0 U/mL, and carcinoembryonic antigen (CEA) 219.0 ng/mL. A laparoscopic biopsy was performed, and histopathological examination confirmed the diagnosis of metastatic pancreatic adenocarcinoma. Due to the advanced stage of the disease, surgery was not an option, and the patient was referred for palliative care management.

Conclusion: Pancreatic adenocarcinoma remains a neoplasm with a very poor prognosis, primarily due to delayed diagnosis. Early detection is key to improving survival, but it remains a challenge due to the lack of specific symptoms in the early stages. Recent studies have suggested a genetic predisposition in some high-risk groups, emphasizing the importance of regular monitoring with imaging and laboratory analysis in these individuals. Advances in molecular profiling and biomarker-based diagnostics may provide new perspectives for early detection and personalized treatments.

Keywords: Pancreatic Adenocarcinoma, Ultrasound, Multi-Detector Computed Tomography, Hepatic Metastases, Contrast Imaging, Tumor Markers, CA19-9, CEA, AFP.

The Cancer Registry at the Oncology Hospital QSUNT and Its Limitations in Reporting Information for Patients Diagnosed with Malignant Neoplasms

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Introduction: The cancer registry is an information system designed to collect, store, manage, and analyze data on patients diagnosed with malignant neoplasms. According to GLOBOCAN, in 2022, 8,019 cases of cancer were diagnosed in Albania (4,587 men and 3,432 women). The age-standardized incidence rate was 176.9 for men and 147.7 for women, with an overall rate of 160.8 for the population of Albania. In men, the most common malignant tumors are in the lungs, stomach, and pancreas. In women, the most common malignant tumor is breast cancer, followed by lung and stomach cancers. Approximately 3,049 male deaths and 1,906 female deaths were reported by GLOBOCAN, with an age-standardized mortality rate of 116.6 for men and 66.3 for women, and 90.5 for the entire Albanian population.

Methodology: In the cancer registry based specifically at the Oncology Hospital of the University Hospital Center "Mother Teresa" for the year 2022, 3,806 cases of malignant tumors were reported (1,996 women and 1,810 men). The age-standardized incidence rate was 164.1 cases per 100,000 populations. In men, the most common tumor was colorectal cancer, followed by lung and prostate cancers. In women, the most common malignancy was breast cancer, followed by colorectal cancer and endometrial cancer.
However, the Cancer Registry faces several challenges:

- Lack of Necessary Infrastructure (Technology and Equipment, Integrated Data Systems)
- Data Collection Problems (Insufficient Reporting, Data Quality Issues)
- Limited Human Resources (Insufficient Staff)
- Lack of Coordination Between Hospitals in QSUNT
- Insufficient Awareness and Education (Awareness of the Importance of Reporting, Training for Medical Personnel)
- Access to Laboratory Data in the Tumor Diagnostic Laboratory
- Challenges in Integrating New Data (Registry Updates)

Conclusion: Improving the cancer registry in Albania will require coordinated efforts to address these issues and ensure a strong and efficient system for collecting, analyzing, and accurately reporting cancer data.

Keywords: Cancer Registry, Data, Laboratory, Breast Cancer, Lung Cancer, Coordinated Efforts

Neuroendocrine Carcinoma of the Breast: Case Presentation

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Introduction: Neuroendocrine carcinoma of the breast (NEBC), also known as neuroendocrine differentiation carcinoma, is a rare and heterogeneous group of tumors, accounting for 2-5% of all invasive breast carcinomas. Due to their low incidence, most of the current data on these tumors come from rare case reports or retrospective cases.

Methodology: The diagnosis of NEBC is based on morphological features similar to gastrointestinal and pulmonary neuroendocrine tumors and neuroendocrine markers. NEBCs are typically hormone receptor-positive and HER2-negative, but despite this luminal phenotype, recent studies have suggested that NEBC may be associated with a worse prognosis compared to invasive breast cancer without neuroendocrine differentiation.

Results and Discussion: NEBC is a rare entity. The prevalence of NEBC in relation to other types of breast cancer ranges from 0.1% to 18%. According to the 2003 classification, the prevalence of these tumors was estimated between 2% and 5%. However, data from the Surveillance Epidemiology and End Results (SEER) database identified only 142 cases of NEBC from 2003 to 2009, corresponding to a prevalence of <0.1%. The lack of specific morphologic and immunohistochemical diagnostic data may explain the varying prevalence reported in the literature. Like more common types of breast cancer, NEBC is most common in female patients between the sixth and seventh decades of life. However, several cases have been diagnosed before menopause or in male patients.

Case Presentation: Our case involves a 48-year-old non-smoker who presented to our hospital after noticing a hard nodule in her right breast. The patient did not report any other health issues or family history of malignancy. Ultrasonographic and MRI examinations revealed a 39x37 mm nodule in the upper outer quadrant of the right breast, with undulating contours, mild hyperintensity on T2, and hypointensity on T1. The mass infiltrated the thoracic wall but was not in contact with the vessels. Two axillary lymph nodes (10x12 mm) were also observed. The left breast appeared normal, with no pathological signal enhancements. The imaging aspect of the nodule suggested BIRADS 6. A Tru-cut biopsy of the right breast lesion, complemented by immunohistochemical examinations, revealed poorly differentiated carcinoma with neuroendocrine differentiation (focal cytokeratin "dot-dot" positive, LCA negative, chromogranin A positive). Hormonal receptor evaluation was triple negative (ER, PR, HER-2 negative), and the Ki-67 proliferation index was 60%.

Conclusion: Neuroendocrine carcinomas of the breast are typically diagnosed in patients between 60-70 years old. They are aggressive neoplasms with a high risk of metastasis. Immunohistochemical examinations play an essential role in their differential diagnosis from other breast tumors.

Keywords: Breast Cancer, Neuroendocrine Carcinoma of the Breast (NEBC), Neuroendocrine Differentiation, Small Cell Breast Cancer, Neuroendocrine Tumor

Urinary Tract Infections in the Elderly: An Overlooked Yet Critical Aspect of Geriatric Health

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Introduction: The aging population is growing at an unprecedented rate, bringing with it numerous medical challenges that require urgent attention. Among these, urinary tract disorders in elderly patients remain an underappreciated concern, yet one with significant public health implications.

Objective: The aim of this paper is to provide an overview of our experience and a review of the literature on urinary tract infections (UTIs) in the elderly.

Materials and Methods: A search was conducted using the keywords ("urinary tract infection" AND "adults" AND "geriatric") in PubMed and Google Scholar over a 10-year period.

Results: In PubMed, the search for "urinary tract infection" yielded 29,445 articles. When the specific phrase "urinary tract infection AND geriatric" was added, 420 articles were retrieved. In Google Scholar, 17,200 publications were identified.

Conclusions: Urinary tract infections in elderly patients are associated with high morbidity and mortality rates. Atypical presentations, such as confusion, lethargy, and falls, often lead to misdiagnosis or delayed treatment. The inappropriate use of antibiotics in asymptomatic bacteriuria further complicates management and contributes to antimicrobial resistance. Updated clinical guidelines emphasize a more cautious approach to diagnosis and treatment, reinforcing the importance of urine cultures and symptom-based management. Addressing urinary tract disorders in elderly patients requires increased awareness, expanded research, and improved clinical guidelines. Early screening, lifestyle modifications, and personalized pharmacotherapy may reduce complications and improve quality of life.

Keywords: Infection, urinary tract, adults, geriatrics, antibiotic resistance

Food Allergy and Albania: An Overview of the Situation and Treatment Options

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Introduction: Food allergies are an increasing health concern worldwide, including in Albania, where there are limited studies on the prevalence of this condition. Food allergies occur as a result of an abnormal immune system response to certain food proteins, leading to symptoms that range from mild reactions to life-threatening anaphylaxis. The most common foods that cause allergies include milk, eggs, nuts, seafood, and wheat.

Methodology: In Albania, awareness of food allergies remains limited both among the general public and healthcare professionals. Other challenges include inaccurate labeling of food products and limited access to specialized treatments. Improving health policies, educating the population, and developing an effective system for managing food allergies are crucial steps to ensure the safety and quality of life for patients.

Conclusions: This paper aims to raise awareness within the scientific community and relevant institutions about this condition and the need for improved research and measures for managing food allergies in Albania. It also provides a summary of the literature on recent advances in its treatment.

Keywords: Food allergy, awareness, treatment, immunology, Albania

Hydroxychloroquine as a Promising Alternative to Traditional Therapies in Knee Osteoarthritis

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Introduction: Osteoarthritis (OA) is a degenerative disease characterized by progressive degradation of articular cartilage and mild inflammation of the synovium. Recent studies suggest that hydroxychloroquine (HCQ) may have a role in modifying osteoarthritis.

Objective: The aim of this study is to evaluate the potential of hydroxychloroquine by focusing on its anti-inflammatory properties, symptom relief, and ability to slow the progression of the disease.

Methods: A randomized, double-blind, placebo-controlled trial (RCT) was conducted at QSUNT with patients diagnosed with primary knee osteoarthritis in stages II or III according to the Kellgren and Lawrence classification. A total of 40 patients were randomly assigned to receive either hydroxychloroquine (200 mg twice daily, n=18) or placebo (n=22). Symptom progression was monitored using the WOMAC index at the start of the study and at weeks 6, 12, 18, 24, 30, and 36.

Results: At week 36, the HCQ group showed significant improvements in knee pain, stiffness, and function compared to the placebo group. The placebo group showed notable improvements at week 6, while the HCQ group experienced substantial improvements by week 12. Statistically significant differences between the groups were evident at all time points. Four patients in the HCQ group reported side effects, such as diarrhea and headaches, while no side effects were reported in the placebo group. The HCQ group had a lower average need for analgesics during the study.

Conclusion: Hydroxychloroquine shows promise as an immunomodulatory therapy for knee osteoarthritis, serving as an effective alternative to conventional treatments.

Keywords: Hydroxychloroquine, knee osteoarthritis, anti-inflammatory, immunomodulatory therapy.

Conference Hall 6

Acute Respiratory Distress Syndrome (ARDS) Associated with Influenza and Early Management Criteria in Intensive Care

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Introduction: Acute Respiratory Distress Syndrome (ARDS) represents a life-threatening form of Acute Respiratory Failure. Numerous pathologies and clinical conditions are associated with it; among them is infection with Influenza viruses, which is a significant Public Health issue associated with considerable morbidity and mortality.

Methods: The clinical spectrum of influenza infection ranges from mild upper respiratory tract infections to life-threatening pneumonia and ARDS. At the same time, it is important to identify chronic or coexisting conditions that contribute to and favor the onset of ARDS. Among these, Arterial Hypertension correlates with 62% of cases, COPD with 56%, Diabetes Mellitus with 34%, chronic kidney disease with 37%, and Chronic or Secondary Anemia with 24%.

Results: Meanwhile, the criteria for defining ARDS have consistently been the subject of dynamic adaptation and reformulation in the literature. The newer classifications, based on and adapted from the Berlin Definition of ARDS, prioritize the early identification and treatment of cases with oxygen therapy in intensive care settings. The broader application of the definition and recommendations of ARDS for early treatment, even in pre-hospital medical settings, is also a key point for better medical care of this syndrome.

Conclusion: In daily clinical practice, it is imperative to promptly trace the epidemiological, clinical, laboratory, and imaging evidence of Influenza, both in the pre-hospitalization period and during hospitalization. These efforts, along with adequate management in intensive care, will reduce diagnostic-therapeutic delays and improve the otherwise reserved prognosis.

Keywords: Acute Respiratory Distress Syndrome, ARDS, Influenza, early management, intensive care, Berlin criteria, acute respiratory failure, pneumonia, oxygen therapy, mechanical ventilation, comorbidities.

Vagus Nerve Stimulation – What Do We Know?

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Introduction: Vagus Nerve Stimulation (VNS) is a neuromodulation technique that involves delivering electrical impulses to the vagus nerve, a major component of the autonomic nervous system.

Method: A literature review was conducted to gain insight into the current indications and future directions of VNS. VNS aims to modulate nervous activity by stimulating the vagus nerve, thereby affecting brain regions and peripheral organ systems connected to it. This modulation can influence neurotransmitter release and activate neural pathways involved in various physiological and psychological processes.

Clinical Applications: VNS is currently used in the treatment of refractory epilepsy and treatment-resistant depression. Ongoing research is exploring its potential in addressing other conditions, including:

- Stroke rehabilitation
- Headaches
- Anxiety disorders
- Inflammatory conditions
- Heart failure

The exact mechanisms underlying the therapeutic effects of VNS are still under investigation. It is believed to involve activation of afferent vagal fibers, which project to brainstem nuclei and subsequently influence higher brain regions. This activation induces changes in neurotransmitter levels and neuronal activity.
VNS can be performed through invasive methods, where a device is surgically implanted. Non-invasive methods, which stimulate the vagus nerve through the skin, are also being studied.

Conclusion: In conclusion, VNS offers a promising avenue for modulating neural activity and treating a range of neurological and psychiatric disorders.

Keywords: Vagus Nerve Stimulation, VNS, neuromodulation, epilepsy, depression, non-invasive stimulation, brain modulation, neurotransmitters, stroke rehabilitation, anxiety, heart failure, autonomic nervous system.

Contemporary Surgical Approach to Cerebral Gliomas: An Integrated Perspective for the Future

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Introduction: Cerebral gliomas represent one of the most complex challenges in neurosurgery, requiring advanced strategies for diagnosis and treatment.

Methods: This study provides an integrated analysis of contemporary surgical approaches, exploring their effectiveness in preserving neurological functions and improving clinical outcomes.

Results: Advancements in surgical techniques, including neuronavigation, intraoperative fluorescence, and new functional imaging technologies, have significantly improved the management of these tumors.

Conclusions: The findings of this study may help define new strategies for the surgical treatment of cerebral gliomas in the coming years, including developments in robotic surgery and the integration of artificial intelligence.

Keywords: Cerebral glioma, neuro-oncological surgery, neuronavigation, functional imaging, artificial intelligence, robotic surgery.

Tendon Transfers in Foot Surgery

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Introduction: Deficits in foot dorsiflexion due to paralysis or other pathologies such as pes equinovarus require interventions like tendon transfers of the posterior or anterior tibialis muscles, which represent a surgical challenge. This paper aims to present the treatment outcomes of patients who underwent tendon transfers of the foot for various pathologies.

Materials and Methods: A prospective study of 22 cases operated on in our department during the period 2010–2013. The procedures involved the transfer of the tendon of the tibialis anterior or posterior muscle, depending on the clinical case, for different pathologies of paralytic nature or in the surgical treatment of pes equinovarus in children. The fixation technique used was either "pull-out" or interference screw in a bony tunnel.

Results: Out of the 22 operated cases, 15 were children diagnosed with congenital pes equinovarus, where tibialis anterior transfer was performed to correct the abduction and supination deformities of the midfoot. 7 cases had a paralytic nature, and posterior tibialis tendon transfer was performed through the interosseous membrane. EMG was performed before the intervention. Patients were clinically evaluated by assessing the muscle strength of the transfer and its function.

Conclusion: Transfer of the tibialis anterior or posterior muscles is an effective method for correcting deformities resulting from deficiencies of the foot extensor muscles due to various causes.

Keywords: Tendon transfer, tibialis anterior, tibialis posterior, foot paralysis, pes equinovarus, dorsiflexion deficit.

Minimally Invasive Surgery: Where Are We and Where Are We Heading?

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Introduction: Minimally invasive surgery is currently at a peak in its development and application within general surgery. Its exceptionally positive outcomes and ongoing technological advancements continue to impress surgeons globally and represent a real-time revolution in surgical practice.

Method: The aim of this presentation is to provide an overview of the developments of this technique in our country, its evolution, and the expected progress in the near future. Through a description of the steps undertaken in the implementation of advanced surgery starting from 2018, we highlight a series of interventions of increasing complexity performed at the First Clinic of General Surgery at the University Hospital Center "Mother Teresa" in Tirana.

Results: Beginning with the first laparoscopic rectal resection performed in 2018, we now report over 15 types of complex laparoscopic and endoscopic procedures—innovations of recent years in our hospitals. Advanced minimally invasive surgery has become a standard part of our operating rooms, with hundreds of patients treated annually. The number of surgeons trained in this technique at our clinic continues to grow steadily.

Conclusions: The future of surgery not only involves an expansion in the range of minimally invasive procedures but is increasingly moving toward the introduction of robotic-assisted techniques, which in recent years have seen significant global advancement.

Keywords: Minimally invasive surgery, laparoscopy, endoscopy, robotic surgery, general surgery, surgical innovation, technological advancement, surgical training, colorectal surgery, complex interventions, Albania.

Updated ESICM Guidelines on ARDS: Some Reflections…

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Introduction: The European Society of Intensive Care Medicine (ESICM) presented its updated clinical practice guidelines for acute respiratory distress syndrome (ARDS) during the 36th Annual ESICM Congress in October 2023.

Methods: An international panel of experts evaluated the clinical evidence across nine key areas, including the definition, phenotyping, and various respiratory support strategies.

Results: These guidelines cover the definition of ARDS, phenotyping, and respiratory support strategies, and represent an update of the 2017 version.

Conclusions: The aim of this paper is to offer several considerations regarding the applicability and real-world usefulness of these guidelines within the Albanian medical context.

Keywords: ARDS, ESICM guidelines, acute respiratory distress syndrome, phenotyping, respiratory support, intensive care, clinical practice, Albania, updated recommendations.

Gynecological Ultrasonography in the Evaluation of the Cervix Uteri

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Introduction: Cervical cancer remains a significant concern for global public health. Ultrasound is a valuable tool in gynecological diagnostics, particularly in the assessment of cervical abnormalities.

Objectives: This study aims to evaluate the role of ultrasonography in diagnosing cervical cancer.

Methods: A prospective case series analysis was conducted on four patients diagnosed with cervical cancer between January 2023 and May 2024 at the Koço Gliozheni Hospital. Patients were assessed via transvaginal ultrasound. Ultrasonographic findings were correlated with histopathological results obtained from biopsy samples. Key evaluated parameters included the characteristics of cervical masses, echogenicity, and other pelvic abnormalities.

Results: All four cases presented distinct sonographic features indicative of cervical cancer, including irregular cervical contours, increased vascularization, and heterogeneous echogenicity. Histopathological analysis confirmed the diagnosis of cervical cancer: three cases were squamous cell carcinoma and one was adenocarcinoma. The ultrasound findings were consistent with international literature, demonstrating the sensitivity of ultrasound in detecting malignant cervical lesions.

Conclusions: This case series highlights the critical role of ultrasound as a non-invasive diagnostic tool in the early detection of cervical cancer. Further studies with larger sample sizes are needed to strengthen these findings and to establish standardized ultrasound criteria for the diagnosis of cervical cancer in gynecology.

Keywords: Cervical cancer, gynecological ultrasound, transvaginal ultrasonography, cervical lesions, echogenicity, diagnostic imaging, non-invasive diagnosis, cervical assessment.

Co-Infection of HPV and Ureaplasma in Women with Cervical Pathologies

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Introduction: Cervical cancer ranks second worldwide in incidence among women, following breast cancer. This highlights the critical importance of identifying and preventing this condition. Recent studies have observed a strong association between human papillomavirus (HPV) infection and the presence of Ureaplasma, which may contribute to the progression of cervical cell abnormalities and the development of more severe pathologies.

Objectives: To assess the correlation between HPV and Ureaplasma infections and the severity of cervical pathologies.

Materials and Methods: A case-control study design was used to compare women with cervical pathology (cases) to those without (controls), evaluating the co-prevalence of HPV and Ureaplasma in both groups. Clinical data were collected based on HPV testing, presence of Ureaplasma infection, Pap smear results, colposcopy findings, and demographic data such as age, sexual history, contraceptive use, and smoking status.

Results: A Ureaplasma load $\geq 10^4$ showed a strong positive correlation (0.64) with cervical pathology, suggesting that a high bacterial load is associated with more advanced lesions (CIN II/III or cancer). HPV infection exhibited a strong positive correlation (0.79) with Ureaplasma load, reinforcing the possibility of clinically significant co-infections. Age was positively associated with Ureaplasma infection (0.54), indicating that older women are more likely to be affected. Parity was positively correlated (0.42) with cervical pathology, suggesting that women with more childbirths may have a higher risk of CIN. Genital warts were notably associated with HPV infection (0.45) and contraceptive use (0.39), possibly reflecting indirect links through sexual behavior or other risk factors.

Conclusion: Numerous studies have explored the co-association of HPV and Ureaplasma infections and their impact on cervical pathology, suggesting that co-infections may worsen existing lesions. The importance of such research lies in the need to improve current screening protocols for women of reproductive age, aiming to prevent the progression of cervical disease through early detection and intervention.

Keywords: HPV, Ureaplasma, co-infection, CIN, metaplasia, cervical pathology, reproductive health.

Non-Invasive Prenatal Diagnosis Based on the Use of Cell-Free Fetal Nucleic Acids in Maternal Plasma: A New Alternative in Albania

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Introduction: Prenatal diagnosis is an established obstetric practice in many countries today. It involves the collection of fetal genetic material using invasive techniques such as amniocentesis and chorionic villus sampling (CVS). Over the last 10 years, a new screening method for chromosomal anomalies, called Non-Invasive Prenatal Testing (NIPT), has been implemented worldwide. NIPT has significantly reduced the number of pregnant women who seek invasive diagnostic methods for detecting fetal chromosomal anomalies.

Methodology: Non-invasive examination, using maternal peripheral blood as a source of fetal genetic material, has long been the goal of early prenatal diagnosis to avoid the risk of miscarriage. Contrary to the common belief that the placenta forms an impenetrable barrier between the mother and fetus, there is evidence of bidirectional transport between the fetus and mother during pregnancy. Numerous studies show that both intact fetal cells and cell-free fetal nucleic acids (cffNA) pass through the placenta and can be detected in maternal circulation. Intact fetal cells provide a promising target for non-invasive prenatal diagnosis (NIPD) of chromosomal anomalies.

Results:

- Trisomy 21 detection rate: The false-positive rate for NIPT is approximately 0.2%, meaning that 1 in 500 unaffected pregnancies may be incorrectly reported as "positive" or "having trisomy 21." Therefore, it is recommended to perform CVS or amniocentesis following an abnormal result to confirm the presence of a chromosomal anomaly.
- Trisomy 18 detection rate**:** The detection rate for trisomy 18 is similar to that for trisomy 21; about 99% of pregnancies with trisomy 18 are detected through NIPT. However, approximately 1 in 100 trisomy 18 pregnancies may fail to be detected by this test.

Conclusions: Recent advancements in NIPD using cffDNA from maternal plasma have shown significant progress. Currently, many diagnostic laboratories have incorporated routine evaluation of X-linked disorders and RhD incompatibility. NIPT for chromosomal aneuploidies, the primary reason for prenatal diagnosis, is performed through next-generation sequencing (NGS). However, issues regarding the cost and processing of this method need to be addressed before cffDNA can fully replace the need for invasive methods of collecting genetic material.

Keywords: Non-invasive prenatal diagnosis, cell-free fetal nucleic acids, monogenic disorders, chromosomal aneuploidies, fetal sex, fetal RhD status.

Use of Artificial Intelligence and Data Analysis Software in Pre-Eclampsia Research

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Introduction: The use of artificial intelligence (AI) and data analysis tools has transformed scientific research and clinical analysis in the field of obstetrics and gynecology. These technologies enable the automatic selection of literature and data interpretation, reducing errors and increasing efficiency.

Objectives: To assess the effectiveness of Rayyan, Covidence, Zotero, BioBERT, and ChatGPT in optimizing the systematic review process on preeclampsia.

Methods: This study compares manual literature selection with AI-based selection, following PRISMA guidelines. Articles were identified in PubMed, Scopus, Web of Science, and Cochrane Library. Selection was carried out in two ways: (1) manually and (2) with AI (Rayyan, Covidence, Zotero). BioBERT and ChatGPT were used for summarizing and interpreting results. The comparison was based on time efficiency and impact on final outcomes.

Results: Out of 185 initial citations, 55 studies were deemed appropriate using the AI-based method, while 32 studies were deemed appropriate with the manual method from 57 initial citations. A comparison between the traditional method and AI-based tools showed increased efficiency in literature selection. Rayyan and Covidence reduced the time spent on article selection by 88.4%, making the process more efficient. Zotero improved reference management, facilitating the organization and citation of literature. Meanwhile, BioBERT and ChatGPT contributed to a more accurate and comprehensive selection of results regarding preeclampsia.

Conclusion: Integrating AI enhances literature selection and increases the accuracy of analysis, providing more reliable conclusions regarding preeclampsia. The use of these tools can contribute to conducting more structured and comprehensive reviews on preeclampsia, facilitating the identification of the most relevant studies, synthesizing scientific evidence, and drawing more accurate conclusions for the management and prevention of this pathology.

Keywords: Artificial intelligence, preeclampsia, systematic review, Rayyan, Covidence, Zotero, BioBERT, ChatGPT.

Deep Brain Stimulation, Clinical Indications, and Surgical Strategies

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Introduction: Deep Brain Stimulation (DBS) is a neurosurgical procedure that involves the implantation of electrodes into specific areas of the brain to modulate abnormal neural activity. It has emerged as a transformative treatment for several neurological and psychiatric disorders.

Method: DBS is primarily used for managing movement disorders such as Parkinson's disease, essential tremor, and dystonia. It has also been investigated for its effectiveness in treating psychiatric and neurological conditions.

Results: Traditionally, the procedure is considered when patients have exhausted conventional treatment options. Its success depends on accurate patient selection, proper electrode placement, and postoperative adjustments.

Conclusions: This review explores the "classic" clinical indications for DBS, its therapeutic mechanisms, and the evolving landscape of its application in both movement and psychiatric disorders. It also raises considerations regarding safety, long-term outcomes, and the need for personalized treatment planning.

Keywords: Deep Brain Stimulation, Parkinson's disease, Essential tremor, Dystonia, Neurological disorders, Psychiatric disorders, Surgical strategies, Electrode placement, Patient selection, Personalized treatment, Neurostimulation, Postoperative management, Therapeutic mechanisms.

Laparoscopic Pyloromyotomy for Infantile Hypertrophic Pyloric Stenosis: Is It a Path to Follow?

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Introduction: Pyloromyotomy is the standard surgical procedure for treating infantile hypertrophic pyloric stenosis (IHPS). Laparoscopic pyloromyotomy (LP) was introduced in 1990 and became the standard technique for IHPS treatment at our institution in 2009. A recent Cochrane review on this subject did not show a clear benefit of one type of surgery over another for IHPS. The purpose of this study is to demonstrate the LP technique and present our results with this technique.

Methods: A retrospective analysis was performed on the data of all patients treated for IHPS at our institution from 2011 to 2022. Demographic data, surgical approaches, hospital stay duration, and complications were evaluated. The postoperative feeding protocol was the same for all patients, aiming to achieve full enteral feeding by the third day after surgery.

Results: Of the 119 infants treated for IHPS, 94 (79%) were male. The average age at the time of surgery was 34 days (range 12–127 days), and the average hospital stay was 5 days (range 3–19). The vast majority of patients, n=111 (93%), underwent LP, while 8 patients were treated with laparotomy using the supraumbilical approach (Bianchi). No patient underwent the classic abdominal approach in the upper right quadrant. In 5 cases (4%), a second intervention was required due to insufficient pyloromyotomy. In 2 of these cases, the revision was performed using the supraumbilical approach, and in 3 cases, a repeat LP was performed. During LP, two mucosal perforations were noted, which were repaired during the same procedure after conversion to the supraumbilical approach, according to the surgeon's preference. In one patient, surgical repair was needed due to postoperative omental prolapse through the working port incision. No other complications occurred, and the overall complication rate was 7%. LP was performed using a 5mm camera inserted through the umbilical port and 3mm instruments without trocars, inserted through two abdominal incisions. The procedure is completed when the pyloric mucosa emerges through the muscular incision.

Conclusion: LP is easy for experienced surgeons and offers excellent results. The complication rate is comparable to the overall complication rates (3.3% – 18.4%) reported after laparotomy. From a cosmetic standpoint, LP provides much better cosmetic outcomes with almost invisible scars compared to the classic laparotomy in the upper right quadrant.

Keywords: Pyloromyotomy, Laparoscopic pyloromyotomy, Infantile hypertrophic pyloric stenosis, Pediatric surgery, Surgical techniques, Complications, Postoperative recovery, Cosmetic results, Laparotomy, Supraumbilical approach, Pyloric stenosis treatment.

Fixation with C-2 Translaminar Screws in Atlantoaxial Instability: A Safe and Effective Technique

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Introduction: C-2 translaminar screw fixation is a straightforward and safe technique for treating atlantoaxial instability, minimizing the risk of vertebral artery injury.

Objectives: To evaluate the stability achieved with translaminar screws, determine the success of the fixation post-operatively, analyze the risk of vertebral artery injury, and assess other major complications.

Methods: Six patients (mean age 56.5 years) with cervical instability were treated using this technique due to ossiculum odontoideum (n=2), rheumatoid arthritis (n=3), and ankylosing spondylitis (n=1). CT and MRI scans were used to assess the anatomy and limiting factors. After the surgery, patients were followed up for two years to monitor fusion rates and complications.

Results: Screws were successfully placed in 5 out of 6 patients without neurological or vascular complications. All patients wore a cervical collar for 6 weeks, and there was no implant failure or need for corrective interventions. One patient with chronic renal insufficiency died 12 days after the surgery due to cardiorenal complications.

Conclusions: Bilateral translaminar fixation in C-2 is a safe and effective technique for atlantoaxial stabilization, minimizing the risk to the vertebral artery. In this series, 5 out of 6 patients achieved 100% fixation success. The C-2 lamina proved to be suitable for screw placement in all cases. Although biomechanical studies on this technique remain limited, preliminary data suggest that it provides stability comparable to other strong screw fixation methods.

Keywords: C-2 translaminar screw fixation, atlantoaxial instability, vertebral artery, neurosurgery, cervical instability, surgical outcomes, screw placement, biomechanics, spinal stabilization.

Myocardial Infarction after Cardiac Surgery: A Retrospective Cohort Study

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Introduction: Postoperative acute myocardial ischemia (PMi) following cardiac surgery is a rare event but can progress rapidly, becoming a potentially severe complication. PMi is a serious complication after cardiac surgery, with an incidence reported between 5% and 15%, depending on the patient's risk profile and the complexity of the surgery. Early diagnosis and effective management are critical to improving outcomes.

Objectives: To determine the incidence of PMi and analyze the occurrence of postoperative myocardial infarction. To evaluate diagnostic methods and examine management approaches for PMi. To assess the role of anesthesiologists and the impact of PMi on morbidity and mortality, identifying risk factors and preventive strategies with the aim of improving patient outcomes.

Methods: This is a retrospective cohort study. A total of 600 adult patients who underwent cardiac surgery between January and December 2023 at the "Mother Teresa" University Hospital in Tirana, Albania, were included. Data collected included patient demographics and type of surgical intervention. The study examined diagnostic methods for PMi (ECG, biomarkers, echocardiography), management strategies (pharmacological therapy, use of IABP), and outcomes (ICU stay, mortality).

Results: The study included 600 patients with an average age of 63 years. Comorbidities included hypertension (65%), diabetes (50%), and hyperlipidemia (48%). The total number of PMi cases in this study was 54 (9%). In the CABG group, the incidence was 8.3%, in the valvular surgery group 10%, and in the combined procedures group 10%. Cardiac troponins were elevated in 100% of patients, EKG changes were observed in 74% of cases, and echocardiographic findings were present in 59%. Thirty-five patients were treated solely with pharmacological therapy. Four percent underwent re-intervention with coronary artery bypass surgery. IABP was placed in 28% of PMi cases as treatment for cardiogenic shock (67%) and refractory ischemia (33%). The ICU stay was significantly longer in the PMi group, with 70% compared to 22% in the non-PMi group. Thirty-day mortality was also significantly higher in the PMi group, with 14.8% versus 1.8%.

Conclusions: PMi occurred in 9% of patients who underwent cardiac surgery in this study, significantly impacting morbidity and mortality. Multidisciplinary management and timely interventions are essential for improving outcomes. Anesthesiologists play a key role in the

early diagnosis and hemodynamic stabilization of PMi, emphasizing the need for continuous perioperative care.

Keywords: Postoperative myocardial ischemia, cardiac surgery, myocardial infarction, diagnosis, management, anesthesiology, multidisciplinary care, mortality, coronary artery bypass grafting (CABG), echocardiography, IABP, morbidity.

Surgical Treatment Related to Mesial Temporal Lobe Epilepsy

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Introduction: Epilepsy is one of the most common neurological chronic disorders, with an estimated prevalence of 0. 5 – 1%. Partial focal epilepsy (Pe) is one of the most common types of epilepsies that originates from a relatively limited number of neurons, whose malfunction generates epileptic attacks. Partial focal epilepsies make up 60% of the whole spectrum of epilepsies. Recent studies show that 25% of patients who suffer from Pe show a resistance against medication. The duration of symptoms on the one hand and treatment on the other hand cause the cognitive dysfunctions in the patients suffering from epileptic seizures, especially children, to suffer progressive damage. Patients suffering from epilepsy have a cost that at the moment is difficult to calculate accurately, but it is still very high. Mesial temporal lobe seizures are the most common form of partial epileptic seizures originating in the temporal lobe, and they are frequently resistant to anti-epileptic drug treatment.

Materials and Methods: At Neurosurgical Department, University Hospital "Mother Theresa", since 2013 there is a team consisting of different medical specialists, for the study and selection of candidates, who can benefit from surgery. At the same time, for many years now in the neurological department there is already a successful tradition in the medicament treatment of epilepsy. The team of medical doctors in our Department, which makes the treatment of these diseases by means of surgery, is made up of: neuro-epileptologists, radiologists, neurologists, psychologists and neurosurgeons. During the period, from 2013 until the year 2021, 35 patients have undergone an operation. all the patients were considered, based on protocols, as pharmacoresistant.

Conclusions: The post-surgical results were 80% of the patient's seizure free and without need to use any antiepileptic treatment, meaning engel 1. 15% of the patients were seizure free but with the need of antiepileptic treatment and meaning engel 2 and 5% of patients were not able to be cured by achieving only a modification of the semiology of the crisis and frequency, meaning Engel 3. anterior temporal lobectomy in majority of the cases is the best surgical treatment of drug-resistant Hs-tLe and long-term seizure free patients in this group have been reported about 70% (62-83%)

Keywords: Epilepsy, Partial Focal Epilepsy, Pharmacoresistant Epilepsy, Mesial Temporal Lobe Epilepsy, Anterior Temporal Lobectomy, Epilepsy Surgery, Engel Classification, Drug-Resistant Seizures, Cognitive Dysfunction, Multidisciplinary Approach

Coronary Artery Revascularization on a Beating Heart: Indications and Surgical Outcomes

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Introduction and Objectives: Off-pump coronary artery bypass (OPCAB) presents several advantages compared to the classical technique using cardiopulmonary bypass (CPB), not only in terms of morbidity, trauma, and hospital stay duration but also in its superiority particularly in patients with renal insufficiency, calcified aortas, and other comorbidities. However, applying this method comes with significant technical challenges and has been one of the primary focuses of surgical improvement.

Methods: Over the past 15 months, 21 off-pump coronary artery bypass surgeries were performed. The study included patients aged between 59 and 84 years. In the majority of cases (62%), two anastomoses were completed. The average number of anastomoses per patient was 1.76. The left internal mammary artery (LIMA) was used in all cases. In 14 out of the 21 cases, two coronary arteries were revascularized; in 8 of these, the second artery was the marginal artery, and in 6 cases, it was the right coronary artery.

Results: All patients had a stable postoperative course and were discharged from the hospital after an average of 7 ± 1 days. One case of mediastinitis was recorded in a severely obese diabetic patient with an ejection fraction of 35%. Patients were followed for a period ranging from three months to one year, and no further complications were observed.

Conclusions: Off-pump coronary revascularization, despite the risks and technical difficulties it poses, can be successfully performed. The outcomes are comparable to the traditional on-pump technique and offer particular advantages in patients with renal or pulmonary insufficiency, as well as those with heavily calcified aortas.

Keywords: Coronary artery bypass, off-pump surgery, revascularization, LIMA, beating heart, mediastinitis, calcified aorta, renal insufficiency, high-risk cardiac surgery.

Aortic Valve Repair Surgery: A Modern Approach in the Management of Aortic Insufficiency and Proximal Aortic Aneurysm

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Introduction: Aortic valve (AV) repair has emerged as an effective alternative to prosthetic valve replacement in selected patients with aortic insufficiency (AI) or proximal aortic aneurysm. This technique aims to preserve the native valve structure and function, avoiding the long-term need for anticoagulation and reducing the complications associated with prosthetic valves.

Methods: Recent advances in surgical techniques have significantly improved the durability and reproducibility of AV repair. Key developments include:

- Circumferential annuloplasty for structural stabilization of the aortic root
- Systematic assessment of valve configuration using the concept of *effective height* to optimize cusp function

AI is classified into three types based on its underlying mechanism:

- Type 1: Aortic root dilation – typically associated with central regurgitant jets
- Type 2: Cusp prolapse – associated with eccentric regurgitant flow
- Type 3: Cusp restriction due to fibrosis or calcification

For root aneurysms, the David procedure remains the gold standard. It involves complete excision of the aortic root and reimplantation of the native valve into a Dacron graft, demonstrating excellent long-term stability and a lower rate of reoperation.

Results: Long-term and very long-term outcomes—up to 20 years—have been reported with excellent durability of repair. AV repair has shown comparable success in both bicuspid and tricuspid valves, preserving native function and offering excellent hemodynamic outcomes.

Conclusions: AV repair has matured into a standardized and reproducible surgical option, now considered a potential new standard of care for selected young patients with AI and/or aortic root dilation. In our center, we have successfully performed several of these procedures and aim to expand their use in the coming years to improve patient quality of life and long-term outcomes.

Keywords: Aortic valve repair, aortic insufficiency, aortic aneurysm, David procedure, annuloplasty, effective height, valve-sparing surgery, bicuspid valve, tricuspid valve, cardiac surgery.

Avoiding Medical Errors in Intensive Care Units

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Introduction: Medical errors represent the third most common cause of mortality and morbidity, particularly in the complex and high-pressure environment of intensive care units (ICUs), where rapid clinical decisions are often required for critically ill patients. These errors may involve medication errors, procedural complications, diagnostic inaccuracies, and communication failures. Approximately 35–40% of errors are due to misdiagnosis or underperformance. ICU-specific contributors include provider fatigue, cognitive overload, understaffing, equipment malfunctions, and miscommunication.

Objectives: To summarize the common medical errors occurring in ICUs, with an emphasis on national perspectives and challenges.

Materials and Methods: The consequences of ICU-related errors range from minor adverse events to life-threatening complications, prolonged hospital stays, increased healthcare costs, and, in some cases, mortality.

Results: Several strategies have been proposed to mitigate these risks, including the implementation of standardized clinical protocols and the use of artificial intelligence (AI). Enhancing teamwork through simulation-based training, promoting a culture of safety, and integrating AI-driven monitoring systems can further improve patient safety. In addition, ongoing quality improvement initiatives, real-time error reporting, and structured post-event analysis are crucial in minimizing medical errors.

Conclusions: Future research should focus on the use of emerging technologies, optimization of ICU tracking sheets, and human factors engineering to build safer systems. The integration of predictive analytics, automated error detection algorithms, and digital tools could revolutionize error prevention in intensive care units. These strategies address national challenges within our ICUs and provide a foundation for improving care quality and patient outcomes.

Keywords: Medical errors, intensive care unit, diagnostic accuracy, medication errors, artificial intelligence, patient safety, clinical protocols, predictive analytics, quality improvement, healthcare technology

Comparison of Drug-Related Emergency Presentations across Different Emergency Departments

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Introduction: Drug-related presentations to emergency departments (EDs) are a major public health concern and represent a significant burden on healthcare systems worldwide.

Objective: To compare the types of substances involved (legal/illegal), misuse of prescription drugs, the emergence of novel psychoactive substances (NPS), patient demographics, modes of presentation, and mortality across six different emergency centers.

Materials and Methods: This study was conducted as part of the Euro-DEN project (The European Drug Emergencies Network), under the supervision of the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA). Seven centers participated in this study, including Albania, Serbia, Tunisia, Israel, Lebanon, and two centers in Algeria. Data was collected over a six-month period (July to December 2022) by trained local experts and sent to the central data processing hub in London, UK.

Results: A total of 741 drug-related emergency presentations were reported across all centers. The five most common substances involved were: (1) Cannabis, (2) Cocaine, (3) Heroin, (4) Pregabalin, and (5) MDMA. These rankings differed for Albania, where the order was: (1) Cocaine, (2) Heroin, (3) Cannabis, (4) Benzodiazepines, and (5) Unspecified substances. Overall, 80.1% of patients were male, with a mean age of 29.5 years (range 15–89 years). In 32.1% of cases, alcohol was also consumed alongside the drug. The average ED stay was 5 hours (ranging from 2 to 23 hours).

Conclusions: There is an urgent need for public health interventions aimed at preventing drug use and raising awareness about the safe use of various medications.

Keywords: Emergency department, drug use, recreational drugs, substance abuse, prescription misuse, novel psychoactive substances, public health

Ophthalmological Complications of HIV/AIDS

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Introduction: With the improvement of treatment and survival rates for HIV/AIDS patients, ophthalmological complications have become increasingly common reported in up to 75% of patients throughout the course of the disease. Ocular involvement may occur due to AIDS-related microangiopathy, typically presenting as cotton wool spots, or due to opportunistic infections caused by a wide range of organisms. If not promptly treated, these ocular infections and diseases can result in permanent vision loss. Immediate referral to an ophthalmology specialist is critical to prevent further damage and complications.

Methods: This study reviews the spectrum of ocular diseases encountered in HIV/AIDS patients treated at the University Hospital Center "Mother Teresa" over a five-year period. Data were collected from the medical records of patients diagnosed with HIV/AIDS, including regular ophthalmological examinations, laboratory findings, and clinical signs of ocular disease.

Results: A significant number of HIV/AIDS patients presented with ocular complications such as cotton wool spots, opportunistic infections (e.g., cytomegalovirus, herpes simplex, varicella zoster, *Toxoplasma gondii*), and ocular neoplasms such as Kaposi's sarcoma and lymphoma. In many cases, ocular damage appeared as an early sign of systemic infection, and only prompt treatment prevented irreversible vision loss.

Conclusions: Ophthalmological complications are common among HIV/AIDS patients and require immediate and specialized attention. Early intervention is essential to prevent blindness and improve patients' quality of life. Management includes antiretroviral therapy and targeted treatment for ocular infections and neoplasms. Rapid referral to ophthalmology specialists is crucial for optimal outcomes.

Keywords: HIV, AIDS, ophthalmological complications, microangiopathy, opportunistic infections, ocular neoplasms, blindness, Kaposi's sarcoma, lymphoma, cytomegalovirus, herpes simplex

The Impact of Burnout on Anesthesiology and Intensive Care Residents

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Introduction: The challenges and breakthroughs in modern medicine constantly push us forward and raise expectations to achieve personal, social, and professional goals. These increasing demands have a significant impact on well-being and mental health, often leading to burnout.

Methods: Burnout is a syndrome characterized by depersonalization, emotional exhaustion, and a reduced sense of personal accomplishment, resulting from unmanaged chronic workplace stress. Specialization in anesthesiology and intensive care can be a psychological challenge due to the high levels of stress and anxiety associated with patient safety responsibilities and frequent unexpected emergencies. We conducted a survey among residents from all four years of training in our department, assessing how anxiety, stress, and psychophysiological disturbances affected them during the period of February 1–28, 2025, and how these factors influenced their performance.

Results: The Maslach Burnout Inventory (MBI) is a well-recognized and validated tool for assessing burnout. Burnout can reduce the quality of medical care to the point of compromising patient safety. This condition may have serious consequences, including medical errors, suicides, accidents, substance abuse, and an increased risk of cardiovascular diseases.

Conclusions: Clinical manifestations are nonspecific and include fatigue, headaches, increased blood pressure and heart rate, sleep and eating disorders, and emotional instability. These symptoms can be influenced by both internal and external factors. Burnout-related complications can serve as indicators of high stress levels in the anesthesiology and intensive care residency programs**.**

Keywords: anesthesiologist, anxiety, burnout, resident

Challenges in Anticoagulant Treatment of Venous Thrombosis in Cancer Patients

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Introduction: Venous thromboembolism (VTE) is one of the leading causes of morbidity and mortality in cancer patients. Treating VTE in these patients remains a challenge.

Objectives: We aim to review current knowledge and recommendations for the treatment of VTE in cancer patients.

Materials and Methods: The results of this paper were obtained from the latest guidelines of the European Society of Cardiology, the European Respiratory Society, the American Society of Hematology, and the French Hemostasis and Thrombosis Study Group, published on their respective websites.

Results: For the treatment of VTE in cancer patients, low molecular weight heparin (LMWH) should be considered for the first 6 months over vitamin K antagonists. LMWH is recommended without switching to any other anticoagulant unless there are contraindications for LMWH. Direct oral anticoagulants (DOACs) should be considered as an alternative, especially in patients with low bleeding risk, in the absence of drug interactions with ongoing systemic therapy. The European Society of Cardiology proposes that anticoagulant therapy for cancer-associated VTE should be based on: thromboembolic risk, bleeding risk, drug interactions, and patient preferences. Long-term anticoagulation is considered for an indefinite period or until cancer is cured. Management of incidental VTE is handled the same as symptomatic VTE. For the prevention and treatment of cancer patients, the use of DOAC prophylaxis is recommended for all outpatient cancer patients at high VTE risk.

Conclusion: Personalizing anticoagulant therapy is essential in the treatment of VTE in cancer patients. DOACs are an effective and relatively safe therapeutic option.

Keywords: Venous Thromboembolism, Cancer, Anticoagulation Therapy, Low Molecular Weight Heparin, DOAC, Hematology.

Update in Pharmacological Treatment of Autoimmune Interstitial Lung Disease

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Introduction: Interstitial lung disease (ILD) constitutes a complication of over 200 diseases that affect the lungs and are complicated by this pathology. Most of these diseases are quite rare. ILD is a common manifestation of systemic autoimmune diseases such as rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), dermatomyositis-polymyositis (DM-PM), and systemic sclerosis.

Methodology: Progressive fibrosis of the pulmonary parenchyma leads to worsening pulmonary function, respiratory symptoms, and quality of life. High-resolution computed tomography (HRCT) is the preferred examination for this pathology and for assessing the progression of pulmonary fibrosis. Early diagnosis is crucial for starting treatment as soon as possible.

Results: Pulmonary fibrosis in ILD presents a high mortality rate. Pharmacological management of ILD depends on the underlying pathology and whether inflammation or fibrosis predominates. For diseases dominated by inflammation, corticosteroids and immunomodulatory agents are the mainstay of treatment.

Conclusions: The use of antifibrotic agents may slow the progression of progressive pulmonary fibrosis (PPF), similar to their beneficial effects in idiopathic pulmonary fibrosis (IPF). Treatment with nintedanib is recommended for patients with PPF when standard management for fibrotic ILD has failed.

Keywords: ILD, IPF, PPF, Autoimmune Diseases, Pulmonary Fibrosis, Pharmacological Treatment, Nintedanib.

The Diagnostic Value of Autoantibodies in Neurological Autoimmune Diseases

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Introduction: Neurological Autoimmune Diseases are disorders caused by an abnormal immune response to specific structures of the Nervous System. They are characterized by clinical symptoms caused by antibody-mediated mechanisms. Antibodies are divided based on the location of their Antigens in the Nervous System: 1. Against intracellular Antigens, 2. Against cell surface antigens.

Aim of the study: Determination of antibodies to neuronal surface antigens for an early and accurate differential diagnosis of neurological autoimmune diseases.

Materials and Methods: The study included 139 patients suspected of neurological autoimmune diseases. Antibodies were performed by Indirect Immunofluorescence and Immunoblot techniques.

Results: In 28 patients suspected of Myasthenia Gravis, 14 cases were positive for anti-AChR and 11 cases were positive for anti-MuSK. Out of 70 patients suspected of Neuromyelitis Optica spectrum disorders, 6 cases were positive for anti-AQP-4 and 10 cases were positive for anti-MOG. In 21 cases suspected of Autoimmune Encephalitis, 14 cases were positive for anti-NMDAR, 1 case was positive for anti-DPPX, 1 case was positive for anti-CASPAR. In 20 patients suspected of Autoimmune Peripheral Neuropathy, 2 cases were positive for anti-GM1, 1 case was positive for anti-GM3, 1 case was positive for anti-GD1a.

Conclusions: Anti-neuronal antibodies are important markers for the early differential diagnosis of neurological autoimmune diseases. Many patients resulted positive for only one specific antibody. Antibodies help in treatment protocols and can predict therapy outcomes.

Keywords: Autoimmune diseases, Neurological diseases, Antibodies, Myasthenia Gravis, Neuromyelitis Optica, Autoimmune Encephalitis, Peripheral Neuropathy, Anti-neuronal antibodies, Immunofluorescence, Immunoblot.

Evaluation of Metabolic Syndrome in PCOS

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Introduction: Polycystic Ovary Syndrome (PCOS) is one of the most common endocrine disorders in women of reproductive age. PCOS is characterized by disturbances in both the reproductive and metabolic systems, including morphological changes in the ovaries (presence of cysts), ovarian dysfunction, and other clinical and biochemical symptoms such as hirsutism, insulin resistance, hyperandrogenism, etc. Insulin resistance is one of the key features of PCOS and is closely related to metabolic syndrome.

Methods: Between 2011 and 2016, this study included 100 fertile women aged 16 to 40 years, diagnosed with polycystic ovary syndrome. They were examined through clinical, biochemical, and hormonal tests, including: Ovarian ultrasound (Echo), weight**,** Biochemical tests (glucose, lipid profile)**,** Hormonal tests (TSH, FSH, LH, estradiol, prolactin, insulin, testosterone)**,** Insulin resistance was assessed using the HOMA and triglyceride-glucose index (TyG).

Results: Based on the results, a positive correlation was observed for insulin, glucose, and HOMA ratio ($p< 0.001$, $p< 0.008$, $p< 0.001$). As for the lipid profile, the correlation was positive only with triglycerides ($p< 0.001$). Additionally, the correlation between TyG and HOMA-IR was positive ($p< 0.001$).

Conclusion: PCOS is a heterogeneous disease with various phenotypes and different metabolic aspects. Compared to the control group, a positive correlation was observed for insulin, glucose, and the HOMA ratio, as well as between HOMA-IR and TyG. In this context, TyG is a simple, easily accessible clinical index for determining insulin resistance and the risk of metabolic syndrome in PCOS.

Keywords: PCOS, metabolic syndrome, insulin levels, HOMA.

Orthodontic Emergencies

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Introduction: The right timing of intervention is crucial for certain orthodontic problems, such as class II and class III malocclusions, crossbites, and bad oral habits, which should be considered as "orthodontic emergencies."

Objectives: The aim of this article is to provide clinicians with an overview and consensus of the literature regarding the right time for intervention when dealing with these orthodontic problems, which should also be recognized by pediatricians.

Methods: A summary of the existing literature based on scientific evidence and the illustration of clinical examples.

Results: Successful interceptive orthodontic treatment at the right age (6-12 years) can effectively correct several malocclusions and avoid complex procedures that may be required due to the lack of correction at the appropriate time.

Conclusion: Recognizing and identifying "orthodontic emergencies" by clinicians will help in timely intervention, thereby promoting not only oral health but also the general well-being of the child.

Keywords: Interceptive Orthodontics, Malocclusion, Oral Habits

Cardiac Surgery in the Era of Transcatheter Procedures: Evolving Roles and Future Perspectives

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Introduction: The field of cardiovascular treatment has undergone a major transformation with the rapid advancement of transcatheter cardiac interventions. Procedures such as transcatheter aortic valve implantation (TAVI), MitraClip for mitral and tricuspid valve repair, and percutaneous coronary interventions offer minimally invasive options for patients previously considered high-risk for open-heart surgery. While these methods show promising short-term outcomes, particularly in elderly and comorbid patients, concerns remain regarding their long-term durability, anatomical limitations, and overall efficacy.

Methods: This review examines the current role of cardiac surgery in the context of expanding transcatheter procedures. It synthesizes recent evidence on procedural outcomes, compares surgical and interventional approaches, and explores how cardiac surgeons are adapting through the adoption of minimally invasive techniques, hybrid strategies, and enhanced imaging technologies. The evolving collaboration within Heart Teams is also analyzed to understand its impact on treatment planning and patient care.

Results: Transcatheter procedures have reduced the need for traditional open-heart surgery in specific patient populations, but cardiac surgery remains essential. Innovations in surgical techniques and integration into Heart Teams have repositioned the surgeon as a key decision-maker in complex cases. Hybrid procedures and tailored interventions are becoming more prevalent, offering improved outcomes through combined expertise.

Conclusions: Rather than being displaced, cardiac surgery is undergoing a paradigm shift in the era of transcatheter interventions. The future of structural heart disease management lies in a collaborative, patient-centered approach that integrates both surgical and interventional strengths. Ongoing innovation and cooperation between disciplines will be crucial to navigating the complex cardiovascular landscape of the future.

Keywords: Cardiac surgery, transcatheter interventions, TAVI, MitraClip, hybrid procedures, Heart Team, structural heart disease, minimally invasive surgery

Why the ATLS Course is Important as Part of the Training and Education of Doctors and Beyond

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Introduction: The Advanced Trauma Life Support (ATLS) program, developed by the American College of Surgeons (ACS), provides a standardized approach for the initial management of trauma patients. This course equips healthcare professionals with essential skills to assess, resuscitate, stabilize, and determine the proper transfer of patients with traumatic injuries. Since its creation in 1980, ATLS has been adopted in over 80 countries, reflecting its global importance in trauma care. This presentation aims to evaluate the significance of the ATLS course in the training and education of doctors and other healthcare professionals, examining its impact on clinical outcomes and the ability to manage trauma cases effectively.

Materials and Methods: A systematic review of the existing literature was conducted, focusing on studies analyzing the educational and clinical impacts of the ATLS® program. Databases such as PubMed, Medline, and Cochrane Library were searched for relevant articles published between 1980 and 2025. Keywords included "ATLS," "trauma education," "clinical outcomes," and "healthcare training." Studies were selected based on their relevance to the educational effectiveness of ATLS and its impact on patient outcomes.

Results: The review indicates that the ATLS course significantly improves healthcare professionals' knowledge, skills, and confidence in managing trauma cases. Participants demonstrated improved performance in simulated trauma scenarios as well as real-life situations. Additionally, institutions that implemented ATLS training reported a reduction in mortality rates among trauma patients, emphasizing the program's effectiveness in enhancing trauma care.

Conclusions: Integrating the ATLS course into the training and education of doctors and other healthcare professionals is crucial for improving trauma care. The program not only standardizes the approach to trauma management but also positively influences patient outcomes, highlighting its value in medical education.

Keywords: ATLS, Trauma Education, Healthcare Training, Clinical Outcomes, Trauma Management

Endarterectomy of the Superior Mesenteric Artery as a Treatment Option for Chronic Mesenteric Ischemia

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Introduction: Superior mesenteric artery (SMA) obliteration is a gastrovascular disorder. This syndrome is rare and potentially life-threatening. It is typically caused by an angle between 6 to 25 degrees between the abdominal aorta and the superior mesenteric artery. Clinically, it can present as chronic/congenital or acute.

Clinical Case: A 59-year-old male patient presented to the University Trauma Hospital with abdominal pain in the form of cramps, which had also appeared on previous occasions. He was hospitalized and began treatment with vasospastic drugs. Blood tests did not show signs of anemia, leukocytosis, pancreatitis, or bile stasis. An abdominal ultrasound did not reveal findings suggesting an acute abdominal condition. Fibrogastroscopy and colonoscopy were negative. A contrast-enhanced abdominal CT scan revealed a 5 cm obliteration of the superior mesenteric artery. The patient underwent surgical intervention through a median xipho-pubic incision. The SMA was exposed at its origin, and after performing arteriotomy, an endarterectomy of the obliterated segment was conducted. The postoperative course proceeded without complications.

Discussion: Diagnosis is challenging and typically involves an exclusion process. The diagnosis of SMA syndrome is considered after the patient undergoes evaluation of the gastrointestinal tract, including endoscopy. Conservative treatment consists of small meals with caloric liquids, and a nasogastric tube is placed. Surgical treatment options include SMA bypass, endovascular angioplasty, and SMA endarterectomy.

Conclusion: Endarterectomy of the SMA represents a valuable alternative for treating chronic mesenteric ischemia.

Keywords: Endarterectomy, Superior Mesenteric Artery, Chronic Mesenteric Ischemia, Gastrovascular Disorder, Surgical Treatment, SMA Obliteration, Vascular Surgery

Laparotomy for Direct Peritoneal Resuscitation and Damage Control in General Surgery for Emergency: Techniques and Results

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Introduction: The concepts of damage control laparotomy (DCL) have been part of our clinical arsenal in trauma and emergency surgery for decades. DCL is characterized by performing only the most essential parts of the surgical intervention, such as controlling hemorrhage and contamination, followed by definitive management 24-72 hours later. The main objective of DCL is to stabilize the patient and mitigate the physiological disturbances caused by massive hemorrhage and intra-abdominal injuries. In recent years, Direct Peritoneal Resuscitation (DPR) has attracted attention as a novel adjunct to DCL in patients with severe emergency general surgery (EGS), abdominal contamination, or other catastrophic conditions, to assist in optimizing perioperative resuscitation.

Materials and Methods: This presentation aims to demonstrate the techniques and review the results of adding DPR to DCL and the temporary closure of the abdomen in EGS with intra-abdominal catastrophe (IAC). DPR involves the continuous infusion of 2.5% to 4.5% dialysis solutions, used for peritoneal dialysis, into the peritoneal cavity, followed by aspiration using a Negative Pressure Wound Therapy (NPWT) device.

Conclusion: The use of DPR combined with DCS offers an advanced, comprehensive, and multidisciplinary approach in managing IAC. As the landscape of care in EGS evolves, integrating DCS and DPR may lead to improved outcomes for the unique challenges faced by critically ill patients, ultimately advancing the field of EGS management.

Keywords: Laparotomy, Direct Peritoneal Resuscitation (DPR), Damage Control Surgery (DCS), Intra-abdominal Catastrophe (IAC), Emergency General Surgery (EGS), Negative Pressure Wound Therapy (NPWT), Critical Care Management, Trauma Surgery

Six Years of Progress: The Role of the Kosovo Surgeons' College in Advancing and Modernizing Surgical Practices Through Evidence-Based Medicine and Medical Diplomacy

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Introduction: The Kosovo Surgeons' College (KSC) was founded on December 17, 2018, based on the American College of Surgeons (ACS), as an umbrella organization for 13 surgical institutions and a telemedicine institute, with its motto being "Honoring the Past, Building the Future." Over the past six years, the KSC has organized significant educational initiatives, including world-class annual clinical congresses, highly advanced and specialized workshops, and the publication of scientific articles in its journal, *Kosova Journal of Surgery (KJS)*, published in collaboration with the University of Pristina. This study aims to report the results and impact of KSC from its founding until March 2025.

Methods: This study uses prospectively collected and published data on all KSC activities, gathered from official KSC records and publications.

Results: Over the past six years, KSC has played a crucial role in advancing surgical education and practice in Kosovo and the region. KSC operates based on 22 committees and has branches in Europe and the United States. KSC has organized four World-Class Clinical Congresses (the first two were canceled due to the COVID-19 pandemic), attracting 2,650 participants, 452 speakers, and presenting 582 presentations. Additionally, it has established 32 lectures in honor of prominent Kosovo surgeons. Apart from congresses, KSC has developed numerous workshops and surgical courses for residents and other surgical professionals, providing practical training and fostering collaboration among surgeons. KSC has successfully established and implemented ATLS® courses, graduating 35 participants with its own ATLS® instructors, thereby improving trauma management skills among healthcare providers. KSC has become an important platform for disseminating scientific research, publishing seven issues of *Kosova Journal of Surgery*, which includes 100 scientific articles. This journal promotes academic communication and enhances the academic profile of surgeons in the

region. The "Publication and Innovation of the Year" award was given to five surgeons from Kosovo in recognition of their contributions, including two books on medical injustices during the Kosovo war (1988-1999). Fifty-eight world-renowned surgeons have been selected as honorary members of KSC for their contributions to surgery and medicine. KSC has recognized excellence in the field of surgery/medicine by awarding the "Sami Haxhibeqiri" Lifetime Achievement Award to 13 distinguished surgeons and one epidemiologist from Kosovo, Albania, and North Macedonia, as well as one renowned Albanian surgeon practicing in the USA. Furthermore, KSC has developed plans for its future growth over the next decade, including the creation of the *Kosovo Center for Surgical Research, Education, Simulation, and Training (CRESST)* and the *Integrated Oncology Center of Kosovo (IKOC)*. KSC has established collaborations in the form of Memorandums of Understanding with several surgical countries and organizations in Europe and South America.

Conclusion: The Kosovo Surgeons' College has had an extraordinary impact on surgical education and practice in Kosovo since its establishment in 2018. By organizing world-class congresses, workshops, and publishing *Kosova Journal of Surgery*, KSC has enhanced training and collaboration among surgical professionals. The recognition of distinguished contributors and future development plans, including the establishment of a Surgical Research and Training Center, highlight KSC's commitment to advancing surgery and healthcare in the region.

Keywords: Kosovo Surgeons' College, Surgical Education, Evidence-Based Medicine, Medical Diplomacy, Trauma Management, ATLS, Surgical Research, Global Surgical Collaboration, Kosovo Journal of Surgery, Surgical Training Centers, Medical Conferences, Surgical Workshops, International Medical Cooperation, Health Sector Development

Brain Metastases: Epidemiology, Treatment Modalities, and Outcomes at the Neurosurgery Clinic of UCCK (2020–2024)

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Introduction: Brain metastases represent a significant challenge in oncology, profoundly impacting patient survival and quality of life. The complexity of treatment and the continuous advancements in diagnostic and therapeutic technologies highlight the necessity for ongoing research in this field.

Objective: This study aims to analyze the incidence and management of brain metastases in the Neurosurgery Clinic of QKUK during the period 2020-2024. In addition to presenting epidemiological data, the study compares findings with those of neurosurgical centers in other countries and explores alternative treatment modalities beyond surgery.

Methodology: This retrospective study is based on clinical data from patients with brain metastases treated at QKUK. Data were collected from clinical protocols for the period 2020-2024, following ethical approval and under the supervision of responsible staff. Statistical analysis was performed using SPSS software, and the results were visualized through tables and graphs.

Results: The study identified that the most common primary malignancies leading to brain metastases were lung cancer (33.2%), breast cancer (22.2%), and malignant melanoma (19.4%). The gender distribution was nearly equal, with 44.4% female and 55.6% male patients. The most affected age group was 41-64 years (47.2%), followed by patients over 65 years (41.6%), suggesting an increased incidence with age.

Conclusion: Technological advancements and multidisciplinary approaches are offering new opportunities in the management of brain metastases. Early diagnosis and personalized treatments can significantly improve patient prognosis. Further research is necessary to address current challenges and optimize therapeutic modalities.

Keywords: brain metastases, multidisciplinary treatment, radiotherapy, chemotherapy, neurosurgery.

Prevalence and Surgical Management of Benign Anorectal Diseases: A Retrospective Analysis at UCCK (2020–2023)

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Introduction: Benign anorectal disorders are associated with a collection of common pathologies with different presentations. Although these are benign conditions, symptoms may be similar to those of cancer, so malignancy should be considered in the differential diagnosis. These benign conditions include: abscesses, fistula-in-ano, pilonidal disease, anal fissures, hemorrhoids, which include a range of functional changes resulting from them.

The purpose of the research: In order to provide a comprehensive overview of the frequency of these diseases and the evaluation of surgical treatment in QKUK, Kosovo in recent years

Research method: This is a retrospective study which has been carried out from the data of the protocols of the Clinic for Abdominal Surgery at QKUK, which have been processed and will be interpreted.

Data collection methodology: The data were extracted retrospectively from the histories of patients who met the inclusion and exclusion criteria. In addition to the general data of the patients (age, gender), the length of hospitalization, the year of treatment, the month of treatment, treatment methods and the most frequent incidence of these conditions are also included.

Results: According to the results within the years 2020-2023 of 2612 patients in total, 113 of them were treated for benign anorectal diseases. The most frequent age of patients is the third decade of life (20-30 years), while the most frequent diagnosis from this disease is pilonidal sinus (50%). The duration of hospitalization varies from 1 to 25 days, with the highest incidence of 1 to 3 days.

Conclusion: Patients with benign anorectal disorders are common disorders in Abdominal Surgery that are diagnosed and treated properly, but the number of cases has increased in recent years, which reinforces the fact of the difficulty of conservative treatment and the increase in risk factors.

Keywords: Hemorrhoids, anal fissures, pilonidal sinus, abscess, anal fistula, benign, prevalence, treatment.

Effectiveness of Disulfiram in Individuals with Alcohol Dependence Following Residential Treatment in Albania

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Introduction: Alcohol abuse remains a major public health issue in Albania, contributing to approximately 4.2% of all deaths nationwide. Despite attempts to address the issue, efforts remain fragmented, with only one toxicology department available to serve the entire country. Current pharmacological treatment options for Alcohol Use Disorder (AUD) are limited to acamprosate, disulfiram, and naltrexone. While disulfiram offers certain benefits, its effectiveness in preventing relapse and promoting recovery has been debated. This study aims to assess the occurrence and characteristics of disulfiram–ethanol reactions (DER) among patients treated for alcohol dependence in Albania.

Methods: Fifty patients diagnosed with alcohol dependence based on ICD-10 criteria were recruited and followed for one year. They were randomly assigned to one of two treatment groups: one received disulfiram only, while the other received disulfiram in combination with therapy for co-occurring substance use disorders. The primary outcome was the incidence of DER between the two groups.

Results: Disulfiram use had a positive impact on short-term abstinence and the time to relapse, particularly within the first three months' post-discharge. However, 70% of participants experienced DER symptoms after three months, with no significant differences between the groups. The most commonly reported DER symptoms included flushing, sweating, and tremors; one individual suffered an acute myocardial infarction. Among those who did not develop DER symptoms, approximately 80% were from the disulfiram-only group, who also received psychological support.

Conclusion: The findings reinforce global evidence suggesting that disulfiram monotherapy is largely ineffective in promoting long-term abstinence. When combined with psychosocial interventions and ongoing support, the risk of DER is significantly reduced. There is an urgent need to develop community-based, psycho-pharmacological programs and strategies to enhance access to care for this vulnerable population.

Keywords: Disulfiram; Alcohol abuse; Disulfiram–ethanol reaction; Alcohol Use Disorder; Addiction treatment

Effectiveness of Buccinator-Based Myomucosal Flaps in the Reconstruction of Intraoral Defects

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Introduction: Replacement of resected or defective mucosa with appropriate tissue has been a long-time concern in maxillofacial surgery. Replacement of mucosa with the same kind of tissue is physiologically optimal. Special kinds of fasciocutaneous, myocutaneous, and muscle flaps for coverage of intraoral soft tissue defects have been designed. The buccinator-based myomucosal flaps are axial pattern flaps that are suitable in reconstruction of medium sized oral soft tissue defects; they are rich in blood supply, have appropriate thickness and considerable mucosal paddle, hence, they are good choices for the repair of intraoral medium sized mucosal defects.

Objective: To evaluate the use of the buccinator musculomucosal flap in the reconstruction of defects of the oral cavity.

Materials and methods: Clinical cases were obtained from the Service of Oral and Maxillofacial Surgery at the UHC ‘’Mother Teresa’’. The patients were selected based on the defect anticipated after surgical excision. Both patients were followed up for a minimum of 1 year after surgery. Dissections of the buccinator muscle and overlying mucosa were performed via an intraoral approach.

Results: The patients underwent primary tumor excision with the defect closed using the BMF. There were no tumor recurrences and no problems with mastication, oral continence, flap necrosis or facial nerve function. We investigated the use of the posteriorly based BMF and found that it is a reliable, easily harvested local flap, useful for reconstruction of lesions involving the floor of mouth, and soft palate. It obviates the need for an intraoral bolster or harvesting of tissue beyond the oral cavity.

Conclusions: The BMF has several advantages over other options that have been used in the reconstruction of oral cavity defects. Healing by secondary intention may risk contracture at the site with possible soft palate dysfunction. Skin grafts may not adhere to exposed bone and involve placement of a bolster that may be technically difficult in this area. Tongue flaps usually require 2 stages, and speech and swallowing may be adversely affected. The nasolabial flap requires an external excision and may not reach the retromolar trigone. Regional flaps, such as the temporalis muscle flap, or free flaps such as the radial forearm, involve extensive extraoral dissection and are better reserved for larger defects. The anatomy of the BMF is reliable and consistent. It provides similarly textured sensate tissue for reconstruction in the oral cavity. It can be harvested quickly without morbidity, and the donor site can be closed primarily with excellent cosmesis and function. A significant advantage is the inclusion of the buccal nerve with the vascular pedicle, allowing the flap to be sensed. This versatile local flap

should be considered for reconstruction of defects of the floor of mouth, retromolar trigone, and soft palate.

Keywords: Buccinator flap; Myomucosal flap; Intraoral reconstruction; Oral cavity defects; Soft tissue repair; Oral surgery; Buccal nerve preservation; Retromolar trigone reconstruction.

Exploring the Role of 8mg Eylea in the Treatment of Refractory Diabetic Macular Edema

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Introduction: Diabetic macular edema (DME) is a major cause of visual impairment in individuals with diabetes, characterized by retinal thickening and fluid accumulation due to the breakdown of the blood-retinal barrier. Anti-VEGF therapies, such as Eylea (aflibercept), have revolutionized DME management, but a subset of patients exhibit resistance to conventional treatment regimens. This theoretical review examines the potential mechanisms underlying resistance to anti-VEGF therapy in DME and explores how the 8mg dose of Eylea may offer a solution for these difficult-to-treat cases.

Methods: Pathophysiology of Diabetic Macular Edema: In DME, chronic hyperglycemia leads to the upregulation of pro-inflammatory cytokines and growth factors, particularly vascular endothelial growth factor (VEGF). VEGF stimulates endothelial cell proliferation and increases vascular permeability, contributing to fluid leakage and retinal edema. While anti-VEGF agents have shown clinical efficacy in reducing retinal thickening and improving vision, treatment resistance can arise due to a variety of factors, including inadequate suppression of VEGF, the presence of other angiogenic pathways (such as platelet-derived growth factor), or persistent inflammatory mediators.

Benefits of the 8mg Dose in Resistant DME: In resistant DME, the 8mg dose of Eylea could provide more potent inhibition of VEGF and related growth factors, potentially leading to improved clinical outcomes. Increased VEGF suppression may not only reduce retinal thickness but could also address underlying inflammatory processes that contribute to disease progression. Furthermore, the higher dose might allow for a more sustained therapeutic effect, potentially reducing the frequency of injections required and improving long-term outcomes in patients with persistent or recurring edema despite prior treatment.

Implications for Clinical Practice: The theoretical use of the 8mg dose of Eylea in resistant DME represents an exciting area for further exploration. Although data on this specific dose are limited, it offers a promising avenue for improving outcomes in patients who do not respond adequately to standard therapies. A deeper understanding of the molecular mechanisms of resistance in DME will be crucial for optimizing treatment strategies and determining the ideal dosage and regimen for individual patients. Future clinical trials will be essential to validate the theoretical benefits and confirm the safety and efficacy of the 8mg Eylea dose in real-world settings.

Results: The use of the 8mg dose of Eylea has demonstrated increased effectiveness in managing DME by providing stronger inhibition of VEGF and PlGF compared to the standard 2mg dose. This has resulted in better control of retinal thickening and reduction of persistent

inflammation contributing to disease progression. Additionally, the 8mg dose may help reduce the frequency of injections and offer a more sustained therapeutic effect.

Conclusion: The 8mg dose of Eylea has the potential to overcome treatment resistance in diabetic macular edema by offering enhanced inhibition of VEGF and related pro-angiogenic factors. By targeting a broader spectrum of angiogenic pathways, this higher dose may provide better control of retinal edema and improve visual outcomes in resistant cases. Further research is needed to substantiate these theoretical benefits and refine treatment protocols for DME patients who remain refractory to conventional therapies.

Keywords: Diabetic macular edema (DME); Diabetes; Vision loss; Anti-VEGF therapy; Aflibercept 8mg; Refractory DME; Retinal thickness; Clinical efficacy; Pathophysiology; Neovascularization.

Non-Cardiogenic Pulmonary Edema

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Introduction: Pulmonary edema is a clinical condition involving abnormal accumulation of fluid in the extravascular spaces of the lungs, closely associated with various pathophysiological processes. It can be caused by increased capillary hydrostatic pressure, decreased oncotic pressure, or increased capillary permeability. The two most common types of pulmonary edema are hydrostatic (cardiogenic) and non-cardiogenic pulmonary edema (NCPE), each resulting from different underlying mechanisms.

Methods: This study examines the pathophysiology and mechanisms leading to the development of both cardiogenic and non-cardiogenic pulmonary edemas. It analyzes the changes in capillary permeability and hydrostatic pressure gradients. A clinical, laboratory, and radiologic differentiation between the two forms of pulmonary edema is made, with an emphasis on diagnostic tools and appropriate therapeutic strategies.

Results: In patients with chronic heart failure, pulmonary capillary pressure can rise up to 45 mmHg without leading to pulmonary edema due to compensatory hypertrophy of the lymphatic system, which manages the increased fluid flow. In contrast, in non-cardiogenic pulmonary edema (NCPE), factors such as airway obstruction, central nervous system injury, and vascular inflammation are strongly implicated. Chest radiographs typically reveal bilateral alveolar infiltrates without evidence of left atrial hypertension or congestive heart failure.

Conclusion: Non-cardiogenic pulmonary edema is a clinical syndrome associated with increased capillary permeability, severe hypoxemia, and bilateral infiltrates on chest imaging. Differentiating between hydrostatic (cardiogenic) and noncardiogenic edema is based on clinical context and laboratory assessment, although overlapping pathogenic mechanisms may occur. Early diagnosis and timely intervention are essential for effective management of both types of pulmonary edema.

Keywords: Pulmonary edema, hydrostatic, non-cardiogenic pulmonary edema (NCPE), heart failure, hydrostatic pressure, capillary permeability, hypoxemia, alveolar infiltrates.

The Role of Senescence in Hematological Malignancies – A Double-Edged Sword!

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Introduction: Cellular senescence is an irreversible arrest of the cell cycle that significantly influences the pathophysiology of various diseases, including hematological malignancies. Recent and increasing scientific evidence suggests that senescent cells can both suppress and promote tumorigenesis, depending on the surrounding microenvironment and the specific secretory profile they express.

Objectives: This study aims to explore the dual role of cellular senescence in hematologic malignancies, focusing on its mechanisms, its influence on the tumor microenvironment, and how these factors affect responsiveness to conventional therapies and immunotherapies.

Methodology: A comprehensive review of the literature from the last 10 years [2014–2024] was conducted. Findings from both preclinical models and clinical studies were analyzed regarding the impact of senescence in the context of hematological diseases. Key terms such as *"cellular senescence"*, *"malignant neoplasms"*, *"tumor microenvironment"*, *"therapy-induced senescence"*, *"senescence-associated secretory phenotype"*, and *"immunotherapy"* were used to search PUBMED, Google Scholar, and EMBASE databases. A total of 60 relevant publications were selected for review and discussion.

Results: Literature findings indicate that senescent cells in the bone marrow may foster a tumor-promoting environment through the secretion of inflammatory cytokines and other factors that support the progression of leukemias and lymphomas (1,2). For instance, therapy-induced senescence in patients with acute myeloid leukemia (AML) may lead to upregulation of antigen presentation and activation of CD8+ T cells, revealing a paradoxical role in anti-tumor immunity (3). On the other hand, the presence of senescent cells is often associated with chemotherapy resistance and a poorer prognosis in several hematologic cancers (4,5). The interplay between senescence and immune dynamics suggests that although senescence may initially limit malignant cell proliferation, it can simultaneously reshape the tumor microenvironment in a way that allows disease persistence. This is largely attributed to the senescence-associated secretory phenotype (SASP), which initially aids immune recognition but later facilitates tumor growth and therapy resistance (6).

Conclusion: Cellular senescence represents a complex balance between tumor suppression and promotion in hematological malignancies. A deeper understanding of the underlying pathways and factors involved in senescence could pave the way for new therapeutic strategies, especially those aimed at enhancing the efficacy of current treatments and immunotherapies.

Keywords: Cellular Senescence, Hematological Malignancies, Tumor Microenvironment, Therapy-Induced Senescence (TIS), Senescence-Associated Secretory Phenotype (SASP), Immunotherapy, Chemoresistance, Bone Marrow Niche.

Rhabdomyolysis as an Atypical Initial Presentation of Primary Hyperaldosteronism: A Clinical Case

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Introduction: Primary hyperaldosteronism is one of the most common causes of secondary hypertension and is often associated with hypokalemia. Rhabdomyolysis is a clinical and laboratory syndrome characterized by muscle necrosis, which can result from hypokalemia among many other causes. Early detection and correction of potassium levels is crucial, as severe hypokalemia may lead to acute kidney injury and life-threatening arrhythmias.

Case Presentation: We present the case of a 62-year-old male who was admitted to the emergency department with limb paralysis, severe hypokalemia, and resistant arterial hypertension despite triple antihypertensive therapy. One day prior to admission, the patient reported profound weakness in both upper and lower extremities, accompanied by myalgia, muscle cramps, and paresthesia. After ruling out a cerebrovascular accident, primary hyperaldosteronism was suspected and confirmed through the identification of a solid mass in the posterior crus of the left adrenal gland (on abdominal CT) and supportive laboratory findings. Following correction of the hypokalemia, neuromuscular symptoms regressed. Blood pressure and potassium levels normalized after laparoscopic adrenalectomy.

Discussion: The classic features of primary hyperaldosteronism include hypertension with hypokalemia and metabolic alkalosis. Rhabdomyolysis is a rare complication of hypokalemia, generally occurring when potassium levels fall below 3.0 mEq/L. In our case, severe hypokalemia induced by primary hyperaldosteronism led to muscle injury and subsequent rhabdomyolysis. While rare, similar cases of hypokalemia-induced rhabdomyolysis due to Conn's syndrome have been reported in the literature.

Conclusion: This rare clinical case highlights the variable clinical presentation of primary hyperaldosteronism and emphasizes the importance of considering this diagnosis in patients presenting with hypertension and rhabdomyolysis caused by severe hypokalemia.

Keywords: Rhabdomyolysis, Hypokalemia, Metabolic Alkalosis, Conn's Syndrome, Hyperaldosteronism, Secondary Hypertension, Muscle Necrosis.

Ultrasound Evaluation of Carotid Arteries as a Prognostic Tool in Multimorbid Patients Hospitalized in the Internal Medicine Ward

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Abstract: According to the World Health Organization (WHO), the leading causes of death globally are ischemic heart disease (IHD) and Cerebral Stroke (CS), both of which are rooted in atherosclerosis. Cardiovascular diseases have a significant impact on both health outcomes and economic burden due to the high rate of associated disability. One of the increasingly valuable diagnostic tools in assessing cardiovascular risk is carotid Doppler ultrasound (DUS). Knowledge of its indications and accurate interpretation of findings are essential for internal medicine physicians in clinical practice.

Introduction: The main ultrasound markers in carotid artery assessment include Intima-Media Thickness (IMT) and the presence, quantitative, and qualitative evaluation of atherosclerotic plaques. Risk factors and comorbidities significantly influence plaque development and their complications. The rationale for this study stems from the need to assess the impact of risk factors on plaque formation in multimorbid patients admitted to the Internal Medicine & Hypertension Ward (UHC "Mother Teresa") and to adapt therapeutic protocols to the specifics of the Albanian population.

Objectives: This study aims to derive measurable data in terms of quantitative findings (e.g., IMT), presence and degree of atherosclerotic plaques and stenoses (anatomical, hemodynamic), qualitative features (plaque characteristics and associated risk of complications).

Methods: All patients included in the study underwent carotid Doppler ultrasound using a GE Vivid E9 system with a 4.5–12 MHz linear probe. Patient data were analyzed based on clinical charts to determine comorbidities and risk factors. A total of 329 hospitalized patients in the Internal Medicine Ward (UHC “Mother Teresa”) were included over an 18-month period, each referred for carotid ultrasound by their treating physicians. Risk factors and comorbidities assessed included smoking, dyslipidemia, obesity, heart failure, diabetes mellitus, coronary artery disease, chronic kidney disease, and arterial hypertension. Each ultrasound assessed IMT, plaque presence, echogenicity, and surface characteristics.

Results: The mean IMT in this cohort was found to be higher than that of similar populations in comparable European studies. Moreover, the prevalence of atherosclerotic plaques, degree of stenosis, and high-risk plaque features (such as irregular surface or low echogenicity) were also observed at higher rates than those reported in another European research.

Conclusion: The impact of cardiovascular risk factors on IMT and plaque development is quantifiable both quantitatively and qualitatively. Routine ultrasound evaluation of carotid

arteries based on established protocols should be integrated into the daily practice of internal medicine physicians. Therapeutic decisions and patient follow-up should be guided by dynamic carotid ultrasound findings. A limitation of this study is the lack of a control group.

Keywords: Carotid ultrasound, Intima-Media Thickness (IMT), Atherosclerosis, Cardiovascular risk, Carotid plaques, Internal medicine, Doppler ultrasound, Multimorbidity, Stroke prevention, Ultrasound screening.

Conference Hall 7

Bronchoscopy and Microscopy: Real-Time Diagnostics of Thoracic Pathology

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Introduction: The subject of this report is the introduction to the basic diagnostics of thoracic pathology, in real-time, through rapid staining performed on samples within the scope of interventional pulmonology and interventional radiology.

Methods: The objectives that we intend to illustrate are the acquisition of initial skills that allow us to frame the pathology in the infectious, inflammatory and/or neoplastic context and at the same time the ability to evaluate the qualitative and quantitative suitability of collected material.

Conclusion: The report is addressed to those figures who in various capacities enter the diagnostic process of thoracic pathology (Pathologists, Thoracic Surgeons, Radiologists, Pathology Technicians, Nurses).

Keywords: Thoracic Pathology, Rapid Staining, Real-Time Diagnostics, Interventional Pulmonology

Screening and Prevention of Type 1 Diabetes: A Contemporary Approach

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Background: Type 1 diabetes (T1D) is an autoimmune disease strongly linked to specific human leukocyte antigen (HLA) genotypes and pancreatic islet autoantibodies. The presence of multiple autoantibodies (e.g., anti-GAD, anti-insulin, anti-IA2, ZnT8) increases the risk of developing T1D. Early identification of at-risk individuals allows for timely intervention, potentially delaying disease onset and preventing complications such as diabetic ketoacidosis (DKA).

Objective: This study explores the role of genetic and serological screening for T1D, the impact of early detection, and the potential of immunomodulatory therapies in delaying disease progression.

Methods: A review of contemporary literature was conducted, focusing on population-based screening strategies, risk stratification, and emerging preventive treatments. Studies assessing the predictive value of genetic markers and autoantibody screening were included, alongside clinical trials investigating immunotherapies such as anti-CD3 monoclonal antibodies.

Results: Screening for T1D enables early identification of at-risk individuals, providing opportunities for intervention. Genetic predisposition (HLA-DR3-DQ2, HLA-DR4-DQ8) combined with autoantibody profiling enhances predictive accuracy. Immunomodulatory agents, such as teplizumab, have shown promise in delaying disease onset by preserving β-cell function. Additionally, structured screening programs reduce DKA incidence at diagnosis improving long-term metabolic outcomes. Ethical considerations remain regarding the implementation of widespread screening.

Conclusion: Integrating genetic and autoantibody screening into clinical practice may transform T1D prevention by enabling early detection and targeted intervention

Keywords: Type 1 diabetes, monoclonal antibodies, genetic and autoantibody screening

Prevalence of Mycoplasma and Ureaplasma Infection in Woman

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Introduction: Mycoplasma and Ureaplasma spp. are frequently detected in urogenital tract of sexually active healthy adults and recognized as an important cause of urogenital infections as endometritis, and cervicitis pelvic inflammatory disease, infertility, adverse pregnancy outcomes.

Objective: The current study aimed to assess genital mycoplasma, ureaplasma and their antibiotic susceptibility among women in ambulatory health care.

Material and Method: In this study 256 sexually active women. Their age varied from 19 to 57 years old. Samples are obtained with cotton swabs and analyzed for Ureaplasma urealyticum/parvum, M. hominis together with antimicrobial susceptibility testing (AST). Samples are cultivated on blood agar 5% and MacConkey.

Results: The prevalence of mycoplasma hominis was 16.4%, Ureaplasma parvum 39.86% Prevalence of co-infection mycoplasma and Ureaplasma was 9.3%. The prevalence of co-infection of U. parvum with bacterial vaginosis was 2%U. parvum coinfection with candida 4%coinfection mycoplasma with bacterial infection 1,52%, mycoplasma coinfection with candida 1.95%. The results of antibiotic susceptibility show that mycoplasma was resistant to lincomycin (2.3%), erythromycin (21.4%), roxithromycin (9.5%). azithromycin (19%), doxycycline (14.3) ofloxacin (21.4%), ciprofloxacin (16.6%,) levofloxacin (12%), Ureaplasma was resistant lincomycin (27%), erythromycin (12%), roxithromycin (9.8%), azithromycin (12%), doxycycline (7%), ofloxacin (22%), ciprofloxacin (30%), levofloxacin (16%).

Conclusion. These results show a high prevalence of Ureaplasma single infections, a lower prevalence of coinfections of Mycoplasma and Ureaplasma with bacterial and candida infection and high rates of macrolide and fluoroquinolones antibiotic resistance.

Keywords: U. parvum, M. hominis, antimicrobial susceptibility testing, co-infection

Digitization of the Histology Laboratory Unit

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Background: The "Digitization of the Histology Laboratory" project, funded by the 2023 higher education budget together with the University of Medicine, Tirana (UMT) funding, aimed to modernize histology teaching laboratories using advanced digital technologies. Its primary goal was to enhance teaching quality and facilitate the learning of histology-embryology, a core subject for medicine, dentistry, and pharmacy students.

Methods: This cross-sectional study assessed student satisfaction with the new digital histology laboratory at the University of Medicine, Tirana. Data were collected from December 10–21, 2024, via an online structured questionnaire. The questionnaire measured demographics, resource satisfaction, comparative experiences between digital and traditional laboratories, and overall impressions. Out of 650 students, 407 participated. Statistical analyses included descriptive statistics, Likert scale analysis, Mann-Whitney U tests, Fisher's exact test, and Wilcoxon signed-rank tests.

Results: Participants had an average age of 19.33 years (SD = 1.12), predominantly female (83.5%), with 58.5% having used both classical and digital laboratories. The digital laboratory received significantly higher ratings for equipment quality, variety of histological slides, academic staff support, ease of use, overall satisfaction, comfortable environment, and alignment with international standards (all $p < 0.01$). Median satisfaction scores were higher for the digital laboratory (87, IQR = 22) versus the traditional laboratory (72, IQR = 43; $p < 0.001$). Students emphasized that digitalization positively impacted their knowledge acquisition and practical skills, while recommending improvements in access and resources.

Conclusions: Digitalization of the histology laboratory significantly enhanced student satisfaction and educational outcomes by providing a modern, interactive learning environment, improved resources, and alignment with contemporary educational standards.

Key words: digitization, histology, laboratory, student satisfaction, educational technology

The Future of Laboratory Medicine, the Role of Laboratory Physicians and Technicians in the Modern Laboratory Medicine of the Future

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Introduction: The future of laboratory medicine looks very promising and is rapidly evolving thanks to advances in technology, scientific research, and the use of new analytical methods.

Aim: To identify some trends and key aspects that may influence the future of laboratory medicine, as well as the role of laboratory physicians and technicians in the modern laboratory medicine of the future.

Methods: This paper is a theoretical review based on the analysis of five important articles from prominent European and global figures in laboratory medicine. The automation of medical laboratories, artificial intelligence (AI), and machine learning are becoming important parts of laboratory medicine. These technologies can help automate laboratory processes, increase accuracy, reduce human error, analyze big data to draw important conclusions from biomedical information, and determine more accurate diagnoses by analyzing data patterns that are difficult for humans to recognize.

Results: The laboratory physician and laboratory technicians must find themselves at the center of this rapid and dynamic development, preparing to face the challenges and opportunities brought by new technologies such as artificial intelligence (AI), genetic testing, and personalized medicine. Training of laboratory healthcare professionals is essential so that these professionals are ready for the medicine of the future.

Conclusions: The future of laboratory medicine will mark a significant increase in the use of new technologies and will improve the accuracy, speed, and personalization of patient diagnosis and treatment. At the center of modern laboratory medicine will stand the laboratory physician, who must be a leader in the use of clinical data to develop new protocols for diagnosis and personalized treatments.

Keywords: Laboratory medicine, technology, AI, genetic analysis, personalized medicine.

PD-L1 Testing as a Prognostic Biomarker in Non-Small Cell Lung Cancer

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Introduction: Lung cancer is one of the main causes of cancer-related deaths worldwide. According to the American Cancer Society, the number of deaths from lung cancer is higher than the number of deaths caused by breast, colon and prostate cancers (1) Non-small cell lung cancer (NSCLC) constitutes over 80% of all lung cancer cases (2). This group includes mainly squamous cell carcinoma (SCC) and adenocarcinoma (AC) (3). Early diagnosis and the use of the latest targeted therapies have contributed to a slight improvement in prognosis in patients even in advanced stages of the disease (4). Immunotherapy, which is a novel method of lung cancer treatment, also contributes to such improvements. The latest method of immunotherapy uses monoclonal antibodies directed against the immune-checkpoint molecules such as receptor programmed cell death 1 (PD-1) or its ligand (PD-L1). Programmed death ligand 1 (PD-L1) is considered an immune checkpoint facilitating anti-tumor suppression of the immune pathway (5). PD-L1 can be expressed on the surface of various cells.

The aim of this assessment was to review the local prevalence of PD-L1 expression in NSCLC and compare different specimen types.

Methods: We reviewed cases of NSCLC stained with PD-L1 IHC Ventana SP263 assay and PD-L1 expression was assessed as a tumor proportion score (TPS) of <1%, 1-49% or >50% positive membrane staining within tumor cells.

Results: Programmed death-ligand 1 (PD-L1) expression on tumor cells by immunohistochemistry (IHC) is a predictor of response to immune checkpoint inhibitors used to treat advanced non-small cell lung cancer (NSCLC) (6).

Conclusions: PD-L1 appears to be a strong prognostic biomarker for NSCLC. PD-L1 can be quickly, easily, and cheaply measured in tumor samples by IHC. High PD-L1 expression (50% of tumor cells) is required for patients to receive first line Immunotherapy. Assessing expected PD-L1 expression rates in real world specimens is an important factor in ensuring patients are accessing the most effective treatments available (7).

Keywords: PD-L1, NSCLC, biomarkeri, imuno-terapi, tumor proportion score (TPS)

The Use of Virtual Dissection Tables: A Promising Method in the Study of Human Anatomy

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Introduction: For years, in the Anatomy course, electronic atlases installed in a computer system have been used for demonstration, implemented as a solution to the lack of cadaveric bodies, but the 3D presentation of anatomical structures remained unresolved. Recently, the Anatomy laboratories have been equipped with virtual dissection tables which project the anatomical structures of the human body from real cadavers onto a digital table.

Aim: To assess the effectiveness of virtual anatomical tables in the study of human anatomy.

Subjects and Methods: A cross-sectional study was conducted through a questionnaire based on student feedback regarding the evaluation and comparison of two methods: the electronic atlas system and virtual anatomical tables, in the process of learning anatomy during a three-month period (October 2024–December 2024). First- and second-year students of the Faculty of Medicine and first-year students of the Faculty of Dental Medicine at the University of Medicine, Tirana were invited to participate.

Results: The study questionnaire was completed by 412 students. The results were convincing, with 94% of students recognizing the value of the virtual anatomical tables; 30% exclusively preferred the use of digital tables, while 64% appreciated an integrated approach of both methods in anatomical study. Students highlighted several advantages of virtual dissection tables such as 3D perception and better memorization of anatomical structures, interactivity and increased focus during laboratory sessions, the possibility of performing dissection layer by layer, and making cuts in different anatomical planes.

Conclusion: The study suggests that virtual tables, alongside electronic atlases, offer an improved approach in the study of human anatomy, representing a promising and transformative method in the learning process of the Anatomy course.

Keywords: human anatomy, virtual tables, learning process

Under the concept of Prof. Xheladin Çeka, also Project Leader of “Digitalization of Virtual Dissection and Restructuring of the Anatomy Laboratory Unit”
Logistical support of the project by the leaders of the Rectorate and the Dean's Office, under the special care of Prof. Dr. Arben Gjata and Prof. Dr. Xheladin Draçini

Presentation of Cases with Triple Confluence of Hepatic Ducts Assessed by Magnetic Resonance and a Literature Review on the Frequency of Intrahepatic Biliary Tract Variations

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Introduction: Incorrect interpretation of biliary anatomy may result in important complications in hepato-biliary surgical procedures. Accurate description of biliary anatomy and anatomical variations is essential in the preoperative evaluation.

Case presentation: We will present several cases with the variant of triple confluence evaluated in MRCP examinations at the Magnetic Resonance cabinet, UHCMT, and through a literature review we will highlight the most frequent intrahepatic variants of the biliary tracts that can be encountered in the population.

Discussion: The right posterior sectoral duct (RPSD) usually passes posterior to the right anterior sectoral duct (RASD) and joins it medially to form the right hepatic duct (RHD), which together with the left hepatic duct (LHD) forms the common hepatic duct (CHD) at the level of the confluence. From a literature review based on multiple studies, it results that this description of the norm can be encountered with variable frequency from around 40% up to 80% of cases, with frequencies 55%–65% being more commonly reported. Among the most frequent anatomical variants are the drainage of RPSD or RASD into LHD (12–14%); the union of RPSD, RASD and LHD to form CHD (triple confluence) (11–12%); and less frequent, the drainage of RPSD into CHD (5–6%) or its drainage into the cystic duct (around 0.6%). The presence of accessory ducts varies around 2–6% in the literature. Variants of the LHD are rare.

Conclusion: Taking into consideration the importance of knowing the anatomical variants of the biliary tracts in hepato-biliary surgical practice as well as their high and variable frequency, it is important to continue the study regarding the identification and evaluation of the frequency of their occurrence in the population with the aim of creating a clear reference chart for doctors, especially radiologists and surgeons.

Keywords: biliary anatomy, anatomical variants, triple confluence

Artificial Intelligence in Radiology, the Future or a Threat?

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Introduction: Artificial Intelligence (AI) has made great steps in the field of radiology, helping to improve the accuracy and efficiency of medical imaging diagnostics. AI can be used to analyze and interpret medical images, such as radiographs, computed tomography (CT), magnetic resonance imaging (MRI), and ultrasound, and has the potential to change the way radiology services are practiced. Here are some of the main uses of AI in this field:

Methodology: We will analyze the involvement of AI in the different fields of radiological diagnosis to assess the impact that this innovation has had so far in image analysis, in improving various algorithms, and in reducing human errors. But on the other hand, the approach of health professionals to AI and ethical qualities in radiology are also to be assessed.

Results: AI can analyze medical images to identify abnormalities that may indicate diseases such as tumors, fractures, infections, or other conditions. AI algorithms can be seen as a radiologist's "assistant," identifying potential signs that may otherwise escape a radiologist's attention. AI can be used to automate the process of reading and interpreting images, providing fast and accurate reports. The use of patient medical data and images in training AI algorithms may raise concerns about patient privacy and data protection.

Conclusion: AI has the potential to revolutionize the field of radiology, improving the efficiency accuracy, and speed of diagnosis. However, there are still challenges and ethical issues that need to be considered, particularly regarding data security and the impact on the radiology profession. The use of AI can help radiologists make more accurate and faster diagnoses, contributing to improved healthcare for patients.

Keywords: Artificial intelligence, medicine, radiology, diagnosis

Artificial Intelligence and Multiparametric Examinations such as CEUS, Elastography and UGAP in Pediatric Age Groups, the Present and Future of Pediatric Radiology

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Introduction: Pediatric patients are a group of patients who, from a radiological point of view, are managed by the subspecialty of pediatric diagnostic radiology. Nowadays, Artificial Intelligence (AI) has received widespread and growing interest in the field of healthcare, as a method to save time, reduce costs and improve service efficiency.

Discussion: The high performance information and diagnostic accuracies reported using AI algorithms (relative to predefined reference standards), particularly from image pattern recognition studies, have resulted in a wide range of proposed applications for clinical/diagnostic radiology, both for performance and image interpretation. While certain sub-specialty areas in radiology, such as those related to cancer screening, have received widespread attention in the media and scientific community, pediatric imaging has so far taken a back seat in the creation of AI algorithms. In this presentation, we will discuss a variety of 'use cases' in pediatric radiology from a patient perspective, where AI has either been implemented or shown to be useful in the early stages, while also taking examples of the uses that AI has had for growing, to propose potential areas that could be developed in the future both in terms of scientific research and clinical application.

Conclusion: We aim to demonstrate how a 'future improved pediatric radiology service' might work and to stimulate further discussions in the field of scientific research and the search for the integration of innovation in a highly sensitive and ethically sensitive field.

Keywords: artificial intelligence, pediatric radiology, CEUS, elastography, UGAP

Cytokines in Alcoholic Liver Disease

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Introduction: Alcohol consumption can cause excessive production of cytokines in the liver, leading to alcoholic inflammatory liver disease (AILD). We analyzed the relationship of cytokines and alcohol intake in the development of liver cell necrosis associated with AILD.

Method: In the study, 160 males were selected and divided into five groups: (1) no alcohol consumption (<20 g ethanol/day); (2) low alcohol consumption (20–40 g ethanol/day); (3) high alcohol consumption (>40 g ethanol/day) without liver necrosis; (4) high alcohol consumption with liver necrosis; (5) high alcohol consumption and proven liver cirrhosis. Cytokines (TNF-α, IL-6, IL-10, and IL-1β) were analyzed using Immulite 1000®. Statistical tests were performed using MedCalc® 12.6.1.0. Baseline characteristics and cytokine values between groups were compared using ANOVA, followed by a Tukey-Kramer post-hoc test. Multivariate analysis was used to confirm significant associations independent of other baseline characteristics. All values with $p < 0.050$ were considered statistically significant.

Results: The characteristics of the study population groups were fully randomized equally among the study groups, as expected. There was no significant difference between all groups for IL-10. IL-1β was significantly higher only in the liver cirrhosis group. TNF-α and IL-6 showed significantly higher values only in groups 4 and 5. For the liver cirrhosis group, all measured cytokines were higher, except IL-10.

Conclusions: High alcohol intake without liver necrosis did not show a significant increase in cytokine levels. We demonstrated that TNF-α and IL-6 concentrations in alcoholics increase only when liver damage occurs.

Keywords: cytokines, alcoholic liver disease, TNF-α, IL-6, liver cirrhosis

PROS1 Gene Analysis in Aid of Diagnosing Protein S Deficiencies: Case Presentation

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Introduction. Protein S is a cofactor for activated protein C, and its deficiencies lead to an increased risk of thrombosis. In 60–80% of heterozygous patients with protein S deficiency, venous thrombosis usually occurs before the age of 40–45 years. It is an autosomal dominant disorder caused by mutations in the PROS1 gene, with a frequency of 1 in 700. The homozygous form is very rare and manifests at birth with life-threatening purpura fulminans.

Case presentation. A 30-year-old male patient presented to our clinic for specific testing after an episode of venous thrombosis. The patient reports similar recurring episodes also in close family members. Tests for free protein S, protein C, and antithrombin III were normal. Identification of 13 mutations for Factor V G1691 (Leiden), FV H1299R9 (R2), Prothrombin G20210A, FVIII V34L, β-Fibrinogen -455, GPIIIa, PAI-1, MTHFR C6667T, MTHFR A12298C, ACE I/D, Apo B R3500Q, APOE, Gp1a, PAI-1, PAI2, ENOS, EPCR, LPA resulted normal. Sequencing of the PROS1 gene using the NGS method resulted heterozygous for the variant (c.701A>G), a variant with a possibly pathogenic effect.

Discussion. Testing for protein S deficiency should begin with the measurement of free protein S. Genetic testing is indicated in cases where there is suspicion of a familial predisposition for thrombosis or in atypical clinical cases. Testing for the PROS1 gene (located on chromosome 3) can identify quantitative or functional protein S deficiencies.

Conclusion. PROS1 gene testing is suggested in patients with a personal or family history of thrombophilia to assess protein S deficiencies.

Keywords: pros1 gene, protein s deficiency, thrombosis, genetic testing, heterozygous variant

Beyond Bone Disease: Understanding CKD-MBD's Hidden Cardiovascular Implications and Emerging Management Strategies.

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Introduction: Chronic kidney disease (CKD) is a major global health concern owing to its substantially increased risk of cardiovascular (CV) morbidity and mortality. Although there have been herapeutic advances, the survival benefits observed in the general population have not fully extended to CKD patients, highlighting the limitations of existing CV disease-modifying strategies. A key contributor to this disparity is CKD-mineral and bone disorder (CKD-MBD), which promotes a non-atheromatous form of vascular calcification and significantly heightens adverse CV outcomes.

Methods: In CKD, vascular calcification extends beyond the typical intimal and medial arterial layers and can involve heart valves, the myocardium, and—in rare cases—calcific uremic arteriolopathy (calciphylaxis). These processes arise from complex interactions between traditional risk factors (e.g., dyslipidemia, hypertension) and CKD-specific mechanisms (e.g., phosphate retention, parathyroid hormone [PTH] dysregulation, and elevated fibroblast growth factor 23 [FGF23]). Collectively, they drive the transdifferentiation of vascular smooth muscle cells into chondrocyte like cells, intensifying arterial stiffness and amplifying CV risk.

Results: Well-established mediators of vascular calcification include phosphate, PTH, and FGF23, whereas vitamin D and klotho exert potentially protective effects. Meanwhile, sclerostin—the most recently identified CKD-MBD biomarker—remains controversial, as evidence suggests it may mitigate or exacerbate vascular calcification. In this narrative review, incorporating findings from our research, we explore how key mineral disorders—from hyperphosphatemia to newly recognized biomarkers—underlie diverse cardiac pathologies in CKD. We also discuss the challenges of preventing CV complications, even under strict adherence to clinical guidelines, and emphasize the urgent need for more targeted therapeutic strategies.

Conclusion: A deeper mechanistic understanding of CKD-MBD pathophysiology is critical for developing effective interventions. Future research should prioritize elucidating the molecular underpinnings of CKD-associated vascular calcification and harnessing these insights to reduce the persistently high CV mortality burden in this patient population.

Keywords: chronic kidney disease; vascular calcification; cardiovascular risk; hyperphosphatemia; CV mortality.

Changes in the Parameters of Cerebrospinal Fluid of Patients Diagnosed with Encephalitis and Meningoencephalitis from West Nile Virus

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Introduction: The examination of cerebrospinal fluid (CSF) plays an important role in the diagnosis of patients clinically suspected of neuroinfection. Changes in the biochemical and cytological parameters of CSF aid the differential diagnosis of neuroinfections.

Aim: To determine the cytological and biochemical parameters of CSF in patients diagnosed with encephalitis and meningoencephalitis from West Nile Virus.

Methods: 74 patients clinically suspected of neuroinfection were studied, 56 of which diagnosed with encephalitis and 18 diagnosed with meningoencephalitis from West Nile Virus during June-September 2024. The CSF was examined following standard protocol to determine the number and type of cells, total protein levels and the CSF/serum glucose ratio. SPSS 26.00 was used for statistical analysis.

Results: The mean number of leukocytes in patients with encephalitis was 145/mm^3, and in meningoencephalitis 394/mm^3 (p=0.001). 83.9% of patients with encephalitis had predominantly lymphocytes, whereas 44.4% of patients with meningoencephalitis had predominantly polymorphonuclear cells. Total protein levels were elevated in 91.1% of patients with encephalitis (mean levels 112.7mg/dl), and in 100% of patients with meningoencephalitis (mean levels 137.9mg/dl). The CSF/serum glucose ratio was elevated in 21.45% of patients with encephalitis and in 16.7% of patients with meningoencephalitis.

Conclusion: Cytological and biochemical examination of CSF aids in the differential diagnosis of neuroinfections. Meningoencephalitis is associated with higher levels of leukocytes and total protein in the CSF of patients.

Keyword: encephalitis, West Nile Virus, cerebrospinal fluid

The Current Tableau of RNA-Based Therapeutics in Human Diseases: A Review

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Introduction: The landscape of RNA-based drug therapies and their potential in clinical applications have garnered an enormous amount of public attention in the last few years. The word *RNA* went viral unfortunately because of covid-19 pandemic that shut the world down like never before in history and the subsequent development of the first *mRNA vaccines.*

Methods: In this context, *RNA* became a household name for its potential to not only develop new, effective and time-efficient vaccines, but also as a *new therapeutic technology* for many human diseases. Although recently covered by the media, *RNA technology* has been developed since the 1980s and has shown promising results in recent ongoing clinical trials. All this explosion of RNA-based therapeutics is due to decades of extensive experimental basic research in cell cultures and model organisms, by pioneers of the field some of whom are upcoming Nobel prize winners.

Results: This review takes us from the discovery of the catalytic properties of RNA, antisense therapy, small interfering RNAs, microRNAs, mRNA vaccines, to the development of *CRISPR-Cas 9* tools of gene editing (the last arguably poised to become *the discovery of the 21st century*).

Conclusion: We try to paint a recent picture of current knowledge and the limitless potentials ahead along with many challenges yet to overcome for RNA-based therapeutics. One thing is certain that RNA therapeutics will very soon become another toolkit of drug interventions with great potential in the prevention and treatment of human disease.

Keywords: RNA therapeutics, microRNAs, siRNAs, CRISPR-Cas 9.

Delta Check in the Digitalization Era of Medical Laboratories

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Introduction: Medical laboratories are moving towards full automation and digitalization, integrating digital technologies and information management systems (LIS) to improve quality, accuracy and efficiency. Delta Check is a quality control tool that detects differences in consecutive results likely caused by sampling errors, sample quality problems, analytical problems or clinically significant changes.

Objectives: Study of the use of Delta Check in the era of digitalization of medical laboratories and the application of Delta Check to a set of laboratory tests.

Methods: The study was conducted at Laboratory Networks, QSUNT in 2024. International guidelines on the use of Delta Check were reviewed. The RCV method was selected for determining Delta Check for the tests included in the study. Internal Quality Control results (Coefficients of Variation CVA) were collected over six months. RCV for 95% and 99% Confidence Intervals (CI) were calculated using CVA and CVI from Biological Variation data, according to CLSI EP33. Delta Check was analyzed for 1000 consecutive samples.

Results: A Delta Check method based on RCV was developed and adjusted according to our clinical experience. The model was implemented in the laboratory's Middleware system. 9.8% of the samples had significant changes compared to previous results. The causes of Delta Check failure were analyzed.

Conclusions: In the era of digitalization of medical laboratories, the main objective of using Delta Check is to identify important clinical changes in the patient, with the aim of providing medical intervention as quickly and efficiently as possible.

Keywords: delta check, medical laboratories, digitalization, quality control, biological variation

Revascularization in Patients with Ischemic Cardiomyopathy: Current Evidence and Ongoing Debates

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Introduction: Ischemic cardiomyopathy (ICM), defined by impaired left ventricular function secondary to coronary artery disease (CAD), continues to be a leading contributor to heart failure and cardiovascular mortality globally. The role of revascularization, via percutaneous coronary intervention (PCI) or coronary artery bypass grafting (CABG), in altering the clinical course of ICM remains an area of ongoing debate.

Methods: Findings from the STICH trial and its long-term extension (STICHES) have established that CABG can confer a survival benefit in patients with ICM, particularly those with significantly reduced ejection fraction (<35%), when compared to optimal medical therapy alone. In contrast, the REVIVED-BCIS2 trial questioned the benefit of PCI in this population, reporting no improvement in survival among patients with viable myocardium. The FAME studies have helped refine PCI indications by highlighting the utility of fractional flow reserve (FFR) in guiding treatment decisions.

Results: The traditional reliance on myocardial viability testing, using modalities such as PET, cardiac MRI, or stress echocardiography, to identify candidates for revascularization has come under scrutiny, with recent evidence suggesting that anatomical and functional assessments may offer greater clinical relevance.

Conclusion: In summary, CABG remains the revascularization strategy of choice for patients with ICM and multivessel CAD, supported by evidence of improved long-term outcomes. PCI may be appropriate for selected individuals but has not demonstrated equivalent benefits. The role of viability assessment in guiding therapy remains uncertain. Future investigations should aim to clarify the utility of advanced imaging, explore hybrid revascularization approaches, and evaluate emerging therapies in this high-risk group.

Key words: Ischemic cardiomyopathy, coronary artery disease, revascularization, CABG, PCI, myocardial viability, STICH, REVIVED-BCIS2.

The Integrated Care of Cardiorenal Patient: Focus on Hyperkalemia

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Introduction. Renin-angiotensin-aldosterone system inhibitors (RAASi) and mineralocorticoid receptor antagonists (MRAs) are key drugs in the management of patients with cardiovascular diseases (CVD), particularly those with hypertension, diabetes, chronic kidney disease and heart failure (HF), given their demonstrated effectiveness in reducing the risk of both surrogate and hard endpoints. Despite their positive impact on the outcome, patients with RAASi and MRAs are particularly vulnerable to hyperkalemia, with approximately 50 % of these individuals experiencing two or more recurrences annually. The common practice of reducing the dose or discontinuing the treatment with RAASi and MRAs in conditions of hyperkalaemia results in suboptimal management of these patients, with a potential impact on their mortality and morbidity risk.

Discussion. From a literature review, the recent guidelines from cardiovascular and renal international societies, increasingly recognize the need for alternative strategies to manage the risk of hyperkalemia, allowing the continuation of RAASi and MRA therapies. Several effective and safe therapeutic options exist for treating hyperkalemia across different patient groups.

Comments and Conclusions. Early diagnosis and understanding of the underlying causes are crucial for appropriate patient management. Given the diverse mechanisms contributing to hyperkalemia, a multidisciplinary approach is necessary to optimize the patient's management and reduce the risk associated with this condition.

Key words: cardiovascular diseases, diabetes, chronic kidney disease, hyperkalaemia

Diabetic Nephropathy and the New Treatment Strategies

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Introduction: Diabetic kidney disease (DKD) is a chronic complication of diabetes mellitus which may eventually lead to end-stage kidney disease (ESKD). Despite improvements in glycaemic control and blood pressure management with renin-angiotensin-aldosterone system (RAAS) blockade, the current therapy cannot completely halt DKD progression to ESKD in some patients. DKD is a heterogeneous disease entity in terms of its clinical manifestations, histopathology and the rate of progression, which makes it difficult to develop effective therapeutics.

Methods: It was formerly considered that albuminuria preceded kidney function decline in DKD, but recent epidemiological studies revealed that a distinct group of patients presented kidney dysfunction without developing albuminuria. Other comorbidities, such as hypertension, obesity and gout, also affect the clinical course of DKD. The pathophysiology of DKD is complex and multifactorial, involving both metabolic and haemodynamic factors.

Results: These induce activation of intracellular signalling pathways, oxidative stress, hypoxia, dysregulated autophagy and epigenetic changes, which result in kidney inflammation and fibrosis.

Conclusion: Recently, two groups of antidiabetic drugs, sodium-glucose cotransporter 2 (SGLT2) inhibitors and glucagon-like peptide-1 (GLP-1) receptor agonists, nonsteroidal selective mineralocorticoid receptor antagonist (MRA, specifically finerenone) were demonstrated to provide renoprotection on top of their glucose-lowering effects. Several other therapeutic agents are also being developed and evaluated in clinical trials.

Keywords: diabetic nephropathy, kidney disease, SGLT2 inhibitors, GLP-1 receptor agonists, mineralocorticoid receptor antagonist

Diabetic Cardiomyopathy as a Major Complication of Diabetes Mellitus

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Introduction. Heart failure is one of the most common complications of diabetes mellitus, which is an independent risk factor for heart failure. HF often presents as the first cardiovascular event in patients with type 2 diabetes. It occurs twice as often in men with diabetes and five times more often in women with diabetes than in non-diabetics. Diabetes and HF are related not only as complications of ischemic heart disease but also due to metabolic disorders such as glucose toxicity and lipotoxicity based on insulin resistance. HF in the absence of coronary artery disease, hypertension, and valvular disease is called diabetic cardiomyopathy.

Objectives: This review includes the main characteristics of diabetic cardiomyopathy and the fundamental mechanisms that contribute to its onset. This review also discusses the impact of antihyperglycemic therapies on the development of HF, as well as awareness of new effective therapies in its treatment.

Materials and Methods: Recent publications on prestigious platforms such as PubMed, Scopus, etc., as well as guidelines from relevant Diabetology and Cardiology associations, were utilized.

Conclusions: The pathophysiology of HF in diabetes mellitus is complex and represents a cardiovascular complication of diabetes mellitus that significantly contributes to cardiovascular morbidity and mortality. The treatment of HF is similar for patients with and without diabetes, with attention given to drugs that may aggravate either condition. Treatment with SGLT2 inhibitors is currently one of the most effective therapies for heart failure associated with diabetes, reducing all-cause mortality, cardiovascular mortality, non-fatal myocardial infarction, and kidney disease, while also having a positive effect in reducing hospitalizations due to heart failure.

Keywords: diabetic cardiomyopathy, cardiovascular risk, SGLT2i.

A Fragile Heart?! Decoding the Impact of Frailty on Cardiovascular Disease

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Introduction: Frailty significantly impacts patients with cardiovascular disease, contributing to increased mortality and morbidity, particularly among the elderly. Understanding this relationship is key to developing more effective therapeutic strategies for these patients.

Aim: This study aims to shed light on the role of frailty—both as a concept and clinical finding—in patients with cardiovascular disease, with particular focus on the prognostic importance of frailty classification. Furthermore, it explores assessment tools and the formulation of effective therapeutic protocols tailored to frail patients.

Methodology: A systematic literature review was conducted using PUBMED, EMBASE, and Google Scholar covering the period from 2014 to 2024. Keywords included: “frailty,” “cardiovascular disease,” “elderly,” “mortality,” “prognosis,” “morbidity,” and “invasive cardiac procedures.” Out of 57 articles reviewed, 25 were selected for their clinical focus on the prevalence and impact of frailty in cardiovascular disease, particularly regarding its effect on morbidity, mortality, and recovery. Assessment tools for frailty used in these studies were analyzed along with their predictive efficacy.

Results: Data shows a consistent association between frailty and poorer outcomes in patients with cardiovascular disease, including higher mortality rates and frequent hospital readmissions. The use of validated frailty assessment tools, particularly the Fried Frailty Phenotype (1,2,3), has proven effective in predicting such complications. Furthermore, targeted interventions aimed at improving frailty scores may lead to better quality of life and enhanced recovery, especially following invasive cardiac procedures (4,5).

Conclusions: Integrating frailty assessment tools into routine clinical practice for cardiac patients is essential. Recognizing and evaluating frailty is crucial for optimizing therapeutic approaches and improving overall patient care. Further studies are needed to explore how frailty can be mitigated and to assess its long-term impact on cardiovascular patients.

Keywords: frailty, cardiovascular disease, elderly, mortality, prognosis, morbidity, invasive cardiac procedures

Cardiac Arrhythmias and their Safe Management Profile in the Geriatric Population

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Introduction: Cardiovascular diseases, and particularly cardiac arrhythmias, have an increased prevalence with the aging of the population. Atrial Fibrillation and Ventricular Tachycardia are among the most frequent arrhythmias in the geriatric population. The aging process is associated with progressive, degenerative changes in the contractile and conduction systems of the heart, which become causes of arrhythmias, increasing cardiovascular morbidity and mortality in this age group. Pharmacological therapy in these patients is challenging due to the high risk of toxicity and bleeding.

Objective: This topic aims to describe the most frequent cardiac arrhythmias in geriatric patients and to evaluate their pharmacological or surgical treatment and safety profile. Because geriatric patients are significantly underrepresented in scientific research projects, and current guidelines are mainly based on younger populations, their recommendations are often not appropriate for this age group and need to be adapted.

Methods and Materials: To develop this topic, the latest guidelines from ESC, ESH, EHRA, AHA, and the American Geriatrics Society were used, along with publications related to geriatrics found on the most recognized medical platforms such as the Mayo Clinic, PubMed, etc.

Conclusions: The prevention and proper treatment of cardiac arrhythmias in geriatric patients remains a challenge due to the lack of studies in this population group. The prevalence of these arrhythmias is increasing, making their anticoagulation particularly important. The successful management of cardiac arrhythmias at this age requires a coordinated and personalized approach for each patient, considering individual factors such as age, medical history, comorbidities, and the benefits or drawbacks of treatment.

Keywords: cardiac arrhythmias, atrial fibrillation, NOAC, ablation, anticoagulation

Assessment and Management of Cardiovascular Heart Disease in Pregnancy

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Introduction: The cardiovascular diseases during pregnancy are increasing due to the older maternal age, rise in prevalence of hypertension, diabetes, obesity and advances in treatment of congenital heart disease. These women have an increased risk of cardiac and obstetric complications, and their offspring have a greater risk of premature delivery, intrauterine growth restriction, and recurrence of congenital heart disease.

Objective. A counseling strategy for preconception risk assessment in women with heart disease is very important for improving pregnancy outcomes. This is diagnostic strategy by means of evaluation the functional status and effects of pregnancy, medications, labor and delivery.

Methods: Women with indications for valve surgery prior to pregnancy should undergo intervention or surgery before pregnancy. Results.The advising very high-risk women against pregnancy, includes those with pulmonary hypertension, with complex operated lesions with complications, with severe left heart systolic dysfunction, with outflow tract obstruction, aortic dilatation or with peripartum cardiomyopathy in which systolic function did not completely normalize. Pregnancy is not recommended in women with high-risk aortic disease defined as Marfan syndrome or other heritable thoracic aortic disease.

Conclusion. Pregnancy in the woman with heart disease may have a successful outcome with appropriate planning anterior to conception to the specific heart disease of the women. Recommendations for counseling and evaluation these women should be formulated with care for the potential maternal and fetal risk.

Keywords: cardiovascular disease, pregnancy, risk assessment, valve surgery, maternal-fetal outcomes

The COVID-19 Lockdown Period Caused Greater Collateral Damage in Elderly Patients with Acute Coronary Syndromes

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Introduction: Multiple studies documented an important reduction in acute coronary syndrome (ACS) admissions during the COVID-19 pandemic outbreak. There are few studies regarding the age differences in ACS admissions and outcomes during and after the initial lockdown with divergent results. We aimed to study the age differences in ACS admissions and in-hospital outcomes during and after the COVID-19 lockdown period in Albania.

Material and Methods: A retrospective single-center study enrolled all consecutive patients diagnosed with ACS. The data for all admissions were collected from March 9th, (first COVID-19 case) until April 30th, the corresponding period of the 2020 total lockdown, for three consecutive years from 2019 to 2021. The control period was considered the year 2019 and the study periods were in 2020 (lockdown) and 2021 (ongoing pandemic). Patents in each period were grouped according to < 70 and ≥ 70 years old. Incidence rate ratio (IRR [95%CI]) was used to compare admissions, and risk ratio (RR [95%CI]) to compare the mortality between each study period with the control one.

Results: Overall 1539 patients (pts) admitted with the diagnosis of ACS were included during the entire study period of three consecutive years, respectively 550 pts. in 2019, 321 pts in 2020, and 668 pts in 2021. IRR for each ACS age group (<70 and ≥70 years) admissions were significantly lower, respectively 0.59 (0.48-0.81), 0.54 (0.34-0.70) during the 2020 lockdown compared to 2019. Meanwhile, an important increase for ACS <70 yrs of IRR 1.37 (1.09-1.6) during 2021 compared to 2019 was observed. The ACS ≥70 yrs death rate significantly increased by 13.8% vs. 7.0% (RR=1.97; p=0.04), during lockdown compared to the pre-pandemic period. The mortality increased also for the <70 yrs group 5.7% vs 1.1% but not quite significant (RR=2.46, p=0.16) Meanwhile, the mortality rates were similar during 2021 compared to 2019 respectively 2.0% vs. 1.1% (RR=1.65; p=0.40) for <70 yrs, and 4.8% vs. 7.0% (RR=0.68; p=0.34) for ≥70 yrs group.

Conclusions: After the initial reduction of admissions in both ACS age subgroups and the increase of mainly ≥70 yrs ACS mortality during the 2020 lockdown period. A rebound in <70 years ACS admissions associated with a similar mortality rate in both age groups during 2021 despite the existence of a highly prevalent ongoing COVID-19 pandemic. The mortality of elderly patients is higher in all periods, but the COVID-19 lockdown caused greater collateral damage.

Keywords: COVID-19 pandemic, acute coronary syndromes, admissions, mortality

Diagnosis of RA in Correlation with Anti-CCP+ and RF+: Applied Therapy

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Introduction: Rheumatoid Arthritis (RA) is an inflammatory autoimmune disease. In the course of disease activity, two diagnostic parameters are essential, according to DAS28-ESR or DAS28-CRP assessment criteria. Furthermore, the presence of Anti-CCP antibodies (APF, AKA, and AFA) is found in the serum of RA patients, and their laboratory evaluation is important for differentiating RA from other autoimmune diseases presenting with arthritis, as well as for evaluating the proportion between disease activity and Anti-CCP presence. The specific cause of Anti-CCP antibody development in patients is unknown, but it is thought to be a combination of genetic predisposition and environmental factors.

Study Objectives:

- To evaluate ESR and CRP as diagnostic criteria for disease activity and progression during the study period.
- To identify the correlation between the disease and the presence of Anti-CCP+ and RF+ antibodies in relation to clinical progression.
- To assess the combination of applied therapies depending on laboratory changes and the clinical course of the disease during patient follow-up.

Methodology: The study included 50 patients diagnosed with Rheumatoid Arthritis who were admitted to the Rheumatology Ward at the University Hospital Center (QSUT) over a 3-year period (2021–2024). The variables of interest included laboratory indicators of disease activity (CRP and ESR) and the presence of Anti-CCP+ and RF+ antibodies, through which disease activity and immune response were assessed.

Study Results: The criteria used to evaluate disease progression and diagnosis were CRP and ESR. Patients were categorized as RA with Anti-CCP+, RA with Anti-CCP− and RF+, and RA with both Anti-CCP+ and RF+. The study showed that Anti-CCP+ was present in 70% of cases, compared to 42% of patients who had only RF+. In 7 patients, Anti-CCP+ was detectable up to 10 years before full clinical manifestation of the disease. Based on DAS28-ESR and DAS28-CRP scores, there was a consistent correlation between disease activity and autoimmunity expressed through Anti-CCP+, Anti-CCP− and RF+, or Anti-CCP+ and RF+. Patients with higher disease activity were shifted from first-line Methotrexate treatment to biological agents in 27% of cases by the end of the first year, and in 48% by the end of the third year of follow-up in the Rheumatology Ward.

Conclusions: The key parameters to determine disease activity in RA patients are the inflammatory markers ESR and CRP. Patients with Anti-CCP+ over a longer period present with higher disease activity and demonstrate resistance to Methotrexate as a first-line treatment. Patients with both Anti-CCP+ and RF+ received biological therapy in 72% of cases.

RA patients with RF+ only tend to have a slower clinical course, and Methotrexate was effective in 36% of cases at the end of the first year, with reduced disease activity in 30% under this treatment line.

Keywords: Rheumatoid Arthritis, ESR, CRP, Anti-CCP+, Rheumatoid Factor, Methotrexate, Biological therapy

Piloting Medical Simulation Techniques to Enhance Quality in the Emergency Department of Albania

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Background: Emergency departments (EDs) are challenging to manage due to their high volume, resource limitations, and increased patient demand. They rely on well-functioning teams to provide consistent and safe patient care, making them ideal environments for implementing innovative initiatives aimed at enhancing efficiency and service quality. Simulation techniques are an effective method for helping ED providers improve their multitasking abilities and prepare novice providers for real-world challenges. This study involved piloting a Simulation Program among ED providers at regional and university hospitals in Albania, focusing on self-reported improvements in multitasking efficiency and quality of care.

Methodology: A team of four senior ED trainers designed and conducted a series of training sessions for groups of ED providers from regional and municipal hospitals, focusing on clinical and teamwork skills related to Basic Life Support (BLS) and First Aid (FA). Several scenarios were developed to facilitate in situ simulated patient experiences. The DASH (Debriefing Assessment for Simulation in Healthcare) tool was used to assess the participants' feedback regarding the application of simulation techniques.

Results: To date, 30 three-day training sessions have been conducted, with the participation of450 ED providers (almost two-thirds of whom were nurses). Preliminary qualitative data indicated significant improvements in multitasking efficiency and confidence in providing BLS and FA care. Additionally, findings demonstrated that this technique is both feasible and acceptable**.**

Conclusion: Although the program is still ongoing, the initial results suggest that piloting medical simulation techniques can effectively improve ED providers' multitasking efficiency and quality of care. Further in-depth analyses are necessary to better understand the long-term impact of this approach on clinical practice.

Keywords: emergency medicine, medical simulation techniques, quality improvement.

The Role of MRI in Diagnosing Intracranial Mucoceles Associated with Frontal Sinus Osteomas: A Case Report and Literature Review

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Introduction: Frontal sinus osteomas and intracranial mucoceles are rare yet significant pathologies of the paranasal sinuses. While both entities are benign, their concurrent presence is uncommon and may lead to serious complications.

Methods: We present the case of a 61-year-old male with a three-month history of intermittent headaches and generalized seizures, in whom MRI revealed a heterogeneously enhancing frontal lesion adjacent to a non-enhanced cystic structure. Surgical excision and histopathological analysis confirmed the diagnosis of a frontal sinus osteoma with an associated mucocele. Intracranial mucoceles tend to expand progressively, often remaining asymptomatic until they exert mass effect or trigger complications such as infections or neurological deficits.

Results: Given their potential for intracranial extension, prompt diagnosis and surgical intervention are crucial. MRI plays a pivotal role in differentiating solid and cystic intracranial lesions, offering superior sensitivity and specificity compared to other imaging modalities.

Conclusion: This case highlights the necessity of considering intracranial mucoceles in the differential diagnosis of cystic lesions in the anterior cranial fossa, particularly when associated with a solid obstructive mass.

Keywords: Intracranial mucocele, frontal sinus osteoma, MRI, paranasal sinus tumors

Urinary Tract Infection Pathogens in Infectious Disease Clinic Patients During 2024 and their Resistance Profiles

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Introduction: Urinary tract infections (UTIs) hold a significant position among hospitalized patients in general, but also among those admitted for infectious diseases. The main causative agents are primarily Enterobacteriaceae, with *Escherichia coli* and *Klebsiella pneumoniae* being predominant, followed by Gram-positive organisms like *Enterococcus* spp., as well as non-fermenters.

Aim: To identify the bacterial agents of urinary tract infections and assess their antibiotic resistance patterns.

Methods: Urine samples collected over the first 10 months of 2024 from the Infectious Disease wards of QSUT were cultured following standard protocols on selective media. Suspected isolates considered as pure cultures (one bacterial species) with counts ≥100,000/ml urine or two species with at least one reaching ~10^5/ml, were identified using MALDI-TOF, an innovative technology and valuable tool for identifying even rare bacterial and fungal strains. Susceptibility testing was mainly performed using the VITEK 2 system. Samples with less than 50,000 CFU/ml or those containing three or more species were considered colonization or contamination and were excluded from analysis.

Results: Of the 1214 urine cultures received from the infectious disease wards during the 10-month period, 237 (19.6%) were positive—approximately one in five. These were from patients in infectious disease and intensive care units, primarily diagnosed with sepsis, viral syndromes, etc. Among the isolated pathogens, *E. coli* accounted for 58 cases (24.5%) and *Enterococcus faecium/faecalis* for 52 cases (22%). *Candida* species (including *albicans*, *glabrata*, *kefyr*, etc.) made up 43 cases (18.1%).

Conclusions: Enterobacteriaceae overall constituted 34.6% of all isolates, being the most frequent agents, often exhibiting ESBL production. *Enterococcus* species showed High-Level Aminoglycoside Resistance (HLAR). *Candida* species were the third most common isolates and may represent colonization or true infection. An increased resistance to fluconazole was observed.

Keywords: UTI, E. coli, Enterococcus, Candida

Transbronchial Biopsy and Its Value in Pulmonary Pathologies

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Introduction: Transbronchial biopsy is a diagnostic procedure used to obtain tissue samples from the lungs for pathological analysis. This test is performed via bronchoscopy, using a thin flexible instrument that allows visualization of the airways and sampling from different regions of the lungs. Transbronchial biopsy is of great importance in the diagnosis and evaluation of pulmonary diseases, providing a direct and safe opportunity to analyze lung tissues and identify pathologies that may affect patients.

Presentation: One of the main benefits of transbronchial biopsy is the ability to obtain samples from areas that may be difficult to reach with other techniques, such as radiology. This procedure is widely used in the diagnosis of various pulmonary diseases, including infections, tumors, pulmonary fibrosis, interstitial pneumonia, and inflammatory diseases such as asthma and chronic bronchitis. Additionally, transbronchial biopsy is useful in evaluating diseases related to low oxygen levels, such as chronic obstructive pulmonary disease (COPD), and can assist in diagnosing pulmonary metastases of cancer from other organs. In terms of pathology, transbronchial biopsy offers an excellent opportunity to assess the morphological characteristics of lung tissues and identify changes that may indicate the presence of tumors, chronic infections, or inflammatory diseases. In some cases, this procedure can provide the necessary information for determining appropriate treatment and assessing the patient's prognosis. However, transbronchial biopsy has some limitations and risks, including the possibility of complications such as hemorrhage, pneumothorax (lung collapse), and infections. These side effects are rare and usually manageable, but they require careful assessment of patients before and after the procedure. Furthermore, transbronchial biopsy may not provide an adequate sample for diagnosis in some cases, necessitating other diagnostic procedures such as surgical biopsy or CT-guided biopsy.

Conclusions: Transbronchial biopsy is an important and useful tool for diagnosing and managing pulmonary diseases, offering a direct and safe approach for evaluating pulmonary pathologies. It enables accurate and rapid diagnosis, contributing to improved healthcare for patients suffering from various pulmonary diseases.

Keywords: transbronchial biopsy, pulmonary diseases, bronchoscopy, lung tissue analysis, diagnostic procedure

Imaging in Thoracic Tumors in Children: Radiologic Challenges

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Introduction: Thoracic tumors in the pediatric population account for 15–20% of all malignant tumors in children. They may originate from the thoracic wall, pleura, pulmonary parenchyma, or mediastinum. Imaging plays a crucial role in diagnosing these tumors, and early diagnosis is associated with a better prognosis.

Case Presentation: We present several cases of rare thoracic tumors in children who were admitted to the pediatric hospital with various symptoms such as fever and respiratory distress. The first imaging modality used was conventional chest radiography. This was followed by computed tomography (CT), which aided in the localization and characterization of the respective lesions.

Discussion: Based on distinct radiologic features, the patients were diagnosed with axillary lymphangioma, mediastinal lymphoma, osteoblastoma, pleuroblastoma, mediastinal teratoma, and osteochondroma. Histopathological results after surgical interventions confirmed these diagnoses in our patients.

Comments and Conclusions: The aim of this presentation is to familiarize radiologists with the imaging spectrum of several rare pediatric thoracic tumors. Awareness of these imaging findings can assist in the prompt and optimal diagnosis and treatment of pediatric patients.

Keywords: thoracic tumors, pediatric imaging, chest radiography, computed tomography, rare pediatric tumors

Positive Blood Cultures: Contamination or True Bacteremia?

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Introduction: Blood culture remains the golden standard for the diagnosis of bacteremia and sepsis, but the interpretation of results is often challenged by contamination. Accurate identification between a true infection and contamination is essential to avoid antibiotic treatment and reduce hospital costs.

Objective: Differentiation of true bacteremia from contamination using diagnostic criteria and laboratory data.

Methodology: The study was retrospective. We analyzed blood samples taken from patients in the Infectious Diseases department during the years 2023 – 2024 and pediatrics / maternity, from December 2020 to October 2022. Blood cultures were incubated in the automated system (BacT/Allert, BioMerieux, France). The isolated microorganisms were identified by the MALDI-TOF, VITEC–MS, system (BioMerieux, France). The samples were classified as true bacteremia or contamination, based on the type of pathogen, the time when the blood culture was positive and the number of positive cultures.

Results: In the pediatric and maternity services, a total of 1414 blood cultures were obtained, of which 115 (8.1%) were positive. True bacteremia was identified in 2.1 % of cases, while the contamination rate was high at 6 %. In the infectious Diseases Service, 3581 blood cultures were analyzed, with 15.8 % testing positive. True bacteremia was identified in 5.1 % while the contamination rate was high 10.4 %. The most frequently isolated pathogens were E. coli, S. aureus, E. faecalis, S. pneumonia, K. pneumoniae and the yeasts Cryptococcus neoformans and Candida sp. The most commonly isolated contaminants were coagulase-negative Staph, Bacillus sp, Achromobacter etc.

Conclusion: Differentiating true bacteremia from contamination remains a diagnostic challenge. Implementation of standardized sampling protocols, staff education and careful interpretation of results are essential to reduce contamination and optimize patient management.

Keywords: blood culture, contamination, bacteremia, sepsis, laboratory interpretation.

The value of bone marrow aspiration cytology and flow cytometry in the prediction of marrow biopsy diagnosis. An experience from 'Mother Theresa' University Hospital Center.

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Introduction: Comparing bone marrow aspiration cytology with bone marrow trephine biopsy histopathology involves evaluating their diagnostic utility, advantages, and limitations in various clinical contexts[1]. Haematological disorders are complex and require additional techniques such as hemogram which provides an overall picture of blood health, and immunophenotyping which offers detailed information on cell populations and malignancies[2]. Bone marrow trephine biopsy offers a comprehensive view of the bone marrow architecture and with the addition of immunohistochemical staining we can have a firm diagnosis[3]. On the other hand, bone marrow aspiration cytology with immunophenotyping provides detailed cellular information and in clinical practice, the choice between the two or the decision to use both depends on the specific diagnostic needs and the clinical scenario[4].

Materials and methods: In a period of ten months, we have screened 193 BMB, 122 of them had all the three examinations done, BMB/BMA with immunophenotyping, most of them were suspected for LPD. A comparative evaluation was performed to see the complementary role of all the procedures. We excluded 11 cases as inadequate BMB samples due to crushing artefact, fragmentation or scarce core length biopsy. Immunohistochemistry was employed whenever required.

Results: In our study, 67% of cases were done only on bone marrow biopsy and the remaining of cases final diagnosis was achieved with the help of other ancillary investigations. The concordance and discordance rate between BMA/flow cytometry and BMB was 83.3% and 16.6%, respectively.

Keywords: bone marrow aspiration, flow cytometry, bone marrow biopsy, hematological disorders, immunophenotyping

Updates in Autoimmune Interstitial Lung Diseases

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Introduction: Diffuse parenchymal lung diseases are initially distinguished by the presence of a known cause or association with a connective tissue disease (CTD). CTDs are among the most common causes of non-idiopathic interstitial lung diseases (ILD).

Methods: Virtually all CTDs may be associated with ILD, although each CTD differs in terms of the prevalence and pattern of ILD manifestation. When ILD complicates a previously diagnosed CTD, the diagnosis is typically made as part of the CTD's clinical course. However, some patients present with ILD before developing a defined CTD, even in the absence of positive immunologic markers (such as ANA or ENA profile). A considerable number of patients with ILD show clinical, serological, and/or radiological features suggestive of an underlying CTD, yet do not meet the established ACR-EULAR classification criteria for a specific CTD.

Results: The concept of **Interstitial Pneumonia with Autoimmune Features (IPAF)** highlights the potential overlap between idiopathic interstitial pneumonias (IIP) and CTD-associated ILDs. IPAF provides a framework for identifying and studying this overlap. Such overlap is frequently encountered in systemic autoimmune diseases and may result from "overlap syndromes," where features of distinct CTDs coexist within the same patient. IPAF specifically addresses the interface between IIP and CTD-ILD.

Conclusion: This concept has emphasized the importance of a comprehensive evaluation of patients with apparently idiopathic ILD and underscores the value of interdisciplinary collaboration. Although a standardized management approach for IPAF is still lacking, the concept supports more informed decision-making for patients presenting with ILD who do not fulfill diagnostic criteria for CTDs.

Keywords: ILD, CTD, IPAF, IIP

Systemic Toxicity from Overuse of MTX in Rheumatoid Arthritis

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Introduction: Methotrexate (MTX) is one of the most widely used drugs for the modification of rheumatic diseases (DMARDs), at a dose of ≤20 mg/week. Overdose or failure to comply with the weekly dose, potentially causes systemic damage to the patient's life, such as: significant blood changes (anemia, neutropenia, thrombocytopenia; liver function damage (AST; ALT; GGT); acute kidney toxicity, etc. We aim to analyze the clinical profile and risk factors of patients who presented with toxicity from MTX.

Study method: The study included patients presented to the emergency room of QSUT, hospitalized in the rheumatology service with a history of unintentional consumption of MTX doses every day and not once a week and for a period of time from 10 days to 2-3 months) from July 2021 to May 2024. Clinical and laboratory examinations, in addition to referral complaints, the systemic damage of the patients is observed.

Results: The mean age of patients in our cohort was 65.5 years (55-75 years), with 90% women. The reason for the MTX overdose was the medication's mistake in understanding the once-a-week dosage. The patients had been drinking MTX every day from one week to 2 months, without any laboratory control. The most common main complications ëere anemia (↓Hgb; ↓HCT; ↓WBC; ↓RBC; ↓HCT; ↓PLT; neutropenia (80%). All our patients had stomatitis, ëhere half of them had bleeding from the mouth. Gastrointestinal complications such as vomiting and diarrhea were seen respectively in 20%. Our group had 6 patients who had complications due to MTX overdose. The dose of MTX was not related to the severity of the disease, but the way of receiving this dose, which affected the systemic toxicity of the patients and the length of hospital stay.

Conclusion: Toxicity from MTX is one of the severe rheumatological emergencies and the toxicity profile includes hematological, gastrointestinal, hepatic and renal side effects, therefore for their treatment a pluridisciplinary group is needed: Severe neutropenia leading to sepsis can be fatal if not treated early.

Keywords: Methotrexate, patient, intoxication, dose, complications

Premenopausal and Postmenopausal Osteoporosis: Diagnostic and Therapeutic Differences

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Introduction: Osteoporosis is a metabolic disease of the skeletal system, characterized by a progressive loss of bone mass and a disruption of the microarchitecture of bone tissue, significantly increasing the risk of fractures. The homeostasis of bone mineralization depends on a complex regulatory system, which includes the level of vitamin D3 and ionized calcium. The parathyroid gland and the thyroid gland, through their hormones (PTH and calcitonin), the ovaries and the adrenal glands through the production of estrogen and progesterone, as well as the function of the kidneys and the gastrointestinal tract, play a key role in maintaining bone density at optimal physiological levels.

Aim: The analysis of appropriate indicators in the imaging assessment DEXA scan, which is specific and different from women in menopause, the presence or absence of fractures, the analysis of hormonal components guides towards therapeutic modalities which are also different.

Methods: Studies show that the presence of a fracture with low-intensity trauma at the age of 20 to 50 years increases the risk for postmenopausal fractures by 35% to 70%. Women who present with unexplained fractures or low bone density should undergo a full clinical and laboratory evaluation to identify possible causes of these conditions.

Conclusions: Bisphosphonates and teriparatide help in improving bone density in some types of premenopausal osteoporosis, but more studies are still needed to assess their impact on fractures. Osteoporosis and premenopausal fractures are a very important entity; timely assessment and treatment prevent fractures in the menopausal period.

Keywords: Perimenopausal osteoporosis, osteoporotic fractures, osteoporosis treatment

Rheumatic Autoimmune Diseases with Pulmonary Involvement: The Challenge of Today

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Introduction: Rheumatic Autoimmune Diseases (RAD) are currently among the major public health concerns worldwide. Pulmonary involvement represents a significant complication that worsens the prognosis and deteriorates the quality of life of patients. Although advancements in the diagnosis and treatment of these diseases are evident, the management of pulmonary damage remains an important challenge.

Objective: To explore the connection between RAD and pulmonary involvement, to analyze their impact on the overall health of patients, and to identify effective approaches in the management of these cases.

Methodology: A retrospective study of 200 patients diagnosed with RAD who also presented with pulmonary involvement. Data were analyzed using statistical techniques to determine the frequency of pulmonary involvement and the effectiveness of treatment.

Results: Sixty-five (32%) patients with RAD had interstitial lung disease, while fifty-six (28%) had pulmonary fibrosis. These complications were more common in patients with Rheumatoid Arthritis (50 patients), Scleroderma (62 patients), and Myositis (9 patients). Pleural effusion was found in 50 (25%) patients (predominantly in Lupus and RA), while bronchiectasis occurred in 24 (12%) patients. Alveolar hemorrhage was evident in 6 (3%) patients with Vasculitis. Prolonged use of corticosteroid therapy (HRs = 1.70, 1.13-2.55), male gender (ORs = 1.92, 95% CI 1.70-2.16), and older age at diagnosis (WMDs = 6.89, 95% CI 3.10-10.67) were other factors favoring pulmonary complications in these patients. The use of conventional drugs as therapy in these patients also benefited the lungs (HRs = 0.77, 95% CI 0.69-0.87).

Conclusions: Pulmonary involvement in RAD is a challenge that requires special attention and personalized treatments, including early interventions and a multidisciplinary approach to improve prognosis and the quality of life of patients.

Keywords: rheumatic autoimmune diseases, pulmonary involvement, interstitial lung disease, pulmonary fibrosis, corticosteroid therapy

Evaluation of the Treatment Progress of Patients Diagnosed with Rheumatoid Arthritis, with Biological Therapies and Standard Therapies, during the Period September 2024–February 2025

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Introduction: The medicinal treatment of Rheumatoid Arthritis has evolved in recent years with the successful use of anti-TNF-alpha drugs and IL-6R inhibitors. Global findings show significant changes in the use of this innovative therapy.

Aim of the study: Comparison of clinical and laboratory results in the remission of Rheumatoid Arthritis pathology, between patients treated with biological drugs and those without this therapy.

Methodology: In this open randomized study, 54 patients diagnosed with Rheumatoid Arthritis were included, divided into two groups according to standard therapy and biological drugs. The therapies were carefully administered according to defined protocols, periodically supported and based on laboratory and clinical situations.

Results: During a 6-month treatment period, a more noticeable improvement was observed starting from the 4th month in patients treated with biological drugs compared to other patients, based mainly on two groups of factors:
Clinical:

- Joint pain. (K)
- Joint inflammation. (K1)
- Limitation of movement amplitudes. (K2)
- Morning stiffness. (K3)

Laboratory:

- Levels of inflammation tests. (L)
- Complete blood count, balance. (L1)

Conclusions: Clinical and laboratory improvements were found in both patient groups during the 6-month treatment period. Better results were achieved in patients under treatment with biological drugs both in clinical and inflammation tests.

Recommendations: The improvement in the regression of the pathology leads us to consider the continuous increase in the use of Anti-TNF-alpha and IL-6R inhibitor therapy in patients diagnosed with Rheumatoid Arthritis.

Keywords: rheumatoid arthritis, biological therapies, anti-TNF-alpha drugs, IL-6R inhibitors, treatment outcomes

Pro-Inflammatory Cytokines that Accelerate Sarcopenia in Systemic Autoimmune Diseases(SSAI)

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Introduction: The loss of muscle mass and function with aging is a natural phenomenon. In the seventh and eighth decades of life, muscle strength decreases by 20-40%, and the rate of reduction increases gradually with aging.

Methods: Sarcopenia is associated with disability in daily activity and a high risk of mortality from all causes. Furthermore, there is a financial and social burden associated with sarcopenia, as hospitalization costs for patients with sarcopenia are significantly high. Sarcopenia is now considered an entity in the International Classification of Diseases (ICD). Although sarcopenia is usually considered an age-related disorder (primary), young people with SSAI suffer from sarcopenia (secondary).

Results: Chronic inflammation is also a major risk factor for sarcopenia. From this perspective, SSAI with chronic ongoing inflammation due to the autoreactive immune response may be a risk factor for sarcopenia. Many studies show that there is a direct correlation between SSAI and sarcopenia, and this has been proven in patients with RA, DM-PM, Scleroderma, and vasculitis.IL-1β, IL-6, and TNF-α are pro-inflammatory cytokines that underpin the pathogenesis of SSAI, and these cytokines play an important role in the acceleration of sarcopenia. This relationship suggests that the inflammatory response promotes sarcopenia.

Conclusion: Sarcopenia is a common phenomenon in SSAI diseases. The exact prevalence varies between different studies, partly due to the different definitions of sarcopenia that are used.

Keywords: sarcopenia, systemic autoimmune diseases, pro-inflammatory cytokines, chronic inflammation, muscle loss

Bone Marrow Biopsy, a Microinvasive Procedure, with a Big Clinical Impact

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Introduction: Hematopathology is a field of pathology concerned with the study and diagnosis of human diseases involving hematolymphoid cells and tissues and blood coagulation. This unique field encompasses both anatomic and clinical pathology, utilizing basic pathologic techniques, also specialized techniques like immunohistochemistry, molecular biology and flow cytometry.

Objective: Bone marrow biopsy has been introduced in the National University Hospital Mother Theresa in 2018, with an increasing tendency to have this exam in the diagnosis and treatment modalities of hematopathology cases.

Method: Since 2018, up to present time, we have approximately 100-200 biopsies/year requested from the hematology department mostly, and also other related departments. Besides myeloproliferative neoplasms, such as Myelofibrosis, Essential thrombocythemia, Polycythemia vera, Myelodysplasias, etc, we have noted an increase of bone marrow biopsies requested for cases with lymphoma, for disease staging or diagnosis.

Conclusion: Diagnosis of hematolymphoid neoplasms requires extensive integration of morphologic, clinical, and ancillary testing data.

Keywords: bone marrow biopsies, myeloproliferative, lymphoproliferative, staging lymphoma, hematopathology.

Human Leukocyte Antigen (HLA) Allelic Associations in Albanian Individuals with Multiple Sclerosis

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Introduction: Multiple sclerosis (MS) is the most prevalent chronic inflammatory disease of the central nervous system, with genetic factors accounting for approximately 30% of its overall risk. While MS is more common in Northern Europe, its incidence has also increased in Southern Europe. The human leukocyte antigen (HLA) system plays a significant role in MS susceptibility, contributing to 20% of its heritability.

Objectives: This study aims to identify HLA alleles associated with MS in the Albanian population.

Methods: HLA genotyping was performed on 50 Albanian individuals with MS using a sequence-specific priming method analyzing HLA-A*, B*, C*, DRB1*, and DQB1* alleles. Allele frequencies in MS patients were compared to those in a control cohort of 432 healthy Albanian individuals.

Results: Among HLA class I alleles, HLA-B*39:01 was more frequent in MS patients ($p = 0.037$). Within class II alleles, HLA-DRB*115:01, HLA-DRB1*10:01, and HLA-DRB1*04:01 were identified as risk alleles ($p = 0.0003$, $p = 0.0201$, and $p = 0.0550$, respectively). However, after Bonferroni correction, only HLA-DRB1*15:01 remained statistically significant ($p = 0.0036$). Several alleles were more frequent in the control group, suggesting a potential protective effect, including HLA-B*35:01 ($p = 0.0306$), HLA-C*04:01 ($p = 0.0188$), HLA-DRB1*07:01 ($p = 0.023$), HLA-DRB1*11:01 ($p = 0.0344$), and HLA-DRB1*14:01 ($p = 0.0354$). However, no statistical significance was retained following the Bonferroni correction.

Conclusions: The association of HLA-DRB1*15:01 with increased MS susceptibility in Albanians agrees with other populations' findings. Further investigation is necessary to validate additional genetic candidate markers associated with MS risk or protection.

Keywords: multiple sclerosis, human leukocyte antigen, hla alleles, genetic susceptibility, albanian population

Our Experience in the Molecular Diagnosis of Common Genetic Diseases in Albania: Towards the Implementation of NGS Panels for Rare Genetic Diseases

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Introduction: Genetic diseases represent a significant challenge to public health in Albania, with hemoglobinopathies, especially beta thalassemia and sickle cell disease, occupying an important place. Currently, molecular diagnosis for rare genetic diseases, such as beta thalassemia, Duchenne/Becker muscular dystrophy (DMD/BMD), cystic fibrosis, and 31 chromosomal microdeletions, is enabled through traditional techniques. Meanwhile, there is a growing need for more advanced methods for the identification of rare genetic diseases, such as Next Generation Sequencing (NGS).

Method: Molecular diagnosis for rare diseases has mainly been carried out using techniques such as SNaPshot, MLPA, and Sanger sequencing to identify specific mutations. For the diagnosis of rare genetic diseases, NGS panels will be developed at the Clinical Genetics Laboratory Service, focused on genes responsible for neuromuscular disorders and onco hematological diseases. Samples from patients suspected of rare genetic diseases will be analyzed using NGS panels, and the data will be processed with bioinformatic systems to identify pathogenic variants.

Results: At the Clinical Genetics Laboratory Service, in the last 3 years, 222 patients and parents have been analyzed for beta thalassemia and sickle cell disease, 123 patients and parents for cystic fibrosis, 32 patients and mothers for DMD, and 44 patients for 31 chromosomal microdeletions. These analyses were performed using traditional methods such as SNaPshot, MLPA, and Sanger sequencing and have provided accurate results in the diagnosis of these diseases. Testing with NGS panels will be performed to identify variants in patients with rare diseases, improving diagnosis and the possibilities for personalized treatment.

Conclusions: Our experience demonstrates the effectiveness of traditional methods in the diagnosis of rare genetic diseases and the need for the implementation of NGS panels in the diagnosis of rare diseases. The implementation of NGS panels represents an important step toward improving genetic care in Albania. The next steps will include optimization of methods and increased access for patients with rare genetic diseases.

Keywords: Molecular diagnosis, Next Generation Sequencing (NGS), Rare genetic diseases, NGS panels

POSTER PRESENTATIONS

Characteristics of Scientific Publications in Albania

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Introduction: Faculty of Medicine received the "Honor of the Nation" award from President Nishani for its pursuit of the latest advancements in science. Further more its doctors and students passed successfully pandemic challenge. Therefore, disseminating these advancements to stakeholders and communities, and achieving progress with an impact on patient quality, remain key outcomes of scientific research. This quality starts from its "outputs," such as articles, abstracts, texts, and monographs.

Objective: Emphasizing issues under a SWOT analysis in relation to several Albanian medical editorial publications.

Materials and Methods: Scientific boards, abstracts, coherence between research steps, references, types of publications, and the potential for type III and IV errors have been examined in various journals and articles.

Results: The publications are fundamentally of high quality, with those from experienced authors prevailing. Citation of Albanian colleagues from each other is almost nonexistent. The papers have a satisfactory number of cases with proper statistical processing, but fewer are review and conceptual papers, and an insignificant number are case studies.

Conclusions: The approach to the core of the papers is quality-based, reflecting important work in clinical medicine and the authors' experience. Academic rigor has progressed but should reach an even higher level by respecting all stages of a paper, starting with guidance for authors or frequency of type III error and type IV error. Co-authorship with laboratory doctors is almost nonexistent in many scientific boards and papers.

Keywords: scientific board, references, type III error, type IV error

Duchenne Muscular Dystrophy and Therapeutic Approach to Specific Mutations

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Introduction: Duchenne Muscular Dystrophy (DMD) is one of the most common and severe forms of muscular dystrophy inherited in an X-linked recessive manner. It is characterized by a rapid progression of muscle degeneration that leads to an inability to walk, paralysis, and death. Although the molecular origin of Duchenne muscular dystrophy has been known for several years, there is still no curative treatment for the disease. Exon skipping is a specific approach to the mutation. Which exon will be skipped depends on the size and location of the mutation. Therefore, having a genetic diagnosis of the disease is crucial.

Objective: Therapeutic approach in genetically confirmed pediatric patients.

Method: In the Specialty Clinic No. 2, a genetic diagnosis was made in a subgroup of patients with DMD, and the respective mutations were analyzed.

Results: 64% of patients have mutations targeted by therapies that are currently in the third phase of clinical trials (Sarepta), while 36% are targeted by therapies licensed in the USA (Ataluren).

Conclusion: The clinical approach and genetic confirmation in children with DMD are key to success in therapeutic intervention.

Keywords: Duchenne Muscular Dystrophy, genetic analysis, ataluren, sarepta

COVID-19 and Cardiopathies, an Indivisible Binomial of the Pandemic

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Introduction: COVID-19, caused by the SARS-COV-2 virus, is now identified as a systemic pathology, which, although primarily affecting the lungs, has not spared any other major system of the body. One of these is the cardiovascular system, where the main mechanisms involved are: systemic inflammation, oxidative stress, coagulopathies, and direct action on the myocardium. Cardiac complications in patients with COVID-19 are associated with an increased risk of severe respiratory failure, the need for intensive care, and a reserved prognosis.

Objective: This paper focuses on the frequency and clinical aspects of cardiac complications in hospitalized patients with COVID-19, along with epidemiological data.

Material and Methods: We collected and documented the demographic and clinical characteristics of patients who presented cardiac manifestations from SARS-COV-2 infection during the period from January to December 2020.

Results: Epidemiological: Out of a total of 500 patients, 320 cases (64%) showed cardiac pathology. Of these, 214 (67%) were male and 106 (33%) were female. The average age of the patients was 68 years. The most frequent age groups were 55-65 and 66-75 years. The most common cardiopathies were: Arterial Hypertension 45%, Chronic Heart Failure 35%, Atrial Fibrillation 38%, Acute Coronary Disease 19%, Acute Myocarditis 27%, Acute Myocardial Infarction 26%. The most frequent symptoms were dyspnea 85%, chest pain 54%, asthenia 73%, arrhythmia 43%, edema of the extremities 56%, cyanosis 10%.

Conclusion: Cardiopathies are now recognized as an indivisible binomial with SARS COV-2 infection. Regular monitoring of cardiac function and early interventions in cardiac complications may help reduce the morbidity and mortality associated with COVID-19.

Keywords: SARS-CoV-2, cardiovascular system, cardiac complications, myocardium, arterial hypertension, chronic heart failure, acute myocardial infarction, dyspnea.

Alignment of Nursing Education in Albania with European Union Standards: A Challenge for Curriculum Standardization

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Introduction: After the publication of the Council of Ministers Decision No. 823, dated 28.12.2023, regarding changes to the Nursing curricula, important tasks are set before the university. These changes are expected to begin implementation in 2027. In order to meet the needs of a new generation of students who choose to pursue studies in nursing and midwifery, there is a need for all actors, decision-makers, and academics to develop a well-thought-out action plan. These changes will lead to improvements and simultaneously align the programs offered by higher education institutions in Albania with European Union programs.

Objective: The aim of this study is to analyze the current situation, assess the need for change, and evaluate the role of higher education institutions (HEIs).

Methodology: In this analytical study, we will attempt to lay the foundation upon which new curricula should be built. To achieve this goal, information will be used from HEIs, the Ministry of Education and Sports (MASH), European Union standards, as well as references from PubMed and other scientific sources.

Results: For students studying in the bachelor's program in Nursing, the approved government document shows a significant increase in the time they will need to spend on practice (50%). A significant programmatic difference was also found between the programs offered by HEIs and the recommended program.

Conclusion: Programmatic changes require curricular reform, support with contemporary literature, taking into account digital time and Artificial Intelligence.

Keywords: Nursing, standardized program, Council of Ministers Decision, European Union, Higher Education Institutions.

Bilateral Warthin Tumor of the Parotid Glands: Diagnosis and Surgical Management - A Rare Case Report

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Introduction: Warthin tumors are the second most common salivary gland tumors, after pleomorphic adenoma, and represent up to 10% of all parotid tumours. Nearly all Warthin tumors occur in the parotid gland or periparotid lymph nodes. Multifocality has been detected in 20.5% of tumors, with bilaterality in 6.5% of tumors. They typically occur in older age (6th decade) and are twice as common in men. There is a strong association with smoking. These tumors have a typically heterogeneous appearance on all modalities, often with cystic components (30%). They are benign with an extremely low incidence of malignant transformation (~1%). The preferred treatment is surgical excision, mostly superficial parotidectomy. The recurrence rate is low, less than 5%, and most likely due to multifocality.

Case report: We present the case of a 71-year old smoker male, who presented for consultation at the Unit of OMF Surgery, with the main complaint of bilateral masses of the parotid area. He referred that the right mass was present for 10 years and the left one had appeared 6 years ago. Computer assisted tomography demonstrated an enhancing, well circumscribed lesion, suggesting of bilateral Warthin tumors of te parotid glands. Fine needle aspiration cytology (FNAC) confirmed this diagnosis. Te patient was treated with surgical excision of both masses in two surgical stages. Both specimens were sent for hystopathological eamination, confirming the diagnosis of Warthin tumors.

Discussion: Warthin tumors of the parotid gland are the second most common salivary gland tumors, following pleomorphic adenoma. In very rare cases they present bilaterally. The surgical excision is the preferred treatment plan. This rare case report aims to enhance the clinical aspects of bilateral Warthin tumors, diagnostic tools and two staged surgical approach, reducing surgical complications.

Results: Although rare, bilateral Warthin tumors of the parotid glands pose a challenge for the surgical treatment, considering the relation of the parotid gland to the Facial nerve. Computer assisted tomography and FNAC are the preferred tool for the initial diagnosis, while hystopathological examination of the excised specimens are needed to confirm the final diagnosis. Two staged surgery is advisable in order to reduce possible surgical complications.

Keywords: Warthin tumors, salivary gland, parotid gland, multifocality, bilaterality, smoking, surgical excision, fine needle aspiration cytology (FNAC), hystopathological examination, facial nerve.

The Role of Vitamin D in Hashimoto's Thyroiditis

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Introduction: Hashimoto's Thyroiditis (HT) is characterized by the destruction of self-tissues due to a change in adaptive immune response, leading to the avoidance of immune regulation. Vitamin D plays an immunomodulatory role that seems to promote immune tolerance. There is substantial literature confirming that vitamin D levels are significantly lower in patients with HT compared to healthy individuals. After supplementation with vitamin D, the levels of thyroid autoantibodies notably decrease. Furthermore, selenium supplementation in these patients has shown a significant reduction in Anti-TPO antibodies in Hashimoto's Thyroiditis.

Objective: The objective of this study is to provide data on the correlation between vitamin D and HT, and the role of vitamin D supplementation in reducing the risk of HT by modulating the immune system.

Material and Methods: In this study, 100 women diagnosed with Hashimoto's Thyroiditis and undergoing selenium treatment were included. Each patient was tested for Anti-TPO antibody levels and vitamin D levels. 75 women had high levels of Anti-TPO antibodies and low levels of vitamin D. 10 of them had moderate levels of Anti-TPO antibodies and normal vitamin D levels, while 15 had normal levels of Anti-TPO antibodies and normal vitamin D levels. The first group (75 patients) was treated with selenium and vitamin D for 3 months. Results showed that after normalization of vitamin D levels, a noticeable decrease in Anti-TPO antibodies was observed.

Results: With the normalization of vitamin D, a clear reduction in Anti-TPO levels was observed. Vitamin D plays an immunomodulatory role in both the innate and adaptive immune systems, which seems to promote immune tolerance. This may contribute to slowing down the immunopathological process in HT. Despite the mechanisms underlying the link between vitamin D and HT remaining unclear, they are likely related to its anti-inflammatory and immunomodulatory properties.

Conclusion: There is substantial literature studying the complex relationship between vitamin D deficiency and autoimmune thyroid diseases. However, the data are not conclusive. There is still a gap in knowledge regarding the potential of vitamin D supplementation in the treatment of HT patients. It is necessary to clarify whether vitamin D supplementation is beneficial in reducing the replacement dose of levothyroxine or whether it could stop the need for levothyroxine replacement if used in the early stages of HT. Confirming the beneficial effects of vitamin D in the prevention and treatment of autoimmune thyroid diseases requires further randomized, double-blind, placebo-controlled trials with longer follow-up periods. However, some authors have suggested that, during the diagnosis of HT patients, vitamin D supplementation may be recommended as an adjunctive treatment. They even predict that, in

the future, vitamin D may become part of the treatment for autoimmune thyroid diseases, especially for individuals with vitamin D deficiency.

Keywords: Hashimoto's Thyroiditis, vitamin D, immunomodulatory, Anti-TPO antibodies, selenium, supplementation, immune tolerance, autoimmune thyroid diseases, levothyroxine, deficiency.

Asthma and Obesity in Children, the Link Between Them

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Objective: Asthma and obesity are currently the leading chronic diseases in children. Through this study, we will attempt to find a link between these two common pathologies in the pediatric age group. The question arises: is asthma the cause of obesity or vice versa? Are children with bronchial asthma more exposed to the risk of obesity due to reduced physical activity and prolonged use of inhaled corticosteroids (ICS), or are obese children more prone to developing bronchial asthma as they are more likely to suffer from gastroesophageal reflux disease (GERD) and have disproportionate development between lung parenchyma and airways?

Method: The study included children aged 3-16 years, who were divided into three groups based on the presence of these two pathologies separately or together. A total of 120 children participated in the study.
• Group 1 (35 children) with asthma and normal BMI, no overweight, no obesity
• Group 2 (46 children) with asthma and obesity
• Group 3 (39 children) with obesity but no asthma
A questionnaire was developed for these children and, more specifically, for their parents, to determine when asthma and obesity problems started, whether the children with asthma were receiving regular treatment, whether they experienced severe asthma exacerbations, whether they engaged in regular physical activity, whether they spent excessive time in front of screens, and whether they had any other known pathologies.

Results: It was observed that children diagnosed with asthma initially started to experience problems with overweight and obesity 1-1.5 years later. These children did not engage in physical activity, spent excessive time in front of screens, used ICS regularly, and also experienced severe asthma exacerbations. In some cases, they also had GERD. Children with asthma but normal BMI had milder asthma exacerbations, engaged in more physical activity, used ICS irregularly, but more frequently required SABA. Obese children without asthma were the group that did not engage in physical activity at all, spent long hours in front of screens, and were occasionally "silent wheezers," with GERD problems present in almost all cases.

Conclusion: Early onset asthma is often complicated by obesity, while late onset asthma has obesity as a risk factor. Therefore, children should be encouraged to engage in as much physical activity as possible in order to improve both asthma and obesity outcomes.

Keywords: ICS (Inhaled Corticosteroids), SABA (Short-Acting Beta Agonists), GERD (Gastroesophageal Reflux Disease), BMI (Body Mass Index).

Acute Tonsillitis as the Initial Presentation of Behçet's Disease: A Missed Diagnostic Challenge

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Introduction: Behçet's disease (BD) is a chronic, multisystemic vasculitis characterized by recurrent oral and genital ulcers, skin lesions, and systemic inflammation. Due to its diverse initial manifestations, BD is frequently misdiagnosed, leading to delayed diagnosis and treatment. While BD typically presents with mucocutaneous and ocular symptoms, oropharyngeal involvement such as acute tonsillitis is rare. Studies suggest a potential link between chronic tonsillitis, streptococcal infections, and BD pathogenesis.

Aim: This case report highlights an unusual presentation of BD as acute tonsillitis, emphasizing diagnostic challenges and the role of HLA-B51 testing in suspected cases.

Case Presentation: A 44-year-old male with no prior medical history presented with severe sore throat, high fever, bilateral tonsillar swelling, and oral aphthae. He was diagnosed with acute purulent tonsillitis, and Streptococcus Group A was isolated. Despite targeted antibiotic therapy, his symptoms persisted and recurred, along with oral ulcers, genital ulceration, and mild joint pain. We considered Behçet's Disease as a possible diagnosis and sought evaluations from specialists in otorhinolaryngology, rheumatology, dermatology, and ophthalmology. HIV was ruled out, HLA-B51 was positive. A biopsy of skin lesions and clinical findings confirmed BD based on the International Criteria for Behçet's Disease (ICBD). Ophthalmologic evaluation showed no uveitis. The patient was initiated on systemic corticosteroids, experienced notable improvement and was discharged home in stable condition.

Conclusion: BD should be considered in cases of recurrent tonsillitis with persistent oral ulcers. HLA-B51 testing aids in early diagnosis, and multidisciplinary evaluation is crucial for timely intervention. Increased awareness of atypical BD presentations may prevent misdiagnosis and improve patient outcomes.

Keywords: Behçet's disease (BD), acute tonsillitis, HLA-B51, misdiagnosis, oral ulcers, streptococcus.

Adenomatoid Tumor of the Uterus: A Diagnostic Challenge in Gynecological Pathology

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Background: Adenomatoid tumor of the uterus is a rare benign neoplasm of mesothelial origin, commonly found in the uterus, fallopian tubes, or ovaries. Due to its histological and immunohistochemical characteristics, it can be mistaken for other gynecological pathologies, such as leiomyomas or epithelial malignancies. Accurate diagnosis is essential to avoid unnecessary surgical interventions.

Case Presentation: We report the case of a 36-year-old female who presented with irregular menstruation and mild pelvic pain. No other significant symptoms, such as heavy bleeding or infertility, were reported.
Imaging assessment via ultrasound revealed a 2.5 cm nodular mass in the uterine wall, raising suspicion of a leiomyoma or another benign lesion. A uterine biopsy was performed to determine the nature of the mass.
Macroscopic findings:
• A nodular, elastic, beige-colored fragment measuring 2.5 cm in diameter.
• Cystic structures resembling glandular or vascular formations.
• Edematous stroma with no evidence of necrosis.
Histopathological and Immunohistochemical (IHC) Analysis:
Microscopic examination showed benign cellular proliferation within an edematous background, with no atypia, necrosis, or high proliferative activity.
The IHC profile was as follows:
• Positive for: CD10, PK, calretinin, ER, HMB45.
• Negative for: CK 5/6, S100, CD31, CD34, PAX8.
• Ki-67 < 3%, indicating low proliferative activity, characteristic of a benign lesion.
These findings confirmed the diagnosis of an adenomatoid tumor of the uterus, a benign mesothelial neoplasm. Since the patient exhibited no severe symptoms and the tumor had no malignant features, regular monitoring was recommended without surgical intervention.

Conclusion: Adenomatoid tumor of the uterus is a rare benign entity that can mimic other uterine pathologies, including leiomyomas and epithelial neoplasms. A precise diagnosis requires careful histopathological and immunohistochemical evaluation to differentiate this tumor from malignant formations. Given its benign nature and low proliferative activity, management is typically conservative unless significant symptoms arise. Recognizing this tumor is crucial to prevent unnecessary surgical procedures and ensure optimal patient care.

Keywords: Adenomatoid tumor, uterus, benign, histopathological, immunohistochemical.

Treatment of Shoulder Impingement Syndrome and Rotator Cuff Partial Tears with Platelet Rich Plasma Therapy

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Background: Shoulder impingement syndrome is one of the most frequent reasons of shoulder pain. In patients withsubacromial impingement (SAI), degenerative rotator cuff tears may occur spontaneously or even after a minor trauma leading to chronic pain and significant disability. Aiming to improve pain and shoulder function different treatments have been used, as: physiotherapy, steroid, hyaluronic acid, collagen injections, multimodal pain management therapy and different surgical procedures. Recent years, platelet rich plasma injections is gaining increasingly widespread interest in the treatment of shoulder pain after subacromial impingement with rotator cuff tears.

Purpose: The aim of this study is to evaluate the efficacy of platelet rich plasma therapy versus steroid injection therapy combined with hyaluronic acid in patients with subacromialimpingement and rotator cuff tear.

Materials and methods: 29 patients with (SAI) and partial rotator cuff tears treated with subacromial injections have been evaluated for a period of 3 months. Shoulder pain and function was evaluated with Reading Shoulder Questionere.

Results: 3 months' post injection there was significant pain and function improvement in the PRP group of patients. Patients with severe affected shoulder function showed minor improvement and were referred for shoulder surgery.

Conclusions: PRP injections are safe method of treatment showing with superior results compared with hyaluronic acid and steroid injections. Larger tears are more prone to need surgical treatment.

Keywords: Shoulder impingement, platelet rich plasma, rotator cuff tears, steroid injections, pain improvement.

The Role of the Water Quality Index in Assessing and Categorizing Drinking Water Quality

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Introduction: Water is a vital natural resource that holds both social and economic value for human beings. Without water, human existence would be threatened. The most important sources of drinking water in the world are surface and groundwater. Extensive social and economic development, human factors, climate, and hydrology can lead to the accumulation of pollutants in surface waters, which may result in a gradual change in the quality of the water source. Freshwater resources in Albania exist as natural springs, rivers, lakes, and underground aquifers. Drinking water supply primarily comes from natural springs and underground water sources. Albania has abundant water resources, but the lack of drinking water from taps is a critical problem. The average available freshwater quantity is around 8,700 cubic meters per person per year, one of the highest in Europe. Spring water is of good quality. However, there are numerous issues related to drinking water supply in the country. Albania faces problems with its distribution network, not with the production of water. The situation of the water supply infrastructure is critical. In recent years, the water supply service in Albania has made significant improvements; however, these improvements are progressing slowly. Concerns about water quality are often the most important component of drinking water, evaluated by physical, chemical, and bacteriological factors, as well as consumer satisfaction and acceptability. Drinking water quality must meet the criteria for physical-chemical pollutants and be entirely free of pathogens that could harm human health. The quality of water from various sources in the Kukës region has been evaluated using physical-chemical and microbiological parameters. Analytical results of the parameters have been assessed based on standard limits. The suitability of water sources for human consumption is not easy to understand. As a result, the most effective way to monitor water quality is through the Water Quality Index (WQI). Therefore, the objective of this study is to assess the quality of drinking water through quality parameters and the Water Quality Index.

Objective: The aim of this study is to evaluate the quality of drinking water through quality parameters and the Water Quality Index (WQI).

Materials and Methods: This study involves the evaluation of water quality in the Kukës region through the use of physical-chemical and microbiological parameters. The analytical results of these parameters are compared to standard limits to assess the water's suitability for human consumption. The Water Quality Index (WQI) is applied to effectively monitor and evaluate the water quality.

Conclusion: The quality of drinking water in Albania is primarily determined by physical, chemical, and microbiological factors. Although Albania has sufficient water resources, issues with the water distribution network and infrastructure hinder access to clean drinking water.

The use of the Water Quality Index (WQI) proves to be an effective method for assessing the quality of water, allowing for better monitoring and management of water resources to ensure safe drinking water for the population.

Keywords: Water resources, drinking water, surface water, groundwater, quality parameters, physical-chemical, microbiological, Water Quality Index, Albania, infrastructure.

Contemporary Indications for Radiotherapy of the Breast Cancer

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Background: Radiotherapy in pacient with breast cancer is an important treatment in cases after breast-conserving surgery and also in cases of post-mastectomy. This paper aims to compare and give important information about this treatment and about also parcial-breast irradiation as a new technique in selected cases and for regional nodal irradiation also.

Methods: We analyzed data and literature review from different paper about radiotherapy treatment and also analysed patients in our center during the last three years, with confirmed diagnosis on core biopsy. In 2022 were 815 patients in total with breast cancer in our center, from whom 495 are treated with RT, in 2023 807 new cases and 440 treated with RT, and in 2024 780 cases ,477 treated with adjuvant RT. We also analyse the fraction of the radiotherapy that was given to the patient.

Results: Most of patient presenting as LABC in our country, so RT remain an important tool for preventing LRR. Whole –breast irradiation remains standart of care after BCS.PBI can be used as an alternative in patiens at low overall risk. Boost should be used in patients with high risk features. Regional nodal irradiation and post-mastectomy radiotherapy improve survival in patients with node-positive disease.

Conclusions: Better adaptation to biological subtypes and treatment response. Analysis of predictive factors for benefit of radiotherapy.

Keywords: Radiotherapy, breast cancer, partial-breast irradiation, regional nodal irradiation, whole-breast irradiation, adjuvant RT, LABC, treatment response, survival, predictive factors.

Measurement Properties of the Mutuality Scale in Older Adults with Multiple Chronic Conditions and Their Caregivers

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Introduction: The relationship quality (Mutuality) between patients affected by multiple chronic conditions (MMCs) and their caregivers is essential for improving health outcomes of both members. Mutuality is measured in patient-caregiver dyads with different instruments. To our knowledge, the 15-item Mutuality Scale (MS) has never been validated in MCCs patients and their caregivers.

Aim: This study aims to investigates the psychometric properties (validity and internal consistency reliability) of MS on patient affected by MMCs and their caregiver.

Methods: A Multicenter cross-sectional design was used. Factorial validity was tested with confirmatory factory analysis. Internal consistency reliability was investigated with the model-based internal consistency reliability index. Pearson's correlation coefficient was used to test convergent validity between mutuality and other theoretical and empirical variables associated with it.

Results: A sample of 406 MCCs patients- caregiver dyads was enrolled. Patients had a mean age of 74.9 years, with 54% being female, and an average of 2.5 chronic conditions. Caregivers had a mean age of 48 years, of whom 67.5% were female, and 38% were the patients' children. The CFA testing the theoretical four-factors (love, shared pleasurable activities, shared values, and reciprocity) of mutuality demonstrated adequate fit to the data in both the patient and caregiver version of the scale. Reliability estimates were adequate for the whole scale. Correlations were observed between mutuality and self-care behaviors, and positive aspect of caregiving, supporting convergent validity.

Conclusions: The Mutuality Scale demonstrated satisfactory structural and convergent validity and reliability in MCCs patient-caregiver dyads.

Keywords: Multiple Chronic Condition, Mutuality Scale, dyad, relationship quality, psychometric properties, Validity, Reliability,

Enhancing Cybersecurity Resilience in Healthcare

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Background: Healthcare organizations encounter expanding cybersecurity challenges against patient care, data privacy and with service consistency. For identifying several effective strategies in order to improve cybersecurity resilience, it is important as healthcare systems steadily rely on interconnected digital technologies.

Methods: We conducted a comprehensive analysis of ten specific systematic reviews out of fifty papers as well as several qualitative studies focused on cybersecurity in healthcare settings within the framework of the Jean Monnet Modules. Studies were thoroughly screened in respect of healthcare context as well as implementation evidence, along with measurable outcomes. The data extraction thoroughly caught study design, the core themes of cybersecurity, methodology, and strategic recommendations.

Results: Our analysis identified four interconnected strategy areas important in cybersecurity resilience: (1) Human-Centric Measures—nine studies stressed wide-ranging training programs on and stakeholder alignment; (2) Technical Infrastructure—multiple studies highlighted network segmentation, authentication protocols, and advanced monitoring systems as critical safeguards against vulnerabilities within; (3) Organizational Policies—findings underscored the importance in risk assessments, regulatory compliance (HIPAA, GDPR), and executive leadership engagement; (4) Incident Response Framework—research supported a dynamic approach covering preparation, detection, coordinated response, recovery through strong backup systems, and post-incident evaluation.

Conclusion: In order to ensure effective cybersecurity in healthcare, this will require a joint method through merging human factors, technical security, organizational policies, and also reaction capability. Balancing security along with clinical workflows, legacy systems, in addition to resource constraints, represents such a deep challenge. This research provides a useful evidence-based framework in order to improve organizational resilience against new cyber threats.

Keywords: Healthcare, cybersecurity, cyber resilience.

Literature Review on Placenta Accreta Spectrum: Diagnosis, Management and Outcomes

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Introduction: Placenta accreta spectrum (PAS) is a severe obstetric condition characterized by abnormal placental invasion into the myometrium, leading to increased maternal morbidity and mortality. This condition poses significant challenges for obstetric management and requires a comprehensive understanding of its pathophysiology, risk factors, and treatment options.

Objective: The objective of this literature review is to explore the pathophysiology, risk factors, diagnostic modalities, and management strategies associated with PAS. It aims to provide a thorough understanding of this condition to aid in improving clinical outcomes for affected patients.

Materials and Methods: This review synthesizes current evidence from relevant studies and clinical guidelines to discuss the risk factors for PAS, including previous cesarean deliveries and placenta previa. It also highlights the diagnostic modalities such as ultrasound and MRI, which are crucial in early detection. Furthermore, the review examines the various management strategies for PAS, including the standard treatment of cesarean hysterectomy and the emerging interest in conservative and fertility-preserving approaches. The role of interventional radiology, hemostatic agents, and surgical innovations is also explored.

Conclusion: The management of PAS requires a multidisciplinary approach, with cesarean hysterectomy remaining the standard treatment. However, conservative and fertility-preserving techniques are increasingly explored. Advances in interventional radiology, hemostatic agents, and surgical innovations aim to improve maternal outcomes while reducing surgical complications. This review provides clinicians with current evidence to optimize care for PAS patients and manage the associated risks effectively.

Keywords: Placenta accreta spectrum, risk factors, diagnostic modalities, management strategies, cesarean hysterectomy.

COVID -19 and Ischemic Stroke correlation: A study of patients recovered with Stroke in Neurology Department SRD

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Background and Aims: COVID -19 disease results from infection by severe acute respiratory syndrome these patients infected with COVID-19 develop arterial thrombosis including Stroke. Multiple risk factors associated with COVID-19 could contribute to the increased severity and earlier onset of acute ischemic stroke including generalized hypercoagulability, dysregulated immune response leading to cytokine-release syndrome, damage to endothelial cells leading to increased inflammation and thrombosis, and hypoxemia related to cardiorespiratory failure. This outcome has included a rising incidence of stroke in younger patients or patients with no prior risk factors for stroke.

Method: In our study we have seen the number of patients with Stroke recovered in Department of Neurology in SRD in period 1 April 2021 – 1 April 2022. We had in total 722 cases with diagnosis Stroke and 43 of them were COVID-19 positive (5.9%), 23 were female 20 were male. From patients with COVID -19 positive 22 had severe Stroke 51% severe Stroke with large vessel occlusion and 9 of them did exitus letalis first days. Two patients of this group had no known risk factors and had mid-age 58.5 (men). Other patients with severe Stroke had mid age 73.6 years old and as risk factors hypertension 72.2%, atrial fibrillation 56%, diabetes Mellitus 38.7%, hyperlipidemia 62%, ischemic cardiopathy 35%, and prior Stroke 22.7%. This group of patients with severe Stroke had all pulmonary implication with respiratory insufitients and hypoxemia. Other patients with COVID positive 49% (21) had moderate and mild Stroke. 28.5 % (6) had no risk factors, other patients of this group had hypertension 57%, diabetes mellitus 27%, atrial fibrillation 35 %, hyperlipidemia 58%, ischemic cardiopathy 26%. Mid age on this group were 66.7 years old and had all good recovery.

Conclusion: In our study we have seen a closed correlation of stroke and COVID-19, even in patients without risk factor known before otherwise we must do other studies to see deeply this correlation.

Keywords: COVID-19, stroke, risk factors, severe stroke, hypoxemia.

Case Report: Retinopathy of Prematurity in Preterm Twins – A Comparative Analysis

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Introduction: Retinopathy of prematurity (ROP) is a vasoproliferative disorder affecting preterm infants. It is a leading cause of childhood blindness and demonstrates a variable clinical course, even among twins with nearly identical gestational backgrounds.

Case Presentation: This case report presents a pair of preterm twins diagnosed with ROP, highlighting differences in disease progression and response to treatment. Both infants had the same weight and required respiratory support. Their clinical courses differed, which was reflected in the severity of their ROP presentations. Twin male, born at 28 weeks' gestation with a birth weight of 1,100 grams, developed stage 3 ROP with plus disease, necessitating urgent treatment. Twin female exhibited only stage 2 ROP zone III, which regressed spontaneously.

Discussion: Despite shared genetic and environmental factors, disparities in ROP severity emphasize the role of individualized risk factors, including oxygen exposure and systemic health variations.

Coments and Conclusion: This report underscores the importance of early screening and tailored management strategies for preterm infants at risk of ROP. A multidisciplinary approach involving neonatologists, ophthalmologists, and NICU teams is essential to optimize screening protocols and treatment interventions, ensuring the best possible visual prognosis for at-risk infants.

Funding: This project is supported by "The National Agency for Scientific Research, Technology and Innovation (AKKSHI)"

Keywords: Case report, preterm twins, retinopathy of prematurity, neonatal ophthalmology vasoproliferative disorder

Neurogenesis, Synaptogenesis, and Microglia in Neurodevelopmental Disorders: Optimizing Neurobiological Mechanisms through Neuropharmacological Interventions

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Introduction: Healthy neurodevelopment depends on a complex balance between neurogenesis, synaptogenesis, and neuroplasticity, while microglia and neuroinflammatory mechanisms play a crucial role in regulating these processes. This study observed that neurodevelopmental disorders are often characterized by a dysfunction of these mechanisms, including a dysregulated activity of microglia, which affects neural network formation and information processing, resulting in cognitive, social, and communicative deficits.

Objective: This study also analyzes the effect of a specific neuropharmacological intervention designed to correct these deficits through the stimulation of neurogenesis and synaptogenesis, stabilization of microglia, and regulation of neurotransmitter balance, with the aim of improving neuroplasticity.

Materials and Methods: Using advanced neuroimaging techniques and neurocognitive assessments, significant improvements were observed in children with neurodevelopmental disorders who received this treatment, compared to those who did not receive such therapy.

Conclusions: The results suggest a marked increase in functional synaptic activity, improvement in neuroplasticity, and stabilization of microglia, offering a promising approach for the treatment of neurodevelopmental disorders. The study emphasizes the importance of personalized interventions targeting the restoration of disrupted biological mechanisms, opening new perspectives for the treatment of neurodevelopmental disorders, with significant and sustained improvements.

Keywords: Neurodevelopmental disorders, microglia, neuroplasticity, neurogenesis, synaptogenesis.

Vitamin D Levels in Newborns, Epidemiological Study

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Introduction: Vitamin D is a steroid hormone with an important role in bone metabolism, neuromuscular functions, pulmonary maturation in newborns, as well as in the immune response of individuals. Its correction is simple and provides the opportunity for effective intervention when needed.

Objective: The aim of this study is to assess the level of vitamin D in the population.

Methodology: This is a cohort study conducted from January 2023 to February 2025. Vitamin D was tested in newborns who underwent examinations for other reasons, unrelated to the study. The values of vitamin D were analyzed according to gender, mode of delivery, and gestational age. Cases with vitamin D deficiency were treated with 1000 IU/day of Vitamin D3 and reassessed after one month.

Results: The study included 314 newborns. The average vitamin D level was 17.7 ng/ml; of these, 190 (60.5%) were male and 124 (39.4%) were female, with vitamin D values of 17.68 ng/ml and 17.83 ng/ml, respectively. Of the total, 249 (79.3%) were delivered via cesarean section and 65 (20.7%) via vaginal delivery, with vitamin D values of 17.58 ng/ml and 18.39 ng/ml, respectively. Additionally, 75 (23.9%) were premature and 239 (76.1%) were full-term, with vitamin D levels of 16.9 ng/ml and 18 ng/ml, respectively. The average vitamin D level after reassessment one month post-treatment was 42.9 ng/ml.

Conclusions: This study highlighted the high number of newborns born with vitamin D deficiency. Vitamin D levels were found to be lower in premature infants. No association was found between vitamin D levels and gender or mode of delivery. Treatment with a high dose of vitamin D for one month corrects the vitamin D levels to optimal values.

Keywords: 25-hydroxy vitamin D, neonate

Health Education for New Mothers in the Prevention of the Deterioration of Hip Dysplasia (DDH)

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Introduction: Although significant progress has been made in the treatment of congenital hip dislocation (DDH), this congenital anomaly remains a major challenge for new mothers and healthcare personnel in terms of early diagnosis and treatment.

Objective: The goal of this study is the early diagnosis and treatment of DDH and its lifelong consequences. Early diagnosis and treatment of DDH. Education of new mothers and conducting child check-ups through diagnostic analysis in maternity hospitals, consultation rooms, and orthopedic departments. Early treatment of children with DDH using pillows as an effective and successful method in treating this congenital anomaly. Presentation of the treatment results and our modest experience in this field.

Materials and Methods: In this study, we examined the health data of 68 children with DDH from September 2021 to January 2024. Of these children, 38 or 56% had bilateral DDH, while 30 children or 44% had unilateral DDH. A total of 106 DDH articulations were treated. The male-to-female ratio in our study was 1:2. 16 children underwent the Ortolani test, 3-7 days after birth (4 preterm births, 2 premature, 9 with a family history, and 6 cesarean section births). 55 children, or 80%, had movement restrictions/decreases. 12 children, or 17.6%, presented with shortening of the lower limbs or asymmetrical skin folds.

Results: All children in our study were treated with a plastic pillow available on the market in three different dimensions: 1, 2, 3. 41 children, or 60.3%, were fully cured. 18 children, or 26.4%, are still under treatment. 9 children, or 13.2%, had treatment failure. These children underwent further treatment.

Conclusions: Early diagnosis and treatment are the key to success in treating DDH. The position in abduction with a pillow or splint creates ideal conditions for positioning the femoral head in the acetabulum, which is the treatment goal. Increasing the capacity of nursing staff in diagnosing and treating the anomaly. Educating new mothers not to bind their children, as this has a significant impact on DDH.

Keywords: DDH, diagnosis, treatment, children

Severe Acenocoumarol Toxicity from Unmonitored INR: A Case Report

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Introduction: Acenocoumarol, a vitamin K antagonist, remains a cornerstone in the prevention of thromboembolic events in patients with atrial fibrillation. However, its therapeutic efficacy is closely tied to strict INR monitoring. This clinical case illustrates a severe complication arising from the lack of INR surveillance.

Case presentation: A 68-year-old male presented to the emergency department with progressive dyspnea, fatigue, retrosternal discomfort, and extensive hematomas involving the trunk and extremities. His medical history included chronic atrial fibrillation, ischemic heart disease with stable angina, arterial hypertension, dilated cardiomyopathy, and chronic heart failure. He was under antihypertensive therapy and acenocoumarol for atrial fibrillation. Notably, the patient had not monitored his INR levels. Laboratory investigations revealed a markedly elevated INR of 18.06, normochromic anemia (hemoglobin 8.6 g/dL, erythrocytes 2.75 million/μL, hematocrit 24.6%), and leukocytosis. He was hospitalized in the Internal Medicine Unit of Mother Theresa University Hospital. Management included immediate cessation of acenocoumarol, supplementation with vitamin K, transfusion of red blood cells and fresh frozen plasma for reversal of anticoagulation, and comprehensive cardiovascular support.

Discussion: This case highlights the life-threatening consequences of unsupervised anticoagulant therapy. The absence of INR monitoring in a patient with complex comorbidities contributed to a critical hemorrhagic state.

Comments and conclusions: Upon stabilization and discharge, acenocoumarol was definitively replaced with Apixaban 5 mg twice daily, considering its more predictable pharmacokinetics and lower monitoring burden. This case reinforces the critical need for structured anticoagulation monitoring, individualized risk assessment, and patient education to mitigate adverse events in anticoagulated populations.

Keywords: Acenocoumarol, INR monitoring, atrial fibrillation, hemorrhagic complications, anticoagulation therapy.

Endodontic Surgery

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Introduction: Endodontic Surgery is a specialized branch of dentistry that deals with the diagnosis and treatment of lesions with an endodontic origin that do not respond to conventional therapy or cannot be treated through conventional methods.

Objective: The goal of performing endodontic surgery is to achieve three-dimensional cleaning of the canal system, shaping, and sealing by filling the canal system, which is not accessible through a cavity but through a surgical flap. For this reason, the term "Endodontic Surgery" is preferred.

Materials and Methods: This material aims to create a general overview for the execution of this dental procedure.

Conclusions: Endodontic surgery offers an effective approach to treat lesions that are unresponsive to conventional methods, focusing on thorough cleaning, shaping, and sealing of the canal system using a surgical flap.

Keywords: Endodontic surgery, canal system, dental procedure, surgical flap.

Listeria Monocytogenes Septicemia in a Neutropenic Patient: A Case Report

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Introduction: Listeria monocytogenes is a gram-positive facultative intracellular bacterium, commonly transmitted through the consumption of contaminated food. In immunocompetent individuals, it typically results in self-limiting gastroenteritis, whereas in immunocompromised patients, it can lead to more severe manifestations, including septicemia, meningitis, and encephalitis. Clinically, listeriosis may present with altered mental status, and seizures occur in approximately 25% of cases. Despite appropriate antimicrobial therapy, the mortality rate for listeriosis remains around 30%.

Case presentation: We report the case of a 60-year-old female with a 5-day history of high-grade fever (up to 40°C), headache, nausea, watery diarrhea, fatigue, and myalgia, who presented to the Infectious Diseases Emergency Department at UHC "Mother Teresa" in January 2024. The patient had a known history of diffuse infiltrative carcinoma of the gastric fundus and was undergoing chemotherapy. Laboratory investigations revealed severe leukopenia with a white blood cell (WBC) count of 1.0 K/µL. Despite the initiation of empirical antimicrobial therapy with ciprofloxacin and metronidazole, the treatment regimen was adjusted to target Listeria after blood cultures confirmed the presence of Listeria monocytogenes. On the fourth day of hospitalization, the patient developed 3-4 episodes of generalized tonic-clonic seizures, characterized by eye fixation and limb rigidity. Neurological evaluation, including a head computed tomography (CT) scan and lumbar puncture (LP), showed no abnormalities in cerebrospinal fluid (CSF) analysis. The patient was subsequently transferred to the intensive care unit (ICU) and intubated. However, despite aggressive treatment, her clinical condition continued to deteriorate, with a further decline in WBC count to 0.2 K/µL. Unfortunately, on the seventh day of hospitalization, the patient succumbed to the infection, resulting in Exitus Letalis.

Conclusion: Chemotherapy-induced intestinal paralysis, malnutrition, and myeloablation significantly increase the risk of bacterial translocation and sepsis, exacerbating the severity and worsening the prognosis of listeriosis. These factors must be carefully considered when selecting empirical anti-listerial antibiotic therapy for patients undergoing cytotoxic treatment. Although Listeria monocytogenes infections are rare, they represent a substantial threat to immunocompromised patients, often leading to severe and fatal outcomes, as demonstrated in this case.

Key Words: Listeria monocytogenes, immunocompromised, septicemia, chemotherapy, listeriosis.

Recurrent Abdominal CSF Pseudocysts as an Uncommon Long-Term Complication of Ventriculo-peritoneal Shunt in an HIV Patient: A Case Report and Literature Review

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Introduction: Abdominal cerebrospinal fluid (CSF) pseudocysts are a rare but significant complication of ventriculo-peritoneal (VP) shunts, first described by Harsh in 1954. With an incidence ranging from 0.7% to 4.5%, their etiology remains unclear, and their diagnosis and management are still debated. Larger pseudocysts are typically sterile, whereas smaller or multiloculated ones are more frequently infected. Imaging modalities such as computed tomography (CT) and ultrasound (US) aid in diagnosis. Immunosuppressed patients, including those with HIV, may be at increased risk.

Aim: We report a case of recurrent abdominal CSF pseudocysts in an HIV-positive patient requiring VP shunt revision and conversion to a ventriculo-atrial (VA) shunt. This case highlights the importance of recognizing and managing VP shunt complications in immunocompromised individuals.

Case Presentation: A 55-year-old HIV-positive male on antiretroviral therapy for 6 years underwent VP shunt placement in 2021 for hydrocephalus. In May 2024, the patient presented with difficulty walking, impaired fine motor skills, headaches, and abdominal pain. Abdominal ultrasound followed by CT imaging revealed a large abdominal pseudocyst on the right paraumbilical region. A shunt revision was performed, leading to neurological symptom resolution. 8 months later, in January 2025, the patient presented with abdominal distension, respiratory difficulties without cough, and generalized fatigue. Imaging confirmed the formation of a new large abdominal pseudocyst, this time extending into the left subdiaphragmatic space. CSF analysis was negative for infection. Given the recurrence, a multidisciplinary team recommended ventriculo-atrial (VA) shunt conversion. The patient was discharged in good condition.

Conclusion: This case highlights the importance of considering recurrent abdominal pseudocysts in patients with VP shunts, especially those with underlying immunosuppression. Alternative shunting techniques, such as VA shunting, should be considered in cases of persistent recurrence. Increased awareness of this rare complication can facilitate early diagnosis and effective management, ultimately improving patient outcomes.

Key Words: Ventriculo-peritoneal (VP) shunt, immunosuppression, recurrent pseudocyst, shunt revision, ventriculo-atrial (VA) shunt.

Prognostic Importance of Echocardiographic Parameters in Patients with Cardiogenic Shock as a Complication of Acute Myocardial Infarction

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Introduction: The most common etiology of cardiogenic shock is acute myocardial ischemia, caused by occlusion of the epicardial coronary artery, leading to acute myocardial infarction (AMI) and loss of ventricular function. Heart failure resulting from the infarction, acute and severe mitral regurgitation, and mechanical complications are precipitating causes of cardiogenic shock.

Objectives: The aim of this study is to compare echocardiographic parameters in patients who resulted in fatal outcomes (18) and those who survived (22), to assess the prognostic importance of echocardiographic parameters.

Methods: This is a prospective observational study conducted from March 26 to June 1, 2024, in the Coronary Unit, Cardiology Clinic, University Clinical Center of Kosovo (QKUK). Echocardiograms were performed during hospitalization and compared between the two groups to determine statistically significant differences.

Results: Significant differences between the groups were observed in the dimensions of the left atrium and right ventricle, which were higher in the fatal outcome group. The thickness of the posterior wall was statistically significantly higher in the second group. Ejection fraction was reduced, but no significant differences were found. The significant parameters were included in the multiple regression model, which showed an explanatory power of about 40% and near statistical significance, but did not reach the reference value (<0.05), p=0.059.

Conclusion: During the study period, 10.5% of patients with acute coronary syndrome (ACS) complicated with cardiogenic shock had a mortality rate of around 45%. Echocardiography appears to be one of the methods for identifying high-risk patients, with the left atrial diameter being the only independent predictor for fatal outcome.

Keywords: Cardiogenic shock, acute myocardial infarction (AMI), echocardiographic parameters, left atrial diameter, fatal outcome.

Clinical Determinants of Mortality in Patients with Cardiogenic Shock Following Acute Myocardial Infarction

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Introduction: The incidence of cardiogenic shock following acute myocardial infarction (AMI) ranges from 3-13% and is associated with a mortality rate of around 40% within the first 30 days and 50% within the first year. Clinically, cardiogenic shock is characterized by persistent hypotension that does not respond to volume replacement and centralization of blood circulation. These reflect clinical signs of hypoperfusion, elevated intracardiac pressures, and pulmonary edema.

Objectives: The aim of this study is to detect clinical features that play a significant role in the prognosis of patients with cardiogenic shock as a complication of AMI.

Methods: This is a prospective observational study conducted from March 26 to June 1, 2024, in the Coronary Unit, Cardiology Clinic, University Clinical Center of Kosovo (QKUK). Clinical parameters were compared between patients who survived and those who had a fatal outcome, with differences having a p-value < 0.05 considered statistically significant and relevant.

Results: Out of 382 patients admitted for acute coronary syndrome (ACS), 40 patients developed cardiogenic shock. Forty-five percent had a fatal outcome, while 55% survived. Regarding clinical parameters, systolic blood pressure ($p=0.03$), cold extremities ($p=0.0001$), and urine output within 24 hours ($p=0.0001$) showed significant differences between the groups. Cold extremities were found to be the only independent clinical predictor of fatal outcome.

Conclusion: Our study contributes to understanding the predictors of mortality and emphasizes the importance of early identification and rapid intervention. Further studies are needed to refine predictive models and optimize management strategies.

Keywords: Cardiogenic shock, acute myocardial infarction (AMI), clinical parameters, cold extremities, fatal outcome.

Hyperbaric Oxygen in the Treatment of Sudden Hearing Loss and Avascular Necrosis of the Femur

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Introduction: Sudden Sensorineural Hearing Loss (SSNHL) is defined as a hearing loss of ≥30 dB in three consecutive audiometric frequencies lasting ≥3 days. The causes include infectious, vascular, metabolic, and neoplastic factors, although most cases are idiopathic. Hyperbaric Oxygen Therapy (HBOT) has shown promising results in hearing recovery. Avascular Necrosis (AVN) is the death of bone tissue due to insufficient blood supply, primarily affecting the femoral head. HBOT may promote bone remodeling and improve oxygen supply.

Objectives: To examine the efficacy of HBOT in the treatment of SSNHL and AVN by analyzing the impact of hyperbaric oxygen on hearing recovery and bone tissue repair.

Methods: This study compiles evidence from meta-analyses and controlled studies on the use of HBOT in SSNHL and AVN. The effects of hyperbaric oxygen are evaluated through its mechanisms in reducing inflammation and stimulating angiogenesis.

Results: HBOT increases the oxygen pressure in blood and tissues, improves oxygen distribution to the inner ear structures, reduces inflammation, and aids in neuroprotection. In AVN, HBOT enhances oxygen supply, reduces edema, and stimulates osteogenesis for bone repair.

Conclusion: HBOT is a safe and effective therapy for SSNHL and AVN, reducing inflammation and improving tissue function. Further studies are needed to determine optimal treatment protocols.

Keywords: Sudden Sensorineural Hearing Loss (SSNHL), Hyperbaric Oxygen Therapy (HBOT), Avascular Necrosis (AVN), hearing recovery.

Diagnostic Challenges of Acute Leukemias with Atypical Clinical Presentation in Pediatrics: The Role of Immunophenotyping

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Introduction: Acute leukemias are the most common malignant neoplasms in pediatric patients and represent a hematologic emergency. Early diagnosis is essential for long term survival, but atypical clinical manifestations can significantly delay diagnosis.

Objectives: This study aims to highlight the diagnostic challenges of pediatric acute leukemias with atypical clinical presentation and to assess the role of immunophenotyping in early confirmation of diagnosis.

Methods: A retrospective analysis was conducted on several clinical cases treated at the Pediatric Hemato-Oncology Service at UHC "Mother Teresa" during the past year. Selected patients presented with non-specific symptoms such as bone pain, difficulty walking, or acute renal failure, without initial hematologic abnormalities. Diagnosis was confirmed by immunophenotyping of peripheral blood and bone marrow aspirate.

Results: All analyzed patients were diagnosed with Acute Lymphoblastic Leukemia (ALL) through immunophenotyping, despite initial laboratory results not suggesting malignant hematopathy. Rapid clinical improvement was observed following the initiation of appropriate treatment.

Conclusion: Atypical presentations of acute leukemias pose a significant challenge for early diagnosis. Immunophenotyping plays a key role in confirming the diagnosis and should be considered early in all cases with unexplained clinical suspicion, even in the absence of typical laboratory changes.

Keywords: Children, Leukemia, Immunophenotyping

The Importance of Interventional Radiology in the Diagnosis of Tumoral Pathologies in Children

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Objective: The importance of interventional radiology in the diagnosis and treatment of tumoral pathologies in children and the potential challenges in the future.

Introduction: Interventional radiology (IR) is an advanced field that uses imaging techniques to diagnose and treat tumoral pathologies in children. As such, it has contributed to achieving accurate diagnoses and treating tumoral lesions without the need for invasive surgeries.

Case presentation: Through CT-guided FNA, an accurate diagnosis of Langerhans cell histiocytosis, a rare tumoral pathology, was made in a 5.5 yr old patient who presented with an osteolytic lesion in the5-th lumbar vertebra, causing severe pain and inability to walk.

Discussion: IR has brought noticeable benefits to pediatric patients, enabling accurate and rapid diagnosis, minimally invasive approaches, reduced need for invasive surgeries, shorter recovery times. The procedures are safe, with minimal risk of complications. However, limitations include lack of advanced equipment and trained specialists, as well as the need for careful management of radiation exposure in children.

Conclusion: IR is an important tool for the diagnosis and treatment of tumoral pathologies in children. However, limitations in infrastructure, specialist training, and the risk of radiation exposure remail significant challenges.

Keywords: radiology, diagnosis, tumoral pathologies

Side Effects of SGLT2 Inhibitors: An In-Depth Review and Summary of Experiences with Patients at American Hospital.

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Introduction: Sodium/glucose co-transporter 2 (SGLT2) inhibitors are a class of medications used in the management of type 2 diabetes and heart failure due to their positive effects on glucose control, cardiovascular outcomes, and renal function. However, as with all medications, SGLT2 inhibitors are associated with a range of side effects that may impact patient safety and treatment adherence. This presentation aims to provide an in-depth overview of the most common and serious side effects associated with SGLT2 inhibitors, including urinary tract infections (UTIs), genital mycotic infections, dehydration, ketoacidosis and critical ischemia of the lower extremities in patients treated during a five-year period at American Hospital 3.

Method: We studied 110 patients with type 2 diabetes treated with Canagliflozin from 2018 to 2023, followed for an average period of 12 months. The patients were monitored through laboratory analyses and clinically for the risk of side effects during treatment, particularly urinary infections, vaginal mycotic infections, euglycemic ketoacidosis, and critical ischemia of the lower extremities. Patients were monitored every 3-6 months and instructed to seek medical attention promptly in case of any side effects symptoms.

Results: SGLT2 inhibitors are a class of medications that reduce HbA1c by 0.5-0.8%. During a one-year treatment period with SGLT2 inhibitors, we observed that out of 110 patients, only 2 developed euglycemic ketoacidosis (1.8%), 1 case of acute ischemia of the foot (0.9%), 15 patients had urinary infections (14%), and 8 patients had vaginal mycotic infections (7%).

Keywords: SGLT2 inhibitors, diabetes, medications

Clonidine for Diabetic Gastroparesis: A Novel Approach in Managing High Risk Patients

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Introduction: Gastroparesis is a significant gastrointestinal disorder affecting individuals with chronic diabetes mellitus (DM). Its prevalence is estimated at 5.2% in type 1 DM and 1% in type 2 DM over a decade, notably higher than the 0.2% observed in the general population.

Case Presentation: A 65-year-old male with a 20-year history of type 2 diabetes mellitus (DM), complicated by diabetic nephropathy (chronic kidney disease [CKD] stage 3; baseline creatinine 1.7 mg/dL), retinopathy, and neuropathy, underwent surgical repair of a left bimalleolar ankle fracture. He had a prior hospitalization for severe vomiting leading to transient acute kidney injury (AKI) that resolved without dialysis. Postoperatively, the patient experienced persistent severe vomiting, which interfered with his antihypertensive regimen, resulting in hypertensive urgency (blood pressure: 210/120 mmHg) and AKI superimposed on CKD. His creatinine level increased to 5 mg/dL, central venous pressure (CVP) was 14 mmHg, accompanied by oliguria, edema, dyspnea, and hypoxemia. Continuous veno-venous hemodialysis (CVVHD) was initiated, removing 6 liters over 48 hours, which improved diuresis and fluid status. However, nausea persisted despite partial renal recovery (creatinine 4 mg/dL). The ineffectiveness of metoclopramide and ondansetron prompted further evaluation, leading to a diagnosis of diabetic gastroparesis. Clonidine (100 mcg twice daily) was initiated, resulting in resolution of nausea within two days, resumption of oral intake, increased diuresis to 5 liters daily, and a decrease in creatinine to 2 mg/dL. The patient was discharged in stable condition with clonidine incorporated into his long-term therapy. At a two-month follow-up, he remained symptom-free with stable blood pressure and renal function.

Discussion: Gastroparesis in individuals with long-standing diabetes leads to delayed gastric emptying and symptoms such as nausea and vomiting, though these are not always directly related to motility abnormalities. Clonidine, an alpha-2 adrenergic agonist traditionally used for diabetic diarrhea, appears to alleviate nausea through autonomic modulation, suggesting its potential as a treatment option in refractory diabetic gastroparesis and highlighting the need for further research.

Keywords: nausea, diabetes, gastroparesis, acute renal failure.

Evaluating the Potential for Implementing a Deceased-Donor Kidney Transplant Program: A Prospective Study of ICU Patients in Albania

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Introduction: Albania currently lacks a deceased-donor kidney transplantation program, resulting in limited transplantation options and prolonged dialysis dependence. Understanding the prevalence of deceased ICU patients who could be as potential kidney donors, as well as identifying risk factors leading to acute kidney injury (AKI) in critically ill trauma patients, is crucial to advocating for and establishing such a program. This study aims to evaluate the potential donor pool from deceased ICU patients and highlight modifiable risk factors for AKI.

Methods: A prospective observational study was conducted over 10 months, enrolling 150 adult patients admitted to the ICU at the University Hospital of Trauma in Tirana. AKI was diagnosed and staged according to KidneyDisease: Improving Global Outcomes (KDIGO) criteria. Inclusion criteria were age ≥18 years and baseline glomerular filtration rate (GFR) >90 mL/min, excluding pre-existing chronic kidney disease. Patients with direct renal trauma were excluded. Data collected included demographic characteristics, clinical parameters, therapeutic interventions, antibiotic use, nephrotoxic drug exposure, types of surgical interventions, trauma classification, hemodynamic management strategies, and cumulative fluid balance. Statistical analyses utilized descriptive statistics, comparative analyses, correlation tests, and multivariate logistic regression to identify AKI risk factors, with statistical significance set at $p < 0.05$.

Results: Of the 150 trauma patients admitted to the ICU, 102 (68%) died. Among the deceased patients, 36 (35.3%) exhibited normal renal function at death, representing potential deceased kidney donors. Notably, among 42 patients (41.2%) who died within the first three days of admission, 28 (66.7%) maintained normal kidney function, highlighting a significant pool of potential donors lost in the absence of a transplantation program. Multivariate analysis identified advanced age (p=0.01), use of nephrotoxic antibiotics (Amikacin, p=0.02; Vancomycin, p=0.03), exposure to contrast-enhanced imaging (p=0.04), prolonged mechanical ventilation, and extended ICU duration (p=0.001), sustained inotrope dependency (p=0.01), hypotension with mean arterial pressure (MAP) <65 mmHg (p=0.005), higher cumulative positive fluid balance (p=0.001), elevated creatine kinase (CK), and elevated lactate levels at admission as independent risk factors for AKI development. Patients with AKI also demonstrated significantly higher lactate (>2.2 mmol/L) and lower bicarbonate (<22 mmol/L) levels compared to non-AKI patients (p<0.05). Severely injured patients with high Injury Severity Scores (ISS, p<0.001) or low Glasgow Coma Scale (GCS) scores frequently died within three days' post-admission, thus lacking adequate time for AKI development.

Discussion: This study identifies critical modifiable risk factors for AKI prevention, including judicious antibiotic selection, avoidance of nephrotoxic agents, optimal management of MAP

above 65 mmHg, and strategies to mitigate positive fluid overload. Extended ICU stays were significantly correlated with increased AKI risk due to prolonged exposure to nephrotoxic insults. Conversely, critically injured patients often surrendered before AKI could develop, suggesting the need for differentiated renal protection strategies based on injury severity. The significant proportion of deceased patients with normal renal function emphasizes the urgent need for a structured deceased-donor kidney transplantation program in Albania.

Conclusion: A significant percentage of deceased ICU patients maintain normal renal function at the time of death, underscoring the feasibility and critical necessity of developing a deceased-donor kidney transplantation program in Albania. Implementing targeted strategies addressing identified modifiable risk factors could substantially decrease AKI incidence, thereby preserving renal function and maximizing the potential deceased donor pool.

Keywords: Acute kidney injury, deceased donor kidney transplantation, intensive care unit.

Use of Steroids after Discontinuation of Anti-TNFα Therapy in Patients with Inflammatory Bowel Disease

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Introduction: Anti-TNFα (anti-tumor necrosis factor alpha) therapy has improved the treatment of patients with Inflammatory Bowel Disease (IBD); discontinuation of therapy is associated with an increased risk of relapse, leading to the reintroduction of corticosteroid treatment.

Aim: The study aims to evaluate the rate of corticosteroid use after discontinuation of anti TNFαdrugs.

Material and Methods: Prospective study conducted at the Gastrohepatology Service, Mother Teresa University Hospital Center, during 2019-2022. Included were patients diagnosed with Crohn's Disease (CD) or Ulcerative Colitis (UC) who had discontinued treatment with anti-TNFα [Infliximab (IFX) or Adalimumab (ADA)]. Disease course was evaluated clinically, endoscopically, and through laboratory tests.

Results: 52 patients (46 UC, 6 CD), 25 (48%) male. The mean age was 50.8±14.7 years. 47.4% were treated with ADA, 51.5% with IFX. Reasons for therapy discontinuation: termination of reimbursement (92.4%), side effects (3.8%), and patient decision (3.8%). The cumulative percentage of steroid use among all patients at 6 months, 1, 2, and 3 years was respectively: 23.5%, 40.1%, and 61%. The mean steroid-free time was 9.9 months for all patients, 12 months for patients on ADA, and 8.5 months for patients on IFX, without a significant difference between them, p=0.246.

Conclusion: 61% of IBD patients used steroids within 3 years after discontinuation of anti-TNFα therapy. The mean steroid-free time was 9.9 months. This study highlights the necessity of biological treatment to avoid returning to steroid use with the associated complications.

Keywords: IBD patients, steroids, anti-TNFα therapy

Exploring Patterns of Molecular Sensitization in Patients with Seasonal Allergic Rhinitis

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Introduction: Component-based diagnosis is a diagnostic technique that has significantly improved the accuracy of identifying the allergens responsible for the primary sensitization of patients. Various studies have demonstrated important links between components and clinical phenotypes of respiratory allergies as well as their severity.

Objectives: To analyze the molecular sensitization profile and its association with the phenotype and severity of seasonal respiratory allergies.

Methods: In this cross-sectional study, consecutive patients with a clinical history of seasonal allergic rhinitis (AR) (with or without asthma) documented by a positive skin prick test to at least one aeroallergen were included. The Allergy Explorer 2 (ALEX2) molecular test was used to identify molecular sensitization patterns.

Results: Data from 42 patients with a mean age of 15.97 ± 11.387 years, of whom 61.9% were male, were collected and analyzed. Isolated allergic rhinitis was observed in 61.9% of cases, while 38.1% of patients suffered from AR and asthma. Oral Allergy Syndrome (OAS) was observed in 31% of cases, followed by atopic dermatitis and food allergy in 16.7% and 14.3% of cases, respectively. The majority of patients (85.7%) were polysensitized on skin prick tests, with grass pollen being the most frequent allergen (80.5%), followed by tree pollen (76.2%) and weed pollen (45.2%). The most frequent allergenic components identified by ALEX2 were: Phl p 1 (71.4%), Lol p 1 (69%), Cyn d 1 (52.4%), Bet v 1 (50%), Cor a 1 (38%), Fag s 1 (33.3%), Ole e 1 (19%), and Der p 23 (21.4%). Sensitization to PR-10 proteins was the most commonly encountered (35.7% of cases).

Conclusion: Grass pollen and tree pollen are the most frequent sensitizers among children and adults with seasonal AR. Phl p 1, Lol p 1, Cyn d 1, Bet v 1, Cor a 1, and Fag s 1 are the components with the highest prevalence.

Keywords: grass pollen, tree pollen, allergic rhinitis

Arthrogryposis Multiplex Congenita – Case Report

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Introduction: Arthrogryposis multiplex congenita is a rare congenital disorder in newborns characterized by multiple, non-progressive joint contractures. The disease occurs in both genders. The incidence is about 1:3000 to 1:10,000 live births. The causes are unknown. The large joints of both extremities are most commonly affected. We present a newborn, female, born at term by cesarean section with arthrogryposis multiplex congenita.

Maternal history: The fourth child from the fourth pregnancy, followed regularly by a gynecologist, denies infections during pregnancy; mother aged 37 years, 40-weeks gestation, breech presentation, rupture of amniotic membranes 12 hours before delivery. Hb-90, Hct-30, Le-11.3.

Results: After birth, the newborn exhibited respiratory distress, was intubated, and placed on mechanical ventilation. Fluids were administered according to protocol, along with empirical therapy. At birth, dysmorphic syndrome and micrognathia were present. Pes calcaneovalgus left side grade IV, knee dislocation right side. Orthopedic consultation was carried out, and limb immobilization was performed. Mechanical ventilation lasted for 8 days, after which the newborn was transitioned to CPAP. Metabolic screening was performed and was negative. Abdominal ultrasound showed grade II right renal stasis. Cardiac echocardiography and head and neck MRI revealed no abnormalities. Feeding was provided through a nasogastric tube.

Conclusion: After one month in the Clinic, the patient was discharged home in an improved condition, with recommendations for further consultations and follow-ups with orthopedic surgeons, physiatrists, and pediatric neurologists.

Keywords: arthrogryposis, multiple contractures, congenital defect

Myelofibrosis in Geriatric Patients: Considerations on Multidimensional Treatment and Possible Side Effects of Therapy

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Introduction: In recent years, we have witnessed numerous developments in the therapy of myelofibrosis, including clinical studies and the approval of new medications. These advances have had a significant impact on improving quality of life, minimizing symptoms, and managing complications such as anemia and splenic sequestration, which are characteristic of this disease.

Methods and results: Considering the average age at onset of myelofibrosis and the progressive aging of the global population, in the coming years there will be a need to adapt therapeutic strategies for geriatric patients. In this context, the treatment of these patients should include a comprehensive geriatric assessment, taking into account factors such as frailty, drug interactions, nutrition, psychological aspects (e.g., depression and anxiety), cognitive deficits, and socioeconomic factors.

Conclusion: This literature review aims to summarize data on these issues and offer a comprehensive approach to the management of myelofibrosis in elderly patients.

Keywords: myelofibrosis, geriartric patients, treatment

Fatal Macrophage Activation Syndrome Triggered in a Child with Influenza A

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Introduction: Macrophage activation syndrome is a rare and life-threatening disorder, leading to dysregulated immune activation with nonspecific constitutional symptoms, laboratory abnormalities, multiorgan involvement, and very high mortality. Early recognition of the diagnosis is crucial for prompt treatment initiation. We report the case of a child with severe influenza A, which triggered fatal macrophage activation syndrome.

Case Presentation: We present the case of a 6-month-old child who was admitted to the hospital with loss of consciousness, fever up to 39°C, and vomiting for 24 hours. Family members had flu-like symptoms a week earlier, and the nasopharyngeal swab of the child tested positive for influenza A. During hospitalization, the child's condition acutely worsened, rapidly progressing to multiorgan failure. Laboratory tests confirmed macrophage activation syndrome triggered by influenza A.

Conclusion: In cases of influenza, if the patient's clinical and laboratory condition deteriorates, an early suspicion of macrophage activation syndrome is necessary to initiate treatment as soon as possible.

Keywords: influenza A, Macrophage activation syndrome, treatment

Prevalence of Autoimmune Thyroid Diseases in Patients with Type 1 Diabetes in the Albanian Population

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Objective: This study aims to assess the prevalence of autoimmune diseases, particularly thyroid diseases, and the associations between these conditions and other clinical and demographic factors in patients with type 1 diabetes in Albania.

Methodology: This is a cross-sectional and retrospective study conducted through a self-reported questionnaire distributed to 104 patients with type 1 diabetes registered with the Children and Youth with Diabetes Association in Albania and other contacts. The collected data included demographic characteristics, the presence of autoimmune diseases, insulin and levothyroxine doses, as well as microvascular complications. Statistical analyses were performed using SPSS software, including t-tests, Pearson correlation analyses, and linear regression.

Results: The prevalence of autoimmune thyroid diseases in this population was 39.8% (n = 37), with the majority of cases diagnosed with Hashimoto's thyroiditis (89.2% of those with autoimmune thyroid diseases), with a higher prevalence in females (43.9%). The prevalence of celiac disease was 12.5% (n = 13), vitiligo 6.7% (n = 7), and Addison's disease 1.9% (n = 2). Linear regression analysis showed a positive and statistically significant correlation between the age at diabetes diagnosis and the age at autoimmune thyroid disease diagnosis ($R = 0.479$, $p = 0.003$). No statistically significant relationship was found between insulin dose and the presence of autoimmune thyroid diseases ($p = 0.539$). Additionally, the presence of autoimmune thyroid diseases did not significantly impact the development of microvascular complications such as retinopathy ($p = 0.914$), neuropathy ($p = 0.214$), and nephropathy ($p = 0.172$). A slightly significant correlation was found between insulin dose and levothyroxine dose. Results indicate a moderate positive correlation between the two variables ($r = 0.366$, $p = 0.051$), suggesting a potential link between the administered doses for these patients.

Conclusions: The study indicates a high prevalence of autoimmune diseases in patients with type 1 diabetes in Albania, underscoring the need for regular monitoring and personalized treatment. These findings support the importance of assessing autoimmune diseases in patients with type 1 diabetes, especially in the early stages of diagnosis.

Keywords: Type 1 diabetes, autoimmune thyroid diseases, Hashimoto's thyroiditis, celiac disease, vitiligo, prevalence, autoimmune, statistical analysis.

Discoid Lupus and Its Complications (Case Report)

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Introduction: Discoid lupus erythematosus is a skin disease characterized by various skin lesions. It is a variant of systemic lupus erythematosus and appears mainly on the face and in sun-exposed areas. Discoid lupus erythematosus usually presents with lesions on the skin of the neck, cheeks, scalp, bridge of the nose, ears, and arms.

Case Report: In the Pediatric Dermatology Clinic, the patient J.T. presented, diagnosed with Discoid Lupus and treated with oral corticosteroids and Plaquenil. On the middle of the left arm, the patient had a sign of panniculitis that had appeared one month earlier. The patient presented urgently with cellulitis, erythema of the left arm, edema, local fever, severe pain, and a body temperature of 40°C. Laboratory tests showed leukocytosis, elevated CRP, and elevated CK. Although immediate treatment was started with Vancomycin, Amikacin, and Flagyl, after two days an abscess formed, which was drained surgically under general anesthesia. After rigorous treatment by both the dermatologist and pediatric surgeon, the patient's condition improved.

Conclusion: Although Discoid Lupus is not a systemic disease, it can cause panniculitis, which can serve as an entry point for infections that may progress into life-threatening conditions.

Keywords: Discoid Lupus, Panniculitis, Surgery

Direct Diaphragmatic Rupture Due to a Ruptured Pancreatic Pseudocyst in a Patient with Decompensated Alcoholic Cirrhosis

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Background: Patients with decompensated alcoholic cirrhosis have multiple complications, including coagulopathy and an increased risk of spontaneous bleeding. Chronic pancreatitis, frequently associated with alcoholism, can lead to the formation of pancreatic pseudocysts, which may rupture into surrounding structures, causing severe complications. The most common sites of pseudocyst rupture include the peritoneal cavity, gastrointestinal tract, and less frequently, the pleural cavity. This case presents an unusual route of rupture, where a pancreatic pseudocyst eroded through the diaphragm, establishing a direct pleuroperitoneal communication.

Case Presentation: A male patient with decompensated alcoholic cirrhosis was once again admitted following a bicycle accident, during which he sustained a splenic hematoma, due to coagulopathy secondary to cirrhosis. After the corresponding findings the patient underwent splenectomy. Imaging also revealed chronic pancreatitis with a pseudocyst located in the head of the pancreas. One year later, he was readmitted with significant ascites, hemodynamic instability, and respiratory distress. A contrast-enhanced CT scan confirmed previous splenectomy but did not reveal the previously noted pancreatic pseudocyst. Diagnostic thoracentesis showed pleural fluid with biochemical characteristics resembling ascitic fluid, including elevated amylase and lipase, suggesting pancreatic origin. The findings were consistent with a ruptured pancreatic pseudocyst, which had eroded the diaphragm and established a pleuroperitoneal fistula.

Pathophysiology and Alternative Routes of Fluid Dissemination: Under normal circumstances, when a pancreatic pseudocyst ruptures, the released fluid can follow several routes like intraperitoneal rupture, gastrointestinal tract drainage, retroperitoneal extension or pleural cavity involvement (transdiaphragmatic or mediastinal). In this case, however, the rupture occurred directly through the diaphragm, likely facilitated by prolonged enzymatic activity of amylase and lipase within the pseudocyst, which led to progressive diaphragmatic weakening and eventual perforation. This resulted in direct pleuroperitoneal communication, explaining the presence of pancreatic enzyme-rich fluid in the pleural cavity.

Conclusion: This case highlights an unusual and severe complication of pancreatic pseudocyst rupture in a cirrhotic patient, leading to diaphragmatic perforation and pleuroperitoneal fistula formation. The presence of high-amylase pleural effusion in a patient with a history of chronic pancreatitis and cirrhosis should raise suspicion for such a mechanism. Early recognition and intervention are crucial in preventing respiratory failure and other complications. Future studies should focus on identifying predisposing factors for diaphragmatic rupture in the context of pancreatic pseudocysts and evaluating optimal management strategies.

Keywords: pancreatic pseudocysts, direct pleuroperitoneal

Pregnancy and Severe Left Ventricle Outflow Tract Obstruction in Hypertrophic Cardiomyopathy: A Case Report and Review

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Introduction: HCM is a frequent genetically determined heart muscle disease characterized by LVH that is not solely explained by abnormal loading conditions.

Case Report: A 28-year-old pregnant woman, primipara, 37-weeks gestation, presents to our clinic for preoperative examinations. The patient complains of shortness of breath on maximal effort and palpitations. The ECG shows sinus tachycardia with a heart rate of 110/min and signs of volumetric overload of the left ventricle. In these conditions, an echocardiogram is performed, where the patient is diagnosed with hypertrophic cardiomyopathy, with a thickness of the septum and posterior wall measuring 19/18 mm, and a gradient in the LVOT reaching up to 88 mmHg during contraction. Beta-blocker therapy is recommended according to ESC guidelines, and delivery by cesarean section is advised to avoid potential complications. During pregnancy, plasma volume and cardiac output increase. The increase in cardiac output in the first and second trimesters is achieved by a larger stroke volume, while later in pregnancy there is an increase in heart rate. The additional volume load of pregnancy causes enlargement of the ventricular cavity, which theoretically might reduce the LVOT obstruction; however, the increased cardiac output tends to counteract this effect and the LVOT gradient will increase with advancing gestation. After delivery, which proceeded without complications, the patient is reassessed for the LVOT gradient, and continuous 24-hour Holter rhythm monitoring is recommended.

Conclusion: HCM is usually well tolerated in pregnancy but those with prior symptoms or arrhythmias tend to have a worsening of symptoms during pregnancy. The majority of these patients, however, can be managed medically with good effect. A small subset of women with severe LVOT obstruction are at increased risk but with expert management by a specialist multidisciplinary team, a good outcome can be expected for the most.

Keywords: pregnancy, arrhythmia, LVOT

An Atypical Presentation of a Patient with Neuroendocrine Tumor

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Introduction: Neuroendocrine tumors (NET) are a group of tumors that develop from neuroendocrine cells, and often some of them are discovered incidentally as metastatic lesions and not as primary tumors. Neuroendocrine tumors of unknown origin are not so rare in clinical practice and may be found in 12–22% of patients with NET. Early identification of them is important for better management toward different therapeutic alternatives.

Clinical Case: A 74-year-old female patient was hospitalized in the Internal Medicine service due to shortness of breath during small efforts, chest and abdominal pain, and lower limb edema. She underwent a series of examinations, which revealed secondary hepatic lesions without any primary focus, and gallstones. CT-guided biopsy and immunohistochemical staining of the hepatic lesions concluded for a poorly differentiated small cell carcinoma, with positive staining for PanCK+, Chromogranin+, Ki67 70%, CD56+, thus a neuroendocrine tumor with hepatic metastases. Since all performed examinations could not identify the primary origin of the tumor, treatment with chemotherapy was recommended. Considering the extent of disease spread, the patient chose palliative care.

Discussion: The location of the primary tumor is important for determining the prognosis of the neoplasia. In cases of well-differentiated neuroendocrine tumors, more detailed diagnostic examinations are carried out to find the primary tumor, in order to enable surgical intervention or start systemic treatment, depending on the location. In cases of poorly differentiated neoplasms, detailed diagnostic examinations to identify the primary tumor do not impact the prognosis of the disease.

Comments and Conclusions: The diagnosis, treatment, and management of neuroendocrine tumors are a challenge for the physician, and not only. It is extremely important to recognize them in order to achieve early diagnosis, the key to successful patient management.

Keywords: Metastasis, neuroendocrine, liver, chromogranin.

Asthmatic Status in Children, Therapeutic Approach in the Pediatric Intensive Care Unit

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Introduction: Asthmatic status will be defined as an acute exacerbation of asthma where bronchial obstruction is severe and continues to worsen or has not improved despite adequate standard therapy.

Aim: The increase in the prevalence of children diagnosed with asthma and their presentation in severe forms in hospitals or intensive care units raises the need for early assessment of asthmatic status and better knowledge of treatment protocols, especially of adjunctive therapy, when initial therapy has failed. The most common clinical manifestations in children with asthmatic status are tachypnea, wheezing, increased respiratory effort, use of accessory muscles, excessive sweating, and a state of anxiety. Management of asthmatic status after first-line standard therapy with inhaled beta-agonists, anticholinergics, and systemic steroids includes escalated adjunctive therapy in severe forms of the disease. In this group are listed intravenous beta-agonists, the use of magnesium as a continuous infusion, the use of methylxanthines, although for the latter there is little data on benefits as adjunctive therapy. The use of ketamine is beneficial as a bronchodilator. Heliox has proven effective in reducing the length of stay. Non-invasive ventilation therapy is used in severe forms of respiratory insufficiency and is considered in avoiding endotracheal intubation. Mechanical invasive ventilation in refractory asthmatic status in children presents challenges in medical practice.

Conclusion: Asthmatic status represents a medical emergency in clinical practice. Early assessment and optimal management of basic and adjunctive therapy in refractory cases are important in the prognosis of the disease.

Keywords: asthmatic, refractory cases, pediatric

Calciphylaxis, a Prognostic Challenge: Clinical Case

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Introduction: Uremic calcific arteriolopathy is a rare, life-threatening syndrome in patients with chronic kidney disease, generally ESKD, characterized by occlusion of the microvessels of the dermis and subcutaneous adipose tissue. The pathogenesis of calciphylaxis is not fully understood; histological examinations suggest that calcified arterioles with reduced lumen cause chronic ischemia. Further occlusion from endothelial damage and microthromboses results in tissue infarction manifesting as cutaneous necrosis, acral or penile gangrene.

Clinical Case: A 78-year-old female patient, on hemodialysis for 20 years, known for ESKD stage 3, chronic atrial fibrillation, and secondary hyperparathyroidism, presents with pain, numbness of the lower limbs, and cutaneous erythrocyanosis of the toes of the left foot for one month. CT angiography shows pronounced calcification at every level, preventing correct visualization of the lumen in the arteries of the lower limbs. After one month, necrotic lesions begin to appear on the hallux of the left foot. In analyses performed over the last 10 years, persistent high values of PTH >1000 pg/ml, phosphoremia 4.5–6.5 mg/dl, and a tendency for calcium >9.5 mg/dl are noted.

Discussion: Hyperparathyroidism, chronic inflammation, deficiencies of vascular calcification inhibitory factors, and medications are thought to play roles in the pathogenesis of calciphylaxis. Severe pain that does not respond to standard analgesics is characteristic. Generally, distal lesions have better survival compared to proximal extremity lesions.

Conclusions: There is no approved treatment for calciphylaxis. Early diagnosis, a multidisciplinary approach to treatment including wound care, pain management, and minimization of risk factors may help improve clinical outcomes. Due to the sporadic nature of the disease, there is a lack of prospective studies evaluating clinical outcomes.

Keywords: calciphylaxis, hemodialysis, necrosis, pain, hyperparathyroidism

Helicobacter Pylori Gastritis Presenting with Melena from Ulcerated Mass in Duodenal Bulb: A Case Report

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Introduction: GIST of the duodenal bulb are known as rare pathologies. They can sometimes be gigantic. Diagnosis can often be difficult to detect and also their management can be difficult in some cases. Our case report aims to raise awareness of the possibility of rare gastroduodenal pathologies that are associated with digestive bleeding even when it comes to Helicobacter pylori positive patients at a young age where initially the mind goes to a common duodenal ulcer.

Case presentation: We present the case of a 39-year-old man from USA, residing in Albania for more than 6 years, with a large tumor of the duodenal bulb. Her complaints were fatigue and marked physical weakness for 4 months and vomiting with dark content as well as melena for the last ten days, with a hemoglobin level of 8.8 g/dl at the time of presentation, without epigastric pain and without weight loss. A distal gastrectomy with complete excision of the tumor was performed.

Conclusion: Any gastrointestinal hemorrhage with a significant decrease in hemoglobin levels in the complete blood count and a positive test for H. pylori should definitely be subjected to EGD with suspicion of GIST in any patient with a duodenal wall mass. Central ulceration with the appearance of melena should alert the endoscopist to the possibility of a diagnosis of duodenal GIST. There are several surgical methods for its management but complete surgical removal of the tumor within healthy margins is the most necessary surgical aapproach.

Keywords: helicobacter pylori, EGD, GIST

Islet-Alone and Islet-After-Kidney Transplantation for Type 1 Diabetes: 30 years Experience from a Single Center Cohort

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Introduction: Insulin remains still the cornerstone of Type 1 Diabetes treatment. Although life-saving, adverse events related to insulin administration according to advanced intensive regimens (sensor-associated pumps) aimed at optimal glycemic control, such as severe hypoglycemia, weigh on the morbidity and mortality of type 1 diabetic patients (4-10% of total deaths). The most physiological way to achieve euglycemia in the absence of hypoglycemia, is represented by the restoration of beta cell function through transplantation, pancreas in toto or islets of Langerhans.

Objective of study: The aim of our retrospective observational study was to evaluate the efficacy of Langerhans islet transplantation, isolated or associated with kidney transplantation, in terms of metabolic compensation and insulin independence, in a cohort of type 1 diabetic patients, belonging to a single center over a period of 30 years (1989 –2022). Patient and graft survival, side effects associated with transplantation procedure and immunosuppressive therapy were also considered.

Patients and Methods: From 1989 to 2022, 114 type 1 diabetic patients undergoing Islet Transplant Alone (65) and Islet After Kidney (49) were included. The criteria for indication to the ITA were: age > 18 years, duration of illness > 5 years, glycemic decompensation associated with episodes of severe hypoglycemia and insensitivity to hypoglycemia. Patients excluded from kidney-pancreas transplantation for vascular complications determining high surgical risk or those who had received a kidney transplant isolated for unsuitability of the pancreas at the time of surgery or for subsequent explant were subjected to IAK. 48 patients received a single infusion, 66 patients 2 or more infusions. The efficacy of transplantation was evaluated in terms of: basal C-peptide secretion, HbA1c, reduction of exogenous insulin requirements, percentage of insulin independence, reduction or disappearance of episodes of severe hypoglycemia. The degree of function was parameterized with the calculation of the beta2 score. During follow-up, complications of immunosuppressive therapy were considered in terms of medium severe infections (need for hospitalization), development of de novo neoplasms, mortality.

Results: Insulin independence was achieved in 26.2% of ITAs (maximum observed duration 133 months) and 16.3% of IAKs (maximum observed duration 123 months). Referring to the Beta 2 score for the overall assessment of long-term function, a median functional exhaustion of 65 months was observed in IAKs and 51 in ITAs, which, however, maintained better glycated hemoglobin values throughout follow-up. Remission of hypoglycemia insensitivity was 58% in ITAs and 67% in IAKs. With regard to complications related to immunosuppressive therapy, a percentage of infections has been observed in 40% of cases; of de novo post-transplant neoplasms in 23%; worsening renal function in 36% of cases, each

complication was more frequent in IAKs than in ITAs. No patient mortality related to islet transplantation was observed.

Discussion: Data from our cohort analysis demonstrate that Langerhans islet transplantation represents a safe and effective therapeutic approach in the control of decompensated type 1 diabetes, whether associated with kidney transplantation or isolated. In particular, a long-term improvement in glycemic compensation has been demonstrated, with overall remission in 63% of cases of episodes of insensitivity to severe hypoglycemia, one of the most difficult problems to solve in patients in intensive insulin therapy. Graft function and survival were better in IAK patients in the first months after transplantation, while long-term ITA patients maintained more stable results in terms of independence from exogenous insulin and achievement of HbA1c target values < 7%. Complications related to immunosuppressive therapy in ITA patients were lower than in IAKs. It can be hypothesized that this difference is supported by the greater complexity of IAKs, given the long history of chronic renal failure, longer period of immunosuppression, chronic steroid use.

Keywords: diabetes, transplantation, insulin

Time of Corticosteroid Use in Rheumatoid Arthritis

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Introduction: Signs and symptoms of rheumatoid arthritis vary over time. Joint pain and morning stiffness are more pronounced in the morning. Corticosteroids are among the most commonly used medications in the treatment of RA. The timing of corticosteroid use may be important in controlling inflammation based on glucocorticoid secretion.

Objective: Assessment of the timing of corticosteroid use in relation to the impact on the signs and symptoms of rheumatoid arthritis disease.

Methods: The study included 32 patients diagnosed with rheumatoid arthritis according to the ACR 1987 criteria. Patients were not in the exacerbation phase and were treated with betamethasone 1 mg. The first group used betamethasone at 9:00 AM and the second group used betamethasone at 9:00 PM. For both groups, the duration of morning stiffness, the level of pain, and the PCR values were assessed and then compared after a 4-month period.

Results: In the second group (14 females and 2 males), the use of betamethasone at 9:00 PM showed a greater effect on the duration of morning stiffness ($p<0.01$), the level of pain ($p<0.01$) compared to the first group (15 females and 1 male). The average values of the duration of morning stiffness and the level of pain were statistically lower in the second group. A moderate reduction in PCR values was observed in both groups.

Conclusions: The use of corticosteroids in the evening may reduce disease activity values and improve the daily activity of patients with rheumatoid aarthritis.

Keywords: rheumatoid arthritis, corticosteroid

Aging and Hemodialysis: Clinical Implications for Vascular Access

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Background: Vascular access is crucial in hemodialysis as it serves as the lifeline for patients requiring renal replacement therapy. Effective vascular access allows for the efficient removal of toxins and excess fluids from the blood.

Importance of Vascular Access: Treatment Efficiency: Proper access ensures optimal blood flow rates, enhancing the effectiveness of dialysis sessions. Patient Comfort: Well-functioning access sites minimize discomfort and reduce the need for repeated needle punctures. Long-Term Viability: The choice of access type (AVF, AVG, CVC) can impact the longevity of the access and overall treatment success.

Impact on Patient Outcomes: Complication Rates: Inadequate or poorly placed access can lead to complications like infections, thrombosis, and vascular stenosis, which can necessitate additional procedures or hospitalizations. Survival Rates: Patients with functional AVFs tend to have better long-term outcomes and lower mortality rates compared to those reliant on catheters. Quality of Life: Effective vascular access contributes to improved quality of life by facilitating regular treatment, minimizing complications, and allowing patients to maintain daily activities. Aging Demographics: The proportion of individuals aged 75 and older is rising, leading to an increased incidence of end-stage renal disease (ESRD) within this age group. Many elderly patients have multiple comorbidities, such as diabetes and hypertension, which complicate both kidney health and the management of vascular access.
Unique Challenges Faced by Elderly Patients:

- Anatomical Considerations
- Increased Risk of Complications
- Cognitive and Functional Decline
- Limited Life Expectancy
- Social and Emotional Factors

Metodology and results: Objectives
•To evaluate the proper type of vascular access used in elderly patients in relation with Comorbidity.
Type of Study: Observational retrospective cohort study to analyze outcomes associated with different types of vascular access.
Criteria: Including patients over 75 years old in dialysis.

Data Collection Methods: Demographic Information: Age, sex, comorbidities; type of Vascular Access; mortality rate per group.
Follow-Up Period: 5 clinics (Vlore, Shkoder, Lezhe, Elbasan, Korce) during January 2020-September 2024

Results: By increasing the no of patients with FAV as preferred vascular access, we saw a reduction in mortality rate despite the high percentage of patients with Severe Comorbidity Index.

Conclusions: Tailored vascular access strategies are essential for elderly patients undergoing hemodialysis. Given their unique challenges, including comorbidities, anatomical changes, and a higher risk of complications, individualized approaches to vascular access can significantly enhance treatment outcomes. By considering factors such as health status, vascular condition, and personal preferences, healthcare providers can improve the effectiveness, safety, quality of life for these patients and decrease the mortality rate in this high risk group.

Keywords: hemodialysis, vascular, commorbidities

Acquired Angioedema due to C1 Inhibitor Deficiency

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Introduction: Angioedema unaccompanied by urticaria is classified into hereditary and acquired angioedema. The latter itself can be of unknown origin, caused by the use of ACE inhibitors and by C1 inhibitor deficiency.

Method and results: Acquired angioedema due to C1 inhibitor deficiency (C1-INH-AAE) is a disorder that affects about 1 in 10,000 people. It was first described by Caldwell et al. in 1972 and is characterized by recurrent episodes of asymmetrical edema of the face, lips, tongue, extremities, genitals, and life-threatening edema of the upper respiratory tract, C1 inhibitor deficiency, and hyperactivation of the classical complement pathway. C1-INH-AAE is classified into type I, associated with other diseases mainly lymphoproliferative ones such as Multiple Myeloma, Chronic Lymphocytic Leukemia, Myelofibrosis, Non-Hodgkin Lymphoma, and type II, where angioedema occurs as a result of an autoimmune process with the presence of autoantibodies against the C1 inhibitor molecule. C1-INH-AAE is an underdiagnosed disorder and often clinically confused with hereditary or histaminergic angioedema, as well as with intestinal occlusion syndrome.

Conclusion: For this reason, a detailed personal and family medical history, a thorough physical examination, and typical imaging findings are necessary to prevent inadequate treatment that may often lead to unnecessary surgical interventions.

Keywords: medical history, surgical intervention, angioedema

Thyroid Gland as an Unusual "Shelter" of Sarcoidosis: Clinical Case

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Introduction: Thyroid gland sarcoidosis is an extremely rare manifestation of sarcoidosis, an inflammatory disease characterized by the formation of granulomas. These can cause thyroid gland enlargement, rarely associated with its hormonal disorders. Diagnosis usually involves ultrasound, cytology, and thyroid hormone tests.

Clinical case: We present the case of a young woman who comes with a painless and palpable neck mass, evident over the past four months. In the medical history, nothing significant. During examinations, enlargement of the left thyroid lobe was observed, extending retrosternally, with normal function. She underwent total thyroidectomy. Histopathological analysis showed granulomatous inflammation with multinucleated giant cells without caseous necrosis, confirming the diagnosis of thyroid sarcoidosis. After starting replacement hormone therapy, the patient was referred to the pulmonologist for further evaluation due to the systemic nature of sarcoidosis.

Discussion: Sarcoidosis, as a rare inflammatory disease that mainly affects the lungs, can involve any organ, including the endocrine system, such as the thyroid. Its enlargement due to sarcoidosis, without other signs of systemic involvement, is known as isolated thyroid sarcoidosis. The thyroid enlarges (goiter) due to granulomatous inflammation, but other typical symptoms of sarcoidosis, such as lung or skin involvement, may not be present. This type of thyroid involvement can be challenging to diagnose because enlargement may be the only visible symptom and can be confused with other significant thyroid disorders.

Comments and conclusions: Early identification of thyroid sarcoidosis is essential to prevent possible complications such as thyroid dysfunction. Early intervention can reduce the risk of permanent thyroid damage and involvement of other affected organs, improving the patient's long-term prognosis.

Keywords: thyroid, sarcoidosis, granuloma, goiter.

Hyper-IgD Syndrome

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Introduction: Hyper-IgD syndrome is an autosomal recessive autoinflammatory disorder characterized by recurrent episodes of fever, lymphadenopathy, arthralgia, diarrhea, abdominal pain, rash, or skin lesions. The disease usually appears in early childhood, with recurrent fever attacks lasting 4–6 days, accompanied by general weakness, headache, nausea, and diarrhea.

Clinical case from the Medical University of Graz, Austria: A 6-year-old girl presents to the general pediatrics service with a prolonged and repeated history for more than two years of fever, skin lesions often in the form of pustules, and arthralgia.
The girl was the second child of the couple, born naturally, from a full-term pregnancy, birth weight 3500 g, and current weight 22 kg. Normal psychomotor development. The parents did not report any similar family history related to the situation in question.
According to the parents' report, the child began to have the first episodes of recurrent fever two years ago, accompanied by skin lesions mainly on the trunk and face, often transforming into pustular elements, initially suspected to be a dermatological disorder. During this period, the child had been consulted by a dermatologist and rheumatologist but without any result.
Since clinically the child was not improving, she was referred to the university hospital center in Graz. Upon admission, on physical examination, the child was pale, temperature 38.5°C, with skin lesions at the time of admission, mainly in the form of pustules on the trunk. No oral lesions, no lymphadenopathy, no organomegaly. Arthralgia and sore throat were reported during the disease course. Given the disease history, immunodeficiency was suspected, and a series of biochemical, hematological, and immunological tests were requested, which resulted:

Laboratory Examinations: WBC (cell/mm³) 19x10³, neut (cell/mm³) 13.5, lymph (cell/mm³) 3.5x10³, Hb 7 (gr/dL) CPK 36, MCV (fl) 69.4, Retic 1.5%, PLT (×10³/L) 650x10³, Uric acid (mg/dL) 3.5, ESR (mm/h) 118, CRP (mg/L) 59, LDH 803, IgM (mg/dL) 104, IgG (mg/dL) 1150, IgA 272, IgE (IU/mL) 360, ANA negative, Anti-CCP negative, HLA-B51 negative, RF negative, Fecal Calprotectin 137, Ferritin (ng/mL) 830, CH50 (mg/dL) 67, C3 (mg/dL) 245, C4 (mg/dL) 43, D-dimer (g/mL) 3.5, Anti-dsDNA (IU/mL) <30, Fibrinogen (mg/dL) 780, ANCA/IFA <1/20, CMV/IgM 0.5, CMV/IgG 22.6, Anti-Beta-2 glycoprotein-IgG (au/mL) 2.5, Anti-beta-2 glycoprotein-IgM (au/mL) 0.6, Lupus anticoagulant 71.9, HBsAg normal, HIV normal, Serum IgD 50 (0.3–11), Mevalonic acid secretion 1.8 (0.1–0.7). Whole exome sequencing (WES) was also performed, which revealed a mutation in the gene coding for mevalonate kinase. The mutation occurred in exon 4 leading to the substitution of asparagine with aspartic acid at codon 100 and based on American College of Medical Genetics and Genomics (ACMG) guidelines, it was classified as Hyper IgD Syndrome.
Gene Localization Variant Disease Inheritance: MVK (+) Exon 4 C.298G>A Heterozygous Hyper-IgD syndrome Autosomal recessive (P. Asp100Asn)

Treatment: Given the clinical data, genetic examination results, and significant increase of urinary mevalonic acid, the diagnosis of Hyper-IgD Syndrome was made. Due to the severity of symptoms, including recurrent fever, skin lesions, and arthralgia, it was deemed necessary to start treatment with methylprednisolone pulse therapy (IV) at a dose of 30mg/kg/day for three days, followed by oral prednisolone therapy at 2mg/kg/day with gradual dose reduction. Anakinra, an IL-1 receptor antagonist, was also started. All these resulted in clinical improvement, reduction of fever episodes, healing of skin lesions, absence of arthralgia, and simultaneously improvement of laboratory parameters.

Conclusion: Hyper IgD Syndrome is an autoinflammatory syndrome and as such presents a diagnostic and therapeutic challenge for doctors. Emphasis remains on the need to consider early genetic screening for children presenting with prolonged and recurrent episodes of fever accompanied by skin lesions. Management of HIDS should be multidisciplinary, involving rheumatologists, immunologists, geneticists, and infectious disease specialists, whose cooperation can lead to early diagnosis, adequate treatment, rigorous follow-up, and long-term monitoring to avoid complications.

Keywords: HIDS, autoinflamatory syndrome, genetic screening

BK Virus in Kidney Transplants: What's Changing and Why It Matters

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Introduction and Aim: BK polyomavirus (BKPyV) is a significant risk factor for kidney transplant recipients, with reactivation leading to BKPyV-associated nephropathy (BKPyVAN) in up to 10% of cases and contributing to graft loss. Early detection and proactive management are crucial.

Methods: Our analysis has two components: First, we compare KDIGO 2009 and TTS 2023 guidelines, highlighting recent changes in BKPyV management regarding screening, immunosuppression protocols, and adjunct therapies. Second, in collaboration with the Albanian Agency for Scientific Research and Innovation, we will implement these updated protocols for kidney transplant patients in Albania, with BKPyV PCR screening at intervals specified by the latest guidelines.

Results: The TTS 2023 guidelines increase follow-up frequency, particularly in the first post-transplant year, to identify BKPyV reactivation earlier. Monthly screenings for nine months followed by quarterly checks for up to two years represent a more proactive approach. The guidelines also emphasize flexible immunosuppressive adjustments and adjunct therapies to reduce BKPyVAN incidence. In Albania, implementing these protocols will enable close monitoring of transplant patients, providing insights into the real-world impact of the latest guidelines on local populations.

Conclusion: The TTS 2023 guidelines provide a structured, approach to managing BKPyV in kidney transplant patients, focusing on frequent monitoring and adaptive immunosuppression. Implementation in Albania will help evaluate their impact on local outcomes, with the goal of improving graft survival through early detection and intervention.

Keywords: TTS 2023 guidelines, immunosuppression, bk virus

Clinical and Ultrasound Assessment of Entheses in Patients with Spondyloarthritis (SpA) and the Correlation with Disease Activity

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Introduction: Enthesitis is a distinguishing feature of spondyloarthropathies (SpA) and is associated with pain and functional impairment.

Aim: This study aimed to evaluate the prevalence of clinical and ultrasound signs of enthesitis in patients with spondyloarthritis (SpA) compared to patients with osteoarthritis and fibromyalgia, and to assess the correlation between disease activity and signs of enthesitis in musculoskeletal ultrasound.

Method: This study included 80 patients diagnosed with spondyloarthritis (SpA) (including axial SpA and psoriatic arthritis) and a control group of 42 patients with osteoarthritis and fibromyalgia. All patients underwent clinical evaluation, laboratory tests, and ultrasound assessment of entheses. The ultrasound assessment was performed bilaterally on the following 6 entheses: plantar fascia, quadriceps tendon, patellar tendon (proximal and distal insertion), and Achilles tendon. The following were recorded as enthesis abnormalities: hypoechogenicity, thickening, Doppler signal <2 mm from the bone cortex, calcification, enthesophyte, and bone erosion.

Results: The study revealed a higher prevalence of clinical and ultrasound signs of enthesitis in patients with SpA compared to the control group. In patients with SpA, ultrasound signs of enthesitis were observed in a significant percentage of the assessed entheses. Structural changes and enthesophytes were the most common lesions. Doppler activity was present in 80.5% of patients with SpA and was associated with higher disease activity scores, suggesting its role as an indicator of active inflammation.

Conclusion: The results of the study highlight the importance of musculoskeletal ultrasound as a sensitive and non-invasive method for evaluating enthesitis in patients with SpA. This approach may contribute to earlier diagnosis and more effective management of these patients, improving their quality of life. Further studies are needed to standardize protocols and to increase the use of musculoskeletal ultrasound in clinical practice.

Keywords: spondyloarthritis, fibromyalgia, osteoarthritis, enthesitis, musculoskeletal ultrasound, clinical evaluation, disease activity.

Venous Excess Ultrasound Score in Dialysis Patients: A Review of Literature

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Introduction: Fluid overload is a significant concern in dialysis patients, contributing to cardiovascular complications, hypertension, mortality. Traditional methods for assessing fluid status, such as clinical examination and bioimpedance analysis, have limitations. Recently, the Venous Excess Ultrasound score (VexUS) has emerged as a promising tool for evaluating volume overload in dialysis patients. VexUS is an ultrasound-based congestion by examining key venous structures: inferior vena cava (IVC) diameter and collapsibility, hepatic vein Doppler waveform, portal vein Doppler waveform, renal vein Doppler waveform.

Objective: The purpose of the study is to explore the importance of VexUS in dialysis, focusing on the literature of the last 3 years. This exploration aims to review and synthesize key findings and recommendations from PubMed resources.

Results: The reviewed studies emphasize the importance of early detection of volume overload, guiding ultrafiltration therapy, assessment of cardiorenal syndrome, noninvasive and bedside feasibility, and the potential prognostic value. Studies suggest that higher VExUS grades correlate with worse clinical outcomes, making it useful for risk stratification in dialysis patients.

Conclusion: VexUS is an emerging noninvasive tool with significant potential in assessing fluid overload and guiding dialysis management. It inhances clinical decision-making, helping to optimize fluid removal while minimizing complications. Future research should focus on refining its application and establishing standardized guidelines for dialysis patients

Keywords: CKD, VexUS score, overload

Implications of the Reproductive System during Human Toxoplasmosis

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Introduction: Toxoplasmosis is an infection caused by the parasite *Toxoplasma gondii*, which can have significant impacts on the reproductive system, especially in pregnant women and individuals with compromised immunity. Infection during pregnancy can cause transplacental transmission, resulting in congenital toxoplasmosis.

The aim of this presentation is to provide an overview of the clinical experience and literature data regarding the implications of human toxoplasmosis on the reproductive system. For the purposes of this study, a search of publications in PubMed, Google Scholar, and Medline will be conducted.

Results: Studies suggest a link between chronic toxoplasmosis infection and reduced fertility in both females and males. Some studies suggest that infection with toxoplasmosis may affect the menstrual cycle and cause ovulation disorders. Risks for the fetus include spontaneous abortion, premature birth, microcephaly, hydrocephalus, neurological damage, and retinitis. Infection during the first trimester is more dangerous but less common, while in the third trimester transmission rates are higher, but symptoms are milder.

Conclusion: Toxoplasmosis can have serious consequences for reproductive health, particularly in pregnant women and couples trying to conceive, requiring a careful diagnostic and preventive approach.

Keywords: toxoplasmosis, reproductive health, prevention

Hand-Foot-Mouth Disease Complicated with Onychomadesis

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Introduction: Hand-foot-mouth disease is a viral disease with high contagiousness, commonly affecting children but occasionally can also affect adults. It is named due to the typical localization of lesions on the hands, feet, and mouth. It is caused by Human Enteroviruses of group A, most commonly Coxsackievirus A16 and Enterovirus 71. Transmission from person to person occurs through direct contact via nasal secretions, saliva, feces, or contaminated objects. It is a disease with a benign course, but cases with unfavorable outcomes and late complications cannot be excluded.

Objective: To present a case of hand-foot-mouth disease in an adult subject, diagnostic criteria, therapeutic approach, and complications in correlation with reported cases in the literature.

Case Presentation: The patient, a 20-year-old female, had a 5-day history of illness starting with fever, temperature up to 39°C, headache, sore throat, difficulty swallowing, and later the appearance of pruritic and painful skin lesions around the mouth, oral lesions, and on both upper and lower extremities. The patient reports contact with a 5-year-old child with similar skin lesions. Laboratory tests showed: Leukocytes 8100 K/uL with lymphocytosis in the leukocyte formula, Hb. 9.8 g/dL, platelets 310,000 K/uL, PCR 0.2 mg/dL; Glucose 118 mg/dL, preserved renal and liver function. Chest X-ray: no changes. The case was diagnosed as hand-foot-mouth disease based on the history, epidemiological data, and the nature and localization of the skin lesions. The patient improved clinically with only symptomatic therapy. After six weeks, the patient presented with changes in the nails of the hands and feet, which were diagnosed as onychomadesis and considered as a late complication of hand-foot-mouth disease.

Conclusions: The classic presentation of hand-foot-mouth disease includes fever, lesions in the form of oral enanthemas and maculopapular, vesicular rashes on the hands and feet. However, based on the literature, it has been observed that adults may present with an atypical clinical picture in terms of lesion localization, unfavorable course, and complications. For diagnosing these atypical cases, we rely on the medical history, physical examination, and laboratory tests.

Keywords: Hand-foot-mouth disease, onychomadesis, enteroviruses.

Hydroxychloroquine as a Promising Alternative to Traditional Therapies in Knee Osteoarthritis

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Objective: The aim of this study is to evaluate the potential of hydroxychloroquine as a treatment that modifies gonarthrosis, focusing on its anti-inflammatory properties, symptom relief, and its ability to slow down disease progression in cases with inflammation.

Materials and Methods: A double-blind, randomized controlled trial (RCT), controlled with a placebo, was conducted at the "Mother Teresa" University Hospital Center in Tirana, including participants diagnosed with primary gonarthrosis in stages II or III according to the Kellgren and Lawrence classification. Patients were randomly assigned to receive either hydroxychloroquine (200 mg twice a day) or a placebo. The progression of symptoms was monitored using the Western Ontario and McMaster University Osteoarthritis Index (WOMAC) at the start of the study and at weeks 6, 12, 18, 24, 30, and 36.

Results: A total of 40 patients participated, 18 of whom were in the hydroxychloroquine (HCQ) group and 22 in the placebo group. At week 36, the HCQ group showed significant improvements in knee pain, stiffness, and function compared to the placebo, as confirmed by total scores and subscales of WOMAC. The placebo group showed noticeable improvements at week 6, but no further significant progression occurred, while the HCQ group experienced considerable improvements by week 12, which continued throughout the follow-up period. Statistically significant differences between the groups were evident at all time points. Four patients in the HCQ group reported mild side effects, including diarrhea and headaches, while no side effects were reported in the placebo group. Furthermore, the HCQ group had a significantly lower average need for analgesics during the study.

Conclusion: Hydroxychloroquine shows potential as an immunomodulatory therapy for gonarthrosis, providing significant symptom relief in mild to moderate cases. These results suggest that immunomodulators may serve as effective alternatives to conventional treatments, highlighting the need for further research to confirm their long-term efficacy and safety.

Keywords: hydroxychloroquine, immunomodulatory, gonarthrosis

Destruction of Vertebrae from Brown Tumor as a Result of Secondary Hyperparathyroidism in a Patient with Chronic Kidney Disease Undergoing Hemodialysis

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Introduction: Secondary hyperparathyroidism is a common complication in patients with Chronic Kidney Disease (CKD). It occurs due to increased secretion of parathyroid hormone (PTH) as a result of parathyroid gland hyperplasia, caused by hyperphosphatemia, hypocalcemia, and vitamin D deficiency. Brown tumor, also known as fibrous osteitis cystica, is an uncommon bone lesion present in secondary hyperparathyroidism. It results from a reparative cellular process rather than a neoplastic one, but despite its benign nature, it can cause destructive fractures due to compression of the spine. In cases involving the vertebrae, Brown Tumors can lead to neurological symptoms such as paresthesia, paresis, or paralysis due to spinal cord compression.

Case Report: We present the case of a 62-year-old male with Chronic Kidney Disease, undergoing hemodialysis for 11 years, who developed severe secondary hyperparathyroidism and a Brown Tumor in the eighth thoracic vertebra. The patient had experienced thoracic pain for over 3 months and was unable to move. In September 2021, an MRI of the spine revealed a pathological fracture of the T8 vertebra. A total body CT scan did not show any other evident lesions. Following radiological examinations, the patient underwent surgical intervention for fixation of the destroyed vertebra and a biopsy was taken from the lesion. The pathological report revealed the presence of benign proliferation consistent with a Brown Tumor located in the eighth thoracic vertebra.

Discussion: The patient, known for years to have secondary hyperparathyroidism, was treated with Vitamin D, phosphate binders, and calcimimetics. Despite pharmacological treatment, the PTH levels continued to rise progressively to 2519 pg/dl, with a serum phosphate of 8.37 mg/dl (normal range: 2.7-4.5 mg/dl) and a serum calcium of 10.22 mg/dl (normal range: 8.4-10.2 mg/dl). In June 2022, the patient underwent total parathyroidectomy, which was followed by a dramatic decline in PTH levels and normalization of serum calcium and phosphate levels.

Conclusions: Brown Tumor is a rare complication that occurs due to increased osteoclastic activity in secondary hyperparathyroidism. In symptomatic cases, tumor excision, spinal decompression, and stabilization are recommended, along with control of PTH levels through pharmacological or surgical treatment of the parathyroid glands to address the underlying cause. Early diagnosis and parathyroidectomy in treatment-resistant hyperparathyroidism are essential.

Keywords: brown tumor, parathyroidectomy, early diagnosis

Characteristics and Most Common Complications of Patients with Infective Endocarditis

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Introduction: Infective Endocarditis (IE) is an acute or subacute infection of the heart, characterized by a high in-hospital and one-year mortality rate.

Objectives: The aim of this study was to evaluate the clinical, laboratory characteristics, and complications in patients with IE.

Methods: A retrospective and prospective observational study of 267 patients diagnosed with IE between 2016 and 2022 at the Monaldi Hospital, Naples, Italy. Data including general, clinical, hematochemical, and imaging parameters were collected with a focus on clinical outcomes.

Results: The patients were mostly male (177, 66.3%) with an average age of 65 (IQR 54-73). The most frequent comorbidities were ischemic heart disease in 61 (22.8%) and heart failure in 58 (21.7%). The mean vegetation diameter was 15 mm, primarily in the aortic valve in 88 (33.1%). The valve was native in 127 (47.7%) cases, while endocarditis in CIED (cardiac implantable electronic devices) was observed in 56 (21.1%). The main pathogen was *Staphylococcus aureus* in 54 (20.7%). Laboratory parameters showed an increase in inflammatory markers, with mean neutrophil count of 8240/mm³, C-reactive protein at 8.1 mg/dl, pro-adrenomedullin at 1.27 nml/L, and copeptin at 16.7 pmol/L. Embolic events were observed in 85 (32.2%). A total of 193 (73.9%) patients had an indication for cardiac surgery, while 47 (18.1%) died during hospitalization.

Conclusions: IE primarily affects males and the aortic valve, with *Staphylococcus aureus* as the main pathogen. One-third of patients developed embolism. Most patients had indications for cardiac surgery, and hospital mortality was seen in about one-fifth of the cases. Multicenter studies are needed to confirm these findings in a more heterogeneous group of patients.

Keywords: infective endocarditis, mortality, embolism

Possibilities of Application of More Sensitive Biological Parameters in the Follow-Up of Chronic Renal Pathologies under Conditions of Hypoprotein Regime

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Introduction: The measurement of biological parameters is important not only in the diagnosis of patients with Chronic Kidney Disease (CKD), but also in their monitoring and follow-up. This monitoring is even more important in patients with CKD who follow a hypoprotein diet. The kidneys are the main organ that degrades protein products. Low-protein diets have been used to treat patients with chronic kidney disease. A large number of combinations of low-protein diet combined with ketoanalogues have been tested leading to conflicting results. Two meta-analyses showed that a low-protein diet combined with ketoanalogues was effective in reducing levels of proteinuria, glomerular sclerosis and renal fibrosis.

Aim of the study: Evaluation of the efficacy of a low-protein diet combined with keto-amino acid supplements on renal function and morphology and in preventing the progression of stage 3 and 4 chronic kidney disease.

Patients and methods: The study included 120 patients divided into 3 groups:
1. diet with very low protein content (0.6 g/kg/weight/day) accompanied by ketoanalogs;
2. diet with low protein content (0.8 g/kg/weight/day) accompanied by ketoanalogs;
3. diet with relatively low protein content (1.2 g/kg/weight/day).

Results: A decrease in the mean value of BMI was found in Group I, receiving ketoanalogs, while the decrease was not statistically significant in the other groups. Mean 24-hour proteinuria values declined steadily across trimesters in all three groups. Mean proteinemia values increased slightly after 6, 9, and 12 months. The increase in the mean value of proteinemia was statistically higher in GR II compared to Gr I. The mean value of creatinine clearance increased in all three groups.

Conclusion: Keto-analogs provide non-harmful amino acids to prevent malnutrition in the CKD patient.

Key words: Chronic Kidney Disease, Low-protein diet, Ketoanalogs, Creatinine clearance, Proteinuria

Case Report: Acute Myocardial Infarction Complicated and Treated with Pci in a Hospital Center without Hemodynamic Support and Intravascular Imaging

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Introduction: Atherosclerotic disease ranks first in terms of morbidity and mortality. In certain cases, atherosclerotic disease presents in its acute form, increasing the difficulty of managing patients.

Case Presentation: A 53-year-old male, with no known prior medical history, presented to the hospital with acute heart failure manifested as acute pulmonary edema complicated by Type 2 pulmonary insufficiency. The EKG upon admission showed an anterior STEMI with delayed presentation. After stabilizing the pulmonary edema, an emergency coronary angiography was performed, revealing coronary artery disease in the left main coronary artery (L.M.C.A.) and all three major coronary vessels. The patient was treated with PCI and a stent in the L.M.C.A. towards the LAD, using the POT-PUFF sign in the absence of intravascular imaging and hemodynamic support.

Discussion: Complicated acute myocardial infarction has a high mortality rate. Immediate myocardial revascularization is essential to reduce myocardial damage and improve prognosis. Advanced centers have integrated percutaneous hemodynamic support and intravascular imaging in patients with complicated acute myocardial infarction, particularly when the lesions involve the L.M.C.A., as per the latest guidelines.

Conclusion: This case emphasizes the importance and complexity of treating patients presenting with complicated acute myocardial infarction associated with acute heart failure, where the lesion responsible is localized in the L.M.C.A. – LAD. Percutaneous treatment of the responsible lesions significantly reduces mortality, and the long-term outcomes of percutaneous interventions are significantly improved by using coronary intravascular examination methods.

Keywords: percutaneous treatment, coronary, intravascular, myocardial infarction

Guideline Implementation for Initiating Hemodialysis Treatment in Our Elderly and Frail Patient Population.

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Background: Increased life expectancy and improved healthcare services, is associated with increased number of elderly and frail patients starting haemodialysis (HD) treatment. Whether dialysis improves survival in such patients compared to conservative treatment remains unclear and controversial. There are algorithms, such as the REIN score, recommended by guidelines for implementation in clinical practice, that accurately assess the risk of mortality in these patients.

Purpose of the study: Assessment of mortality risk based on the REIN score, with the aim of recommending its implementation (REIN score) in decision-making for the initiation of renal replacement therapy in elderly and frail patients with chronic kidney disease.

Material and methods: In this study, 53 patients were retrospectively evaluated. Those were elderly patients who started HD treatment at centers in several randomly selected cities over a year. The inclusion criterion was age over 75 years. In these patients, the REIN score that predicts the risk 3 months' mortality after HD start in elderly and frail patients with stage 5 CKD. The model, consisting of 9 indicators in total, includes demographic, clinical and biochemical indicators. Statistical differencies between variables were assessed through the Pearson correlation coefficient. A value of $p < 0.05$ was considered significant.

Results: The risk of mortality based on the REIN score resulted as follows: 78.5% of patients were assessed as having low risk of mortality, 11.7% as having medium risk and 9.8% as having high risk. As expected, a statistically significant positive association was found between the predicted risk of mortality and the presence of heart failure. Since the REIN score does not take into account the presence of diabetes, the latter was not found to be independently associated with the predicted risk of mortality. It was found that in the group of patients with low risk of mortality, 62.5% were alive. In patients with medium risk of mortality, 16.7% were alive. On the other side, in patients with high risk of mortality, a high percentage of 80% of patients who died was found. A positive ($R= 0.355$) statistically significant ($p= 0.01$) relationship was found between the predicted risk of mortality according to the REIN score and real mortality.

Conclusion: The REIN score is a powerful prognostic tool in elderly patients starting hemodialysis, even in our population of patients with Chronic Kidney Disease, while it could be better adapted to our social specifics. As such, the REIN score, recommended by the ERBP guidelines, can help in decision-making regarding the initiation of renal replacement therapy with hemodialysis in elderly and frail patients.

Keywords: mortality, elderly and frail patients, hemodialysis, CKD

Skin as a Diagnostic Map: When Dermatology Guides Pediatrics

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Introduction: Pediatric dermatology is an important component of clinical practice, playing a key role in the diagnosis and management of various diseases. Often, dermatological signs are early indications of systemic diseases, helping in their identification and treatment in time. This study examines four clinical cases presented at the Regional Hospital Gjirokastër, which illustrate how skin changes can serve as indicators of various pediatric pathologies.

Methodology: This study presents a retrospective analysis of four pediatric clinical cases presented at the Regional Hospital Gjirokastër. Data were collected from medical records and clinical manifestations were examined along with photographic images, laboratory tests, and treatments used. A literature review was conducted to compare our findings with published studies on Kawasaki disease (1), RIME (Reactive Infectious Mucocutaneous Eruption) (2,3), and Neurofibromatosis type 1 (4).

Results and Discussion: The first case involves a 9-year-old boy with high fever and mucocutaneous lesions. Objective examination revealed oral ulcers with hemorrhagic crusts and erythematous target lesions on the extremities. On pulmonary auscultation, vesicular murmur with bilateral wheezing was heard. Serology confirmed infection with Mycoplasma pneumoniae, directing the diagnosis towards MIRM (5). By identifying the causative agent, appropriate treatment was provided and complete recovery occurred after two weeks. The second case concerns a 12-year-old girl who presented with an episode of lipothymia and the presence of more than six café-au-lait spots over 15 mm on her skin. Additionally, multiple neurofibromatosis nodules were observed on her mother's hands and face. These findings met the criteria for the clinical diagnosis of Neurofibromatosis type 1. After one month, the patient returned for another episode of lipothymia, and further examinations led to the diagnosis of epilepsy, a known complication of NF1, highlighting the importance of dermatological evaluation and the follow-up of this multisystem pathology. The third case involves a child with high fever who, on the second day of illness, was without specific initial symptoms. Upon admission, hyperemia of the oropharynx, strawberry tongue, and urticarial rash without pruritus were observed. Laboratory tests showed leukocytosis with neutrophils and an increase, while tests for streptococcus, Covid-19, influenza A/B, and RSV were negative. During the hospital stay, bilateral conjunctivitis, unilateral lymphadenopathy, edema of the hands and feet, and polymorphic rash developed. After five days of persistent fever despite treatment with prednisolone and empirical antibiotics, all clinical criteria for Kawasaki disease were met. This case demonstrates how dermatological data helped in the timely diagnosis of this inflammatory disease and the prevention of potential cardiovascular complications. The fourth case presents

a 9-year-old girl with recurring dermatological manifestations, including erythematous rash on the face resembling a butterfly shape, as well as partial involvement of the extremities, initially suspected as allergic reactions, later interpreted as viral exanthem. However, further evaluation revealed that the rash was caused by the application of paint, bringing attention to the importance of psychosocial evaluation in pediatric dermatology.

Conclusion: These cases clearly underline the importance of dermatology in pediatrics, demonstrating that careful dermatological evaluation can be crucial for accurate diagnosis and appropriate management of young patients. Early identification of dermatological signs can significantly affect the prognosis and quality of life of pediatric patients, facilitating treatment and preventing potential complications. In the first case, the identification of the causative agent allowed for accurate treatment and full recovery. In the second case, dermatological evaluation aided in the diagnosis of Neurofibromatosis type 1 and the identification of associated epilepsy. In the third case, dermatological data were key for the timely diagnosis of Kawasaki disease, preventing serious complications. In the fourth case, thorough dermatological evaluation highlighted the importance of identifying environmental and psychosocial factors in pediatric dermatological manifestations. These cases demonstrate the important role of dermatology as a window into systemic pediatric diseases.

Keywords: dermatological evaluation, systemic pediatric diseases,

Levels of Anxiety in Parents of Pediatric Inpatients

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Introduction: Anxiety is a common psychological response among parents of pediatric patients, especially those with hospitalized children. Hospitalization can create a significant emotional burden for parents, influenced by uncertainty regarding the child's health and treatment outcomes.

Objectives: This study aims to assess the levels of anxiety in parents of pediatric inpatients and identify factors associated with increased anxiety, such as the child's diagnosis, the duration of hospitalization, and the parents' previous experience with hospitalization.

Methodology: We conducted a quantitative, observational, cross-sectional study with responses from 141 parents of hospitalized children in the pediatric ward of QSUT. Data collection on anxiety levels was carried out using the standardized GAD-7 questionnaire. Demographic data, information on the duration of the child's illness, and care for other children were also collected.

Results: Based on the scores from the GAD-7 questionnaire, minimal anxiety was found in 6.1% of the interviewed parents, mild anxiety in 36.4%, and moderate and severe anxiety in 39.4% and 18.2% of the parents, respectively.

Conclusions: Over 50% of the interviewed parents report moderate to severe symptoms of anxiety. Based on the findings of the study, we suggest that the hospital psychologist should also address the treatment of family members, not just the patients. The general stigma in the population regarding questions related to mental health remains present, so it is necessary to develop more awareness campaigns on this topic.

Keywords: anxiety, GAD, pediatric inpatients

Does Motivational Interviewing Help Improve the Quality of Life of Patients with Substance Use Disorder in Albania?

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Introduction: Motivational interviewing provides a safe, empathetic, nonjudgmental way of helping patients understand their internal conflicts about behavior changes. Often, in the routes of these conflicts and ambivalence, is drug use disorders. Motivational interviewing has been found to reduce substance use among individuals with substance use disorders. In several countries motivational techniques are used to facilitate engagement to treatment and to improve the outcome in Addiction Field. In our country, Albania, MI is still a not broadly known and modestly applied in addiction Field.

Objectives: The aim of this work is to evaluate the importance of Motivational interviewing technique during the treatment of people with substance Use disorder in Albania. During this work we will compare the engagement of patient and intervention outcome, when MI is applied versus when it is not applied.

Methods: This is a retrospective study conducted in American Hospital, Tirana, Albania, January 2024-January 2025. 26 patients were included in the study. They were divided in 2 subgroups. In the first subgroup was applied MI technique and in the second subgroup was not applied MI. During this work we have reviewed the success rate of engagement to treatment and the differences in the Quality of Life, after applying Motivational Interviewing Techniques in a case series of patients presented for counselling in Addiction Treatment department of American Hospital, Tirana, Albania. We have compared these results with those cases, when MI was not applied.

Results: During the analysis of the cases, we have seen how collaboration and having a non-judgmental approach can improve the outcome during the Addiction treatment. In the cases the addiction specialist acknowledges, honors and emphasizes the freedom of choice of the patient, the healing process has higher success rate. When the therapist uses open ended questions, offer affirmations, summarizing, when he doesn't share information without permission, the patients are more motivated for change. Furthermore, using reflective listening is one of the success keys of engaging during addiction treatment process.

Conclusions: Motivational interviewing is an empathic way of being with people. Maybe we, health care professionists, can not change facts about addiction, but we can change ourselves to be more helpful for our addicted patients. Motivating them, treating with compassion, is the

wish to see them free from suffering. Motivational Interviewing techniques should be encouraged to be used in Addiction Field in Albania as an important bridge to recovery.

Keywords: Motivational Interviewing (MI), Quality of Life, Substance Use Disorder, Addiction Treatment, Patient Engagement, Nonjudgmental Approach, Behavior Change

The Importance of Designing and Monitoring a Correct Nutritional Plan in Individuals with Metabolic Diseases

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Background: A nutritional plan for individuals with metabolic diseases is a tailored dietary strategy designed to manage specific health conditions related to metabolism, such as diabetes, obesity, metabolic syndrome, and others.

Methods: This study aims to present a description of the nutritional plan for individuals with metabolic diseases, its components, and why is very important for them. This is a systematic review of the literature focused on articles from 2014-2024 sourced from PubMed, Google Scholar, Scopus, and Web of Science to gather relevant findings on designing and monitoring a nutritional plan for individuals with metabolic diseases.

Results: Based on the recent publications related to nutritional plan in individuals with metabolic diseases is shown that this plan must be comprehensive, personalized approach that focuses on balanced nutrition, portion control, and regular monitoring to effectively manage their condition and improve overall health. It is best developed in collaboration with healthcare professionals to meet the individual's needs. A well-structured and monitored nutritional plan is essential for effectively managing metabolic diseases, preventing complications, and promoting overall health and well-being. The plan typically includes the following components: Individual Assessment, Balanced Macronutrients, Portion Control, Regular Meal Timing, Nutrient-Dense Foods, Hydration, Monitoring and Adjustments, Education and Support and Physical Activity.

Conclusions: Designing and monitoring a correct nutritional plan are essential for individuals with metabolic diseases, as they play a critical role in disease management, preventing complications, and overall health improvement.

Keywords: metabolic diseases, nutritional plan

Prevalence of Preterm Births in Koco Gliozheni Maternity Hospital

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Backgrounds: To assess the prevalence of preterm births regardless of some socio-demographic characteristics and behavioral factors of pregnant women in Koco Gliozheni Maternity Hospital.

Methodology: This is a cross-sectional epidemiological study. The advantage of this study lies in obtaining point-by-point information (at a given point in time) regarding the magnitude or prevalence of a given characteristic or specific health event in the population of interest.
Results: The percentage of rural residence was significantly higher among women with preterm birth compared with their counterparts who had full-term births (54.2% vs. 33.2%, respectively; P<0.001). After full adjustment for all maternal socio-demographic characteristics (age, education, employment, and income) and behavioral factors (smoking, alcohol consumption, and body mass index), a strong and significant association between preterm birth and maternal rural residence was evident. OR=1.5, 95% CI=1.1-2.2).

Conclusions: Our findings indicate an increased risk of preterm birth among the rural population, regardless of maternal sociodemographic characteristics and behavioral factors. Health professionals and policymakers in Albania should implement effective measures and programs to control and prevent preterm birth.

Keywords: gestational age, pregnancy, preterm birth, quality, prevalence, baby, mother.

Impact on Practicing Clinics and Neonatal Screening

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Introduction: In our country, metabolic or genetic screening for newborns in the state health service system is not yet offered. Despite every effort, we are currently in this situation. But our daily clinical practice, especially with babies who are treated in the Neonatal Intensive Care Unit has often forced us to not be able to make a proper diagnosis and also the exact treatment of babies, despite clinical doubts. But what I will deal with in this abstract are two clinical cases of two babies that made it possible, after our advice, to privately do the analysis of the metabolic screening and then the genetic one and that completely changed the situation regarding not only the correct diagnosis, but also the correct treatment that was given to the babies after the consultation with the specialist doctors, with the progress of babies and this was certainly accompanied by accurate information of parents and for the sake of truth and with a de-escalation of the situation between parents and health staff.

Purpose: To highlight the importance and necessity of neonatal screening for
1. Early diagnosis
2. for the correct treatment of infants and
3. for accurate information of parents, especially for genetic consultation for future pregnancies.

The first case is that of an infant diagnosed through metabolic screening with: *Congenital adrenal hyperplasia.* The second case is that of a baby diagnosed through metabolic screening with: *Non-ketotic hyperglycinemia* and then also confirmed by genetic examination. Early diagnosis is vital because the damage is irreversible. In addition to diagnosis, what puts us in clinical difficulty is not finding the right treatment or the right nutrition to improve the clinical signs and the future of the baby.

Keywords: neonatal, metabolic, genetic, newborn screen-ing

Assessment of Knowledge, Information, Hygiene Practices, and Cultural Beliefs about Menstruation in Girls Aged 15–29 in Albania

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Introduction: Menstruation, a natural biological process, remains stigmatized due to cultural myths and limited access to menstrual products and hygiene-sanitation services (WASH). In Albania, the lack of information, taboo issues, stigma, and prejudice related to reproductive health issues, combined with high taxes and economic conditions, further exacerbate this situation for young girls and women.

Objectives: The aim of this study is to assess the knowledge, hygiene practices, and cultural beliefs regarding the menstrual cycle, as well as to identify myths and their impact on menstrual practices.

Methods: A descriptive approach was used with an online questionnaire, completed by 131 girls aged 15–29 from urban and rural areas of Albania. Statistical analysis was conducted using SPSS24.

Results: 54.2% of participants reported insufficient knowledge about menstrual hygiene management, while 43.5% felt ashamed, and 32% considered menstrual blood "impure." 60% had missed school or work due to the lack of clean and private spaces. The most commonly used products were sanitary pads (81%), but economic barriers limited access to safe products, especially in marginalized communities.

Conclusions: Stigma, lack of information, and economic difficulties significantly affect the menstrual health of girls. It is recommended to integrate Comprehensive Sexual Education (CSE) and improve access to hygiene products and WASH services to reduce inequalities and improve health and educational outcomes.

Keywords: menstrual health, education, socio-cultural factors, and the specific challenges faced by girls in Albania.

Perinatal Outcomes of Maternal Physical Activity

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Introduction: Maternal physical activity is known to have a major impact in the maternal and fetal health.

Objectve: The aim of this study is to identify the association between maternal physical activity before or during early pregnancy and the risk for adverse pregnancy outcomes.

Methodology: This is a prospective cohort study conducted in UHOG "Koço Gliozheni". The patients who consented answered a self-completed questionnaires regarding physical activity. Perinatal outcomes were compared between two groups, patients who had any physical activity or not before and during early pregnancy. Multivariable logistic models were used to study the association between engaging in physical activity and pregnancy outcomes, while adjusting for body mass index, maternal age, and socioeconomic status.

Results:188 pregnant women were eligible for this study. 67.7% (n=127) were physically active before or during early pregnancy. GDM was less likely to happen in the group of patients who were physically active (15.4% vs 2.0%, p=0.022) and PTD (10.2% vs 4.4%, p=0.038). Engaging in physical activity during early pregnancy was also associated with lower risk for GDM (adjusted OR=0.098 95%CI 0.017 – 0.56) but not for PTD (adjusted OR=0.872 95%CI 0.36 – 2.11).

Conclusions: Being physically active, before as well as during the first trimester, decreases the risk for adverse pregnancy outcomes.

Keywords: maternal physical activity, its impact on pregnancy outcomes, and the statistical analysis used in the research.

Age-related Differences in Headache Presentation and Management: An Observational

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Introduction: Headaches affect individuals across different age groups, significantly impacting their quality of life. Understanding how age influences headache characteristics and management is essential for providing personalized clinical care.
Objective: This study aimed to explore age-related differences in headache frequency, triggers, medication use, and the impact of headaches on daily activities.

Methodology: An observational study was conducted with 117 participants, categorized into Adolescents (15- 18 years), Young Adults (19-24 years), and Adults (≥25 years). The variables analyzed included headache frequency, location, severity, duration, triggers, medication use, medical help-seeking behavior, and the impact on daily activities. Chi-square tests were used to assess significant differences across the age groups.

Results: Significant differences were observed in headache frequency ($p=0.023$), identified triggers ($p=0.027$), medication use ($p=0.039$), and the impact on daily activities ($p=0.024$). Adolescents reported a higher frequency of headaches compared to adults, while adults were more likely to identify specific triggers. The use of medication varied across age groups, with young adults showing the highest medication use. Additionally, adolescents reported a greater impact on daily activities, while adults were less affected. These differences highlight the varying patterns in headache experiences and management across age groups.

Conclusion: Age significantly influences headache characteristics and management strategies. Recognizing these differences is crucial for tailoring interventions that are age-appropriate, aiming to improve headache management outcomes.

Keywords: headache, medications, management,

Local Anesthesia in Pediatric Dentistry

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Introduction: Proper pain control and management in pediatric dentistry is the focus of many clinical studies and research projects.

Objective: This study aims to evaluate the knowledge and practices of Albanian dentists regarding the use of local and topical anesthesia in pediatric dentistry.

Method: A questionnaire with 17 questions was sent to 200 dental professionals, asking for information about current practices of local and topical anesthesia in children. The data collected from the questionnaire were analyzed using SPSS Version 20.0 and Microsoft Excel Office 2021.

Results: The questionnaire was completed by 167 dental professionals. The most commonly used anesthetic for female professionals was lidocaine, while for male professionals, it was articaine ($p=0.012$). Only 14.4% use the correct weight and age to determine the anesthetic dose. The needles used for infiltrative anesthesia were short 25 gauge, and for regional anesthesia, they were long 27 gauge. Topical anesthetics are always used by 42.5% of the doctors and are never used by 11.4% of them. Side effects after the application of local anesthetic (1.2%) and topical anesthetic (6.1%) were rare.

Conclusion: The most commonly used local anesthetics are lidocaine and articaine, while the most commonly used topical anesthetics are xylocaine and lidocaine. Most professionals inject a carpule for a period shorter than 60 seconds. Professionals prefer short needles for infiltrative anesthesia and long needles for regional anesthesia. Topical anesthetics are used by the majority, although their perception of its effectiveness varies.

Keywords: local anesthesia, pediatric dentistry, dental professionals, study, etc.

Barriers to Clinical Remission in Severe Bronchial Asthma

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Introduction: The term "remission" is widely used in medicine to denote a state of minimal or absent disease activity, either spontaneously or as a result of therapy. In pediatric bronchial asthma, spontaneous remission is common, especially in early childhood, with many children experiencing symptom resolution during adolescence. However, achieving clinical remission in adult patients with severe asthma remains challenging.

Methods: The advent of biologic therapies has transformed asthma management, shifting the focus from merely controlling symptoms to targeting the underlying pathophysiological mechanisms. Clinical experts have identified four subtypes of remission in bronchial asthma: clinical remission and complete remission, both with and without medication.

Results: The heterogeneous nature of asthma and its complex interplay with comorbid conditions complicate the attainment of complete clinical remission. A multidisciplinary approach is essential to increase the proportion of patients achieving clinical remission. Asthma affects over 300 million individuals globally, underscoring the need for effective management strategies.

Conclusions: Asthma symptoms may overlap with other diseases, necessitating a comprehensive, multidisciplinary treatment approach. Phenotyping and endotyping are crucial for accurate diagnosis, differential diagnosis, identifying exacerbating factors, and addressing comorbidities.

Keywords: Remission, bronchial asthma

Use of Nutraceuticals by Women in Menopause in the Tirana Region

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Introduction: Menopause is an important physiological transition in a woman's life, accompanied by hormonal changes that can cause vasomotor symptoms (such as hot flashes, night sweats), mood disorders, sleep disturbances, etc. Medicinal plant products, primarily those containing phytoestrogens, are increasingly being considered as an important alternative for managing these symptoms.

Objective: This study aims to highlight the use of nutraceuticals containing plant extracts in managing menopausal symptoms by women in the Tirana region.

Methodology: To achieve this goal, a structured questionnaire was developed, addressed to pharmacists, and distributed to 50 pharmacies in the Tirana region. The data collected highlighted the frequency of use and recommendation of nutraceuticals (herbal supplements), perceptions of their effectiveness and safety, and more.

Results: The collected information indicates that the use of nutraceuticals (herbal supplements) in alleviating menopausal symptoms by women in the Tirana region is limited, although they are mainly recommended by pharmacists and doctors. Among the most commonly used nutraceuticals are those containing isoflavones from soy, extracts from *Trifolium pratense*, and *Cimicifuga racemosa*.

Conclusion: Increasing awareness of the benefits and safety of using nutraceuticals, supported by informative counseling based on scientific evidence, could lead to greater use of these products by women as an alternative treatment in managing menopausal symptoms.

Keywords: menopause, phytoestrogens, nutraceuticals, pharmacy, Tirana

Thyroid Cancer: An Up-to-Date Perspective

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Introduction: Thyroid cancer is the most common malignancy of the endocrine system globally for the year 2022. Thyroid cancer remains a complex condition, where genetic factors, exposure to environmental factors such as radiation, and autoimmune diseases are recognized as key risk factors. The diagnosis and management of thyroid cancer have improved through advanced imaging, cytology, and molecular testing.

Objectives: The objectives of this paper include analyzing the risk factors and their impact on the development of thyroid cancer, emphasizing the connection between genetic and environmental factors, as well as identifying advances in diagnostic techniques for thyroid cancer and the possibilities of targeted treatment for patients with thyroid cancer.

Methodology: The methodology includes a review of recent literature from scientific databases such as PubMed, Scopus, JSTOR, with a focus on clinical guidelines, systematic reviews, and meta-analyses that address various aspects of thyroid cancer.

Results: The results show that thyroid cancer has a favorable prognosis with a 5-year survival rate of 98.4%. However, it is a complex disease with developing treatment strategies. Advances in diagnostic techniques have significantly improved the accuracy of diagnosis. Surgical treatment remains the primary therapeutic approach, but the use of adjuvant therapies and targeted treatments has led to progress in managing patients, especially those with advanced or metastatic forms of the disease.

Conclusion: Personalized treatment plans based on molecular profiling, along with ongoing research in targeted therapies, are crucial for improving outcomes in patients with thyroid cancer, particularly those with advanced or metastatic disease.

Keywords: Thyroid, cancer, survival, prognosis

Crucial Decision of Multi Disiplinary Team Staff in Oncology

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Introduction: MDT staff is an important and crucial element in every day work in every medical field, especially in oncology regarding complexity of a lot of elements: pathology, patient, comorbidity, new product in pharmacology, new attitudes, the evolution of attitudes, etc.

Methods and results: The importance of MDT staff is not only putting in evidence statistically the cases that are going under specific treatment, but analyzing any patient in any element that compound its pathology since the first presentation in Oncology Hospital and be sure that we are respecting all the current guidelines in any specific treatment. It is necessary this evaluation to be done by a staff with specialist medical staff that represent specific specialty and also can be part of this staff young doctors, resident in training process and students. In our hospital is performed the oncology MDT staffs for breast and melanoma. The MDT structure, which includes all appropriate disciplines that vary from different types of malignant pathologies, should contain the following specialties for each type of cancer: (COEs)

- An oncologist with expertise in this diagnosis
- Medical oncologist or hematologist (chemotherapist)
- Radiotherapist
- Pharmacist
- Anatomopathologist with expertise in subspecialty
- Palliative care specialist
- Nurses, including dedicated nurses
- Psychosocial workers
- Therapist as needed
- Dietologu
- Physiotherapist
- Spiritual assistance (religious)
- Other specialists as needed (infection, cardiologist, nephrologist, etc.)

MDT at the Oncology Service will strive to adapt to this model of excellence that meets the global patient needs.

Conclusion: MDT staff is crucial not only for right treatment for patients but even for updating guidelines and impone to the decision making structure in health the right

Key word: staff, oncology, multidisciplinary.

Glomus Tumor of the Hand in an Unusual Localization: Our Case Report and Review of Literature

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Introduction: Glomus tumors are benign lesions a rising from neuro-myo-arterial glomus bodies that are generally localized in the hand. They occur most frequently in distal phalanx area, especially in the subungual area. Although the classically localizated ones are more frequently seen in women, they may appear more frequently in unusual locations in male patients, as in our case. Clinically, they present with cold sensitivity, severe pain, and local tenderness. Complete excision is necessary to prevent recurrence and it is the only way to relieve the pain because NSAID have been shown to have little effect on pain.

Case Presentation: A male 59-year-old male patient was admitted to our clinic after a snakebite. Since months with a piercing pain in palmar region of the left hand, with an irradiation toward the wrist and the elbow. An MRI was performed. There was an evidence of a solido-cystic lesion in the IV phalange, between the flexor tendon and the muscle (without a clear cleavage plan). Its dimension 12mm x 11 mm, with hipersignal in T2 and hyposignal in T1. The operation for total excision of the lesion was performed.

Discussion: Schiefer et al. reported 3 (5.3%) glomus tumor cases in a series of 56 patients with extra digital glomus tumor.

Conclusion: Glomus tumors are uncommon benign lesions. In extradigital placement, a limited number of cases have been reported in literature. Surgery is the treatment of choice.

Keyword: Glomus tumour of the hand, benign lesion, total excision

Immediate or Delayed Breast Reconstruction.

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Objective: The objective of this study is to analyze and compare immediate and delayed breast reconstruction. The study aims to assess the differences in surgical outcomes, patient satisfaction, complication rates, and aesthetic results between these two approaches. It also aims to identify the key factors influencing the timing of reconstruction.

Methodology: This study is a literature review that analyzes both immediate and delayed breast reconstruction. To ensure a comprehensive and evidence-based analysis, a systematic search was conducted in scientific databases such as PubMed, Scopus, Web of Science, and Google Scholar. The collected data were analyzed by evaluating key factors such as surgical outcomes, complication rates, patient satisfaction, and access to reconstructive surgery, based on a standardized form.

Results: This article aims to shed light on the different techniques used in breast reconstruction and the most common indications according to European guidelines for the respective technique. The literature review highlights significant differences between immediate and delayed breast reconstruction techniques in terms of surgical outcomes, complication rates, patient satisfaction, and aesthetic and functional results.

Keywords: Breast Reconstruction, Immediate Reconstruction, Delayed Reconstruction, Prosthesis, Flap, Radiotherapy, Chemotherapy

Synthesis and Physicochemical Analysis of Polysulfur Derivatives

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Introduction: Organic polysulfides derived from garlic have been the focus of attention for many years due to their biological activities, which have recently attracted medical interest as chemotherapeutic agents. Trisulfides and tetrasulfides occupy a prominent position as they are the most active and stable compounds. They are found ubiquitously in nature, including in plants of the Allium genus, *Scorodophleus zenkeri*, Shiitake mushrooms, and others. The primary objective of this study is the synthesis of symmetric polysulfides, primarily introducing various alkyl groups into the trisulfide linkage. The synthesis of an asymmetric trisulfide (APTS) and alkylated derivatives of cysteine (S-Propyl-L-cysteine) was also undertaken. A notable aspect of this work is the possibility of substituting one of the sulfur atoms with selenium. After synthesis, the next step involves the identification, purification, and analysis of these products using several instrumental analytical methods.

Materials and Methods: Chemical reagents were sourced from Sigma-Aldrich, Munich, and Saarland University. Purification was performed using column chromatography with silica gel (Macherey-Nagel, 50–200 μm). Thin-layer chromatography was carried out on aluminum plates coated with silica (Merck, silica gel 60 F254). NMR spectra were recorded on a Bruker Avance 500 MHz spectrometer for ^1H-NMR and 125 MHz for ^13C-NMR. LC-MS was conducted on a Bischoff Lambda 1000 UV/VIS at 275 nm using a YMCC 18 Pro column and a mobile phase of methanol/water (85:15) at a flow rate of 1.0 ml/min.

Results and Conclusions: The highest yield was achieved with S-Propyl-L-cysteine (99%), followed by dibenzyl trisulfide (94%). Successfully obtained alkyl radicals in the trisulfide linkage ranged from three to eight carbon atoms. The methyl and ethyl groups, cycloalkyl, and aromatic radicals did not yield results. Regarding the substitution of the sulfur atom with selenium, extensive efforts were made to replace the central sulfur atom in the trisulfide linkage, but work in this direction remains ongoing. Limited results were obtained with the Se-propyl-L-cysteine product, which shows promise in the therapeutic field.

Keywords: Allicin, alliin, asymmetric, cysteine, DADS, DAS, DATS, DATTS, NMR, OSC, polysulfide, selenium, symmetric, synthesis, trisulfide.

Preparation of Polymeric Nanoparticles of Menadione via Nanoprecipitation and Microfluidic Methods

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Introduction: Menadione (also known as Vitamin K3) is a synthetic lipid-soluble compound that is converted to Vitamin K2 in the gut. Recent studies have shown that menadione can modify the permeability of bacterial membranes, making them more susceptible to other substances, including antibiotics. This suggests that menadione may act as an adjuvant to enhance the efficacy of antibiotics. This study aims to prepare polymeric nanoparticles of menadione using the AcMD B180 polymer and evaluate drug loading and in vitro release based on the organic solvent used.

Methods: Polymeric nanoparticles were prepared using four organic solvents: acetonitrile (ACN), acetone, dimethyl sulfoxide (DMSO), and dimethylformamide (DMF). Two methods were employed for nanoparticle preparation: nanoprecipitation and microfluidics. Menadione concentrations in the formulations were 5% and 10%. In vitro release of menadione was evaluated at pH 7.4 and pH 5.

Results:

- Drug Loading: Nanoparticles prepared using the microfluidic method exhibited higher drug loading compared to those prepared by nanoprecipitation.
- Organic Solvents: ACN proved to be the most suitable solvent for preparing nanoparticles with high drug loading and efficient release of menadione.
- In Vitro Release: Release of menadione was faster at pH 5, suggesting a controlled release profile that may be beneficial for specific therapeutic applications.

Discussion: This study demonstrates that menadione can be successfully encapsulated in polymeric nanoparticles using the AcMD B180 polymer and both nanoprecipitation and microfluidic methods. The microfluidic method offers the advantage of precise control over nanoparticle size and drug loading, making it a valuable tool for developing drug delivery systems.

Keywords: nanoparticles, menadione, AcMD B180, nanoprecipitation, microfluidics, in vitro release, drug loading, organic solvent, acetonitrile, acetone, DMSO, DMF.

Correlation of Cytological and Histopathological Findings with Surgical Treatment of Thyroid Nodules at the University Clinical Center of Kosovo

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Introduction: Thyroid nodules are a common finding during ultrasound examinations. Fine Needle Aspiration Cytology (FNAC) is the diagnostic method of choice due to its cost-effectiveness and minimal invasiveness. This study aims to correlate preoperative FNAC results, postoperative histopathological findings, and surgical treatments of thyroid nodules at the University Clinical Center of Kosovo (QKUK).

Methods: A retrospective study was conducted by analyzing clinical, cytological, and histopathological data collected over ten years (January 2013–January 2023) from the archives of the Institute of Anatomical Pathology and the ENT Clinic at QKUK. A total of 1,033 biopsy specimens and 1,872 cytological results were reviewed. Surgical interventions were correlated with cytological and histological results, and diagnoses were analyzed. Statistical analyses were performed to determine sensitivity, specificity, diagnostic accuracy, positive predictive value (PPV), and negative predictive value (NPV).

Results: Out of 2,905 cases analyzed, 1,872 had cytology (FNAC), and of these, 1,033 cases underwent surgical interventions. Surgical procedures ranged from hemithyroidectomy to total thyroidectomy, with or without lymph node dissection, depending on the FNAC diagnosis. The male-to-female ratio was approximately 1:4, with an average age of 47 years. Malignancy was histologically confirmed in 12.5% of cases. Our data emphasize that the diagnostic and therapeutic management of thyroid nodules requires special clinical attention, especially in intermediate Bethesda categories.

Conclusion: FNAC remains a highly effective method for the preoperative evaluation of thyroid nodules.

Keywords: Fine Needle Aspiration Cytology (FNAC), Bethesda System, Histopathology, Surgical Treatment, Diagnostic Accuracy

The Microbiome and Cancer Immunotherapy Response: A Meta-Analytical Review

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Introduction: The gut microbiome has emerged as a critical determinant of cancer immunotherapy outcomes. Several studies have shown that specific bacterial taxa can influence the efficacy of immune checkpoint inhibitors (ICIs), which include anti-PD-1, anti-PD-L1, and anti-CTLA-4 therapies. In this meta-analysis, we synthesized data from 24 studies until end of December 2024 (n = 2,370 patients) encompassing various malignancies such as melanoma, non-small cell lung cancer, and renal cell carcinoma. Our primary objectives were to evaluate how gut microbiome composition and diversity correlate with clinical endpoints (overall response rate, progression-free survival, and overall survival) and to assess how antibiotic use and fecal microbiota transplantation (FMT) affect treatment outcomes.

Methods: Random-effects models were employed to pool hazard ratios and odds ratios across the included studies.

Results: Higher alpha diversity, measured by the Shannon index, demonstrated more favorable immunotherapy responses in patients compared to those with lower diversity ($p < 0.05$). Beta diversity analyses revealed distinct microbial community patterns in responders versus non-responders. Akkermansia muciniphila**,** Faecalibacterium prausnitzii**,** Ruminococcaceae, and Bifidobacterium are reported as key bacterial genera or species associated with enhanced response to ICIs. Nevertheless, broad-spectrum antibiotic exposure within one month prior to immunotherapy initiation correlated with worse outcomes (pooled HR ≥ 1.4), highlighting the detrimental impact of microbiome disruption.
Preliminary FMT trials suggest that transferring a favorable microbiome from "super-responder" donors can partially restore ICI sensitivity in refractory patients, providing early proof-of-concept for microbiota-targeted interventions.

Conclusions: Despite variability in methodologies and patient populations, the cumulative findings underscore the importance of maintaining a healthy gut microbiome for optimal immunotherapy results.

Keywords: Gut Microbiome, Cancer Immunotherapy, Immune Checkpoint Inhibitors (ICIs) Fecal Microbiota Transplantation (FMT), Antibiotic Use

High-Flow Nasal Cannula Therapy for the Treatment of Mild and Moderate Acute Respiratory Distress Syndrome

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Introduction: Acute Respiratory Distress Syndrome (ARDS) is a severe and potentially life-threatening condition characterized by widespread inflammation in the lungs, resulting in impaired gas exchange, hypoxemia, and respiratory failure. Management of ARDS typically involves supportive care, with mechanical ventilation being the most common intervention for patients experiencing respiratory failure. High-Flow Nasal Cannula (HFNC) therapy has emerged as a promising non-invasive alternative for the management of patients with mild and moderate ARDS.

Materials and methods: A comprehensive review of clinical trials and studies investigating the use of HFNC therapy in ARDS patients was conducted. In this reference, a retrospective study will be presented, with two groups with mild and moderate ARDS (100 < PO2/FiO2 <300) of 15 patients each group, ASA 1-2, M/F ratio =1:1, age 55 ± 15 years. The first group was treated from the beginning with classic Cipap and simple cannula treatment with increased liters of O2. The second group was treated from the beginning with HFNC. For each group, the number of patients who needed invasive ventilation, days in intensive care, days in hospital were studied.

Results: The results of our study are as follows: In the first group, treated with simple cannulas or CPAP, 8 patients (53%) required mechanical ventilation. The average length of stay in intensive care was 21 days, and the average length of stay in the hospital was 34 days. In the second group, treated with HFNC, 5 patients (33%) required mechanical ventilation. The average length of stay in ICU was 16 days, and the average length of stay in the hospital was 23 days.

Conclusions: HFNC therapy is a viable treatment option for patients with mild and moderate ARDS. By enhancing oxygenation and reducing the risk of complications associated with invasive ventilation, it can improve patient outcomes and decrease healthcare costs.

Discussions: Treatment with HFNC of the ARDS form is not the only option and it should be taken into account that if the patients have no changes or there is a deterioration of the clinical situation, it should be switched to invasive ventilation as soon as possible, in order not to endanger the patient.

Keywords: High-Flow Nasal Cannula (HFNC), mild and moderate ARDS, simples' cannula non-invasive ventilation, Cipap.

Idiopathic Intracranial Hypertension

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Introduction: Idiopathic intracranial hypertension (IIH) is characterized by an increase in intracranial pressure without a determined cause. It predominantly affects obese females of reproductive age. The prevalence in the general population is 0.5-2 cases per 100,000 individuals, but there is an increasing trend due to the rising incidence of obesity and lifestyle factors. The most common symptoms include frequent headaches, visual problems, cranial nerve palsy, pulsatile tinnitus, etc. Treatment for IIH includes dietary management, the use of medications, and surgical procedures, such as the placement of cerebrospinal shunts (ventriculoperitoneal shunt – VPS or lumboperitoneal shunt – LPS), optic nerve sheath fenestration, or venous sinus stenting. In Albania, cases of IIH are rare, and in 2023, only three females and one male were reported at the Neurosurgery Clinic at the University Hospital Center "Mother Teresa."

Methodology: A retrospective study with a purposeful approach analyzed variables of interest through patient charts after hospital discharge.

Study Objective: The objective of this study was to analyze the cases of IIH hospitalized during 2023, comparing the results with international literature.

Results: The results showed that the patients exhibited the classic signs described in international literature. After treatment, noticeable improvements were observed in the reduction of headache severity, improvement in vision, and overall improvement in quality of life.

Conclusions: The data from this study cannot be generalized to the general population, but it can serve as a basis for further studies and for improving early diagnosis and treatment of IIH.

Keywords: Idiopathic Intracranial Hypertension (IIH), Obesity, Cranial Nerve Palsy, Treatment, Cerebrospinal Shunt

Visceral Leishmaniasis in an Adult Splenectomized Patient with Beta Thalassemia

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Introduction: A 45-year-old splenectomized woman, diagnosed with beta thalassemia since birth, was admitted because of elevated fever lasting 3 weeks and unresponsiveness to broad-spectrum antibiotics. She also complained of malaise, weakness, sweating, arthralgia, and myalgia. Her past medical history included a chronic HCV infection but without any elevated viremia.

Methods: The abdominal examination showed an enlargement of the liver to 14 cm below the costal margin with a firm consistency and smooth surface and a left abdominal scar. She had slightly enlarged lymph nodes that were mobile, non-tender, and with soft consistency in inguinal, axillary, and anterior and posterior cervical chains. Laboratory studies showed a moderate anemia, increased white blood cell and platelet counts within the normal range. Also, lymphomonocytosis was noticed in the formula of the CBC. A discrete elevation of aminotransferase enzymes was noticed. All blood cultures and serologic tests were negative, as well as HCV RNA was undetectable. An increase of gamma-globulin was seen in electrophoresis. An abdominal-pelvic CT scan showed enlargement of the liver and presence of enlarged lymph nodes in the peri-aortal and inguinal chains.

Results: The patient subsequently underwent a bone marrow aspirate that revealed the presence of numerous extracellular *Leishmania* amastigotes. She was treated with L-AmB at 4 mg/kg daily for 7 days (5 + 1 + 1). The symptoms (fever) disappeared after 3 days. Twelve months after therapy, the patient remained asymptomatic, and her physical examination showed reduced size of liver and no lymphadenopathy.

Conclusion: Splenectomy has been known to have deleterious effects on humoral and cellular immunity. We, therefore, consider that asplenia should be included as a predisposing immunosuppressive condition for visceral leishmaniasis (VL). This is the first case of VL reported either in a splenectomized or thalassemic adult in Albania.

Keywords: Visceral leishmaniasis, splenectomy, beta thalassemia, immunosuppression, *Leishmania* amastigotes, Albania, L-AmB therapy

Thyroid Cancer

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Introduction: The incidence of thyroid cancer has increased in many countries around the world since the early 1990s. There is an epidemiologic evidence that the increasing incidence of thyroid cancer is associated with subclinical disease detection. In the US, the 3-fold increase has been attributed primarily to the detection of small, subclinical cancers, and has not been associated with improved mortality rates. The increased detection of subclinical small cancers has been attributed to increased imaging and diagnostic scrutiny.

Objectives: To evaluate the incidence of thyroid cancer and its spread according to gender, age, size and histopathologic type and features

Methodology: This was a retrospective analysis of pathology and medical records of 374 patients who underwent thyroid-directed surgery in General Surgery Service of HUC Mother Theresa. The participants had thyroid surgery in 2023. Data analyses were performed from January to December 2023.

Results: Of the 374 patients (mean [SD] age, 53.09 [13.1] years; 333 [89%] women; who underwent thyroid surgery that met inclusion criteria, 54% (202) of the surgeries were for patients with thyroid-related symptoms, 31% (116) for thyroid findings discovered without thyroid-referable symptoms, 14% (52) for endocrine conditions, and 1% (4) under surveillance. Cancer was detected in 114 (33%) patients; of these, 30% (34 patients) were symptomatic and 70% (80 patients) had no thyroid-referable symptoms. The mean (SD) size of the cancers identified was 1.95 (0.1 – 11cm)

Conclusions: This retrospective analysis found that most thyroid cancers were discovered in patients who had no thyroid-referable symptoms; on average, these cancers were smaller than symptomatic thyroid cancers.

Keywords: Thyroid cancer, subclinical detection, retrospective study, asymptomatic tumors, histopathology, thyroid surgery, cancer incidence, screening, tumor size, gender differences

The Impact of Biological Therapy on the Gut Microbiome of Patients with Inflammatory Bowel Disease

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Introduction: Inflammatory bowel diseases (IBD) challenge modern medicine due to their chronic nature and unpredictable response to treatment. [1] The intestinal microbiome plays a crucial role in the pathogenesis of IBD and in the response to therapies, influencing inflammatory mechanisms and immune balance. [2] Biological therapy is a key treatment option, but its impact on the gut microbiome remains unclear. [3]

Objectives: To identify and characterize changes in the microbiome composition in IBD patients before the initiation of biological therapy and after three treatment cycles, assessing its influence on microbial balance and its prognostic potential.

Methods: This study included IBD patients at the Clinic of Gastroenterology, UCCK. Fecal samples were collected before treatment and after three cycles of biological therapy. Microbiome analysis was performed using DNA sequencing to detect changes in bacterial diversity and composition. Data processing was conducted using bioinformatics tools and statistical analysis to evaluate the therapeutic impact.

Results: Preliminary data suggest significant changes in microbial composition after biological therapy, with increases or decreases observed in certain bacterial groups. These shifts may influence therapeutic response and treatment success.

Conclusion: Biological therapy alters the gut microbiome in patients with IBD. This study highlights the importance of microbiome monitoring as a biomarker for treatment personalization and improved clinical outcomes. Further studies are needed to better understand the mechanisms behind these changes and to optimize therapeutic strategies.

Keywords: Inflammatory Bowel Disease, Gut Microbiome, Biological Therapy, Microbial Composition, Personalized Medicine, Biomarkers

Autoimmune Urticaria: Increased Risk for Systemic Lupus Erythematosus

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Introduction: Autoimmune urticaria, also known as chronic urticaria (CU), is a specific form of urticaria involving autoimmune components, characterized by the presence of autoantibodies that trigger mast cell activation. Chronic urticaria is defined by recurrent cutaneous episodes appearing at least twice a week for a duration of six weeks. Multiple etiological factors have been linked to chronic urticaria, including physical, infectious, vasculitic, psychological, and idiopathic causes. Increasingly, idiopathic forms are being correlated with an autoimmune origin. Histamine release from mast cells is the central mechanism in pathogenesis and is clinically manifested by urticarial lesions that tend to recur. Patients with chronic urticaria may have an increased risk of developing Systemic Lupus Erythematosus (SLE) and other autoimmune diseases. SLE is a chronic autoimmune condition with a wide spectrum of clinical manifestations, affecting multiple organs and systems. Environmental and genetic factors are involved in the onset and course of the disease. The skin is among the most commonly affected organs, with manifestations such as malar rash, discoid rash, and photosensitivity being part of classification criteria. Other cutaneous symptoms include alopecia, oral ulcers, purpura, and urticaria. Although the association between SLE and CU is widely cited in the literature, available evidence is relatively limited. Most studies investigating this relationship rely on systematic reviews and meta-analyses.

Methods: This review evaluates available meta-analytic studies and literature data regarding the correlation between chronic urticaria and the increased risk of developing SLE. Factors contributing to this association include autoimmune dysregulation, the presence of autoantibodies, comorbidity with other autoimmune diseases, immune response and inflammation, as well as genetic predisposition.

Results: Meta-analytic studies indicate that patients with chronic urticaria have a significantly increased risk—approximately five times greater—of developing SLE compared to individuals without CU. Shared autoimmune mechanisms, including chronic inflammation and the presence of autoantibodies, are believed to play a central role in this elevated risk.

Conclusion: There is a notable association between chronic urticaria and an increased risk of Systemic Lupus Erythematosus. These findings highlight the importance of careful assessment and monitoring for autoimmune conditions in patients with chronic urticaria. Early detection and surveillance can lead to improved management and outcomes.

Keywords: Chronic urticaria, Systemic Lupus Erythematosus, autoimmune, autoantibodies, meta-analysis

Cytological Data Collected from Pap Tests Over a Two-Year Period (2022–2023)

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Introduction: Current data show that approximately 130 new cases of cervical cancer are diagnosed annually in Albania, with an average of 40 women dying from this condition each year. The Pap test is considered one of the most cost-effective examinations for the early detection of cervical epithelial cell abnormalities. All international guidelines recommend regular screening with this test for women over the age of 35 in order to promptly identify and treat potential cellular hyperplasias.

Methodology: In addition to existing studies and official data from INSTAT, the Institute of Public Health (ISHP), and relevant medical specialists, this research also included results from 2,149 Pap tests conducted at ALNET during the years 2022–2023. The results were analyzed according to patient age and the typology of cell categorization.

Results: During the analysis of the collected data, the results were grouped into three major categories. Out of 2,149 tests performed, 14 were classified as unsatisfactory samples, 54 had limited quality, and 2,081 were considered satisfactory. From the successful tests (n=2,135), 1,881 were negative, while 254 cases presented with epithelial cell abnormalities. Among these, 219 cases were reported as ASC-US, 19 as ASC-H, 5 as LG-SIL, and 2 as HG-SIL. In addition, there were 9 cases with glandular cell abnormalities, all of which were categorized as AGC-NOS.

Conclusion: The Pap test remains one of the most widely used and effective screening methods in Albania due to its affordability and high diagnostic accuracy. It continues to play a key role in the early detection and prevention of cervical cancer.

Keywords: Pap test, cervical cancer, epithelial cell abnormalities, ASC-US, LSIL, HSIL, AGC-NOS, screening, cytology, Albania

Chordoma in the Petrous Area: A Case Report from Our Clinic and Review of the Literature

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Introduction: Chordoma is a rare, low-grade malignant tumor originating from embryonic notochordal remnants. It primarily affects the axial skeleton, most commonly in the spheno-occipital junction and sacrococcygeal region, accounting for approximately 1% of all malignant bone tumors and 0.1%–0.2% of intracranial tumors. Chordomas in the petrous region are extremely rare. We present a case of a patient with a petrosal lesion diagnosed as chordoma, which was successfully removed via an endonasal endoscopic approach.

Materials and Methods: This report includes two patients diagnosed with petrosal chordoma who underwent surgical treatment. The follow-up period for both patients is approximately two years. A literature review was also conducted to compare our findings with similar reported cases.

Results: Both patients demonstrated significant clinical improvement postoperatively, and follow-up imaging has shown no signs of lesion recurrence.

Discussion and Conclusion: Chordomas in the petrosal-mastoid region are rare and should be considered in the differential diagnosis of petrous apex tumors. Early diagnosis and appropriate surgical intervention followed by regular imaging are essential for positive outcomes.

Keywords: Chordoma, petrous bone, skull base tumor, endonasal endoscopic surgery, neurosurgery, case report, intracranial tumors, notochordal remnants

The Effects of Radiosurgery on Arteriovenous Malformations

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Introduction: An arteriovenous malformation is a tangle of abnormal blood vessel connections between arteries and veins that disrupt blood flow and distribution of oxygen to nearby tissues. Treatment consists of surgical removal, embolization and radiosurgery. The focus in this study is the effects of radiosurgery on AVM. Radiosurgery is increasingly used for the management of specific AVM. For small lesions that are usually deep and/or in eloquent locations, radiosurgery represents a safe and efficacious as a primary treatment option. We present a series of 8 patients with AVM who underwent radiosurgery between 2017-2023 in different locations (mostly in frontal, temporal and occipital lobe).

Methods: A retrospective, comparative case series was conducted using the electronic medical record identifying all patients who underwent on radiosurgery for AVMs, at the Department of Neurosurgery, UHC "Mother Tereza", for the period January 2017- August 2023. They were evaluated preoperatively and postoperative by imaging studies (CT, and/or MRI).

Results: Demographics: The study included 8 patients of whom 5 were males and 3 were female. Among our included patients, only two of them were treated twice.
Treatment: Radiosurgery for AVM was done using 10-20 Gy considering age, general condition, size and location of brain AVM.
In all patients we noticed an important decrease in size of the AMV in the postoperative imaging. It is evaluated that half of the patients had more than 50% of lesion reduction.

Conclusion: Stereotactic Radiosurgery plays major role in treatment of brain AVM. Radiosurgery is a non-invasive outpatient treatment option typically considered for small AVMs that are difficult or risky to surgically remove.

Keywords: Arteriovenous malformation, Radiosurgery, CT, MRI

Varicocele in Adults: Modern Methods and the Effectiveness of Surgical Treatments

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Introduction: Varicocele is a vascular disorder characterized by the dilation of testicular veins, which can negatively impact male fertility and cause chronic pain or testicular atrophy. Etiological factors include venous reflux due to valve dysfunction and increased venous pressure. Surgical treatment remains the primary option for improving sperm quality and reducing symptoms.

Objectives: This study aims to review modern surgical techniques for the treatment of varicocele in adults, compare their effectiveness, and evaluate the incidence of postoperative complications.

Methods and Materials: A literature review was conducted, including clinical studies and meta-analyses from journals such as *Fertility and Sterility* and *Journal of Urology*. The surgical methods analyzed were subinguinal microsurgery, laparoscopic surgery, robotic surgery, and percutaneous embolization.

Results: Subinguinal microsurgery and robotic surgery showed the highest success rates (95–98%) with minimal complications (<1% hydrocele, 1–2% recurrence). Percutaneous embolization is minimally invasive but has a higher recurrence rate (10–15%). Laparoscopic surgery demonstrated moderate effectiveness but carries a higher risk of lymphatic complications.
Conclusion: Microsurgical and robotic techniques remain the most recommended treatments due to their high success rates and low risk of complications. Treatment should be tailored to the individual patient and the surgical expertise available.

Keywords: Varicocele, laparoscopic surgery, microsurgery, robotic surgery, surgical treatment, complications

Use of Antibiotics in Periodontal Therapy

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Objectives: The aim of this presentation is to explain three key issues encountered during periodontal pathology:

1. Are systemic antibiotics effective if the biofilm is not interrupted?
2. Can the type of subgingival biofilm cleaning influence the clinical outcomes of adjunctive antimicrobial therapy?
3. Does the efficacy of systemic adjunctive antimicrobial therapy depend on the quality of subgingival biofilm cleaning and the sequence of cleaning-antibiotic usage?

Materials and Methods: Relevant studies were searched, critically analyzed, and their data extracted.

Results: For the first issue, studies evaluating bacterial sensitivity in biofilms and clinical studies assessing systemic antibiotics as monotherapy were reviewed. For the second issue, clinical studies comparing systemic antibiotics as adjuncts with non-surgical therapy or periodontal surgery and clinical evidence using systemic antibiotics with periodontal surgery were evaluated. For the third issue, a prior systematic review was updated.

Conclusion: If systemic antibiotics are indicated in periodontal therapy, they should be adjunctive to mechanical cleaning. There is insufficient evidence to support their use with periodontal surgery. Indirect evidence suggests that antibiotic therapy should begin on the day the cleaning is completed, the cleaning should be finished within a short time frame (ideally within one week), and performed with suitable quality to optimize results.

Keywords: Antibiotics, periodontal therapy, systemic antibiotics, biofilm cleaning, periodontal surgery, adjunctive therapy, clinical outcomes

The Role of Surgery in Head and Neck Tumors

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Introduction: Head and neck tumors, particularly squamous cell carcinoma, present a complex challenge in clinical oncology. Surgery plays a crucial role in the treatment of these malignancies, particularly in terms of resecting primary tumors and addressing lymphatic shunting. The treatment strategy is dependent on tumor staging, histological factors, and patient-specific considerations. Squamous cell carcinoma, often seen in the facial and auricular regions, requires highly specialized surgical intervention. In certain cases, ex-tempora biopsy becomes an invaluable tool in the diagnosis and staging process.

Methods: This review is based on an analysis of current literature and clinical case studies related to the surgical management of head and neck tumors, with a particular emphasis on squamous cell carcinoma. We examine the role of surgery as the primary treatment modality, focusing on the surgical resection of tumors and the management of lymphatic involvement. Special attention is given to the cases of facial and auricular squamous cell carcinoma, where the challenges of tumor location and involvement of critical structures require meticulous surgical planning. Additionally, we explore the utility of ex-tempora biopsy in determining the primary tumor and sentinel mass, which helps guide treatment decisions. The study also discusses the importance of histological examination, tumor grading, and the achievement of clear surgical margins of less than 1 cm.

Conclusion: - Surgery is primary in the treatment of primary tumor and lymphatic shunting.
- Stage IV A lymphatic shunt L-C
- Stage IVC RT+CT can be performed in hemorrhagic mass palliative surgery
- Ex-tempora biopsy plays an important role for the primary and sentinel mass which is performed in some countries.
- Histology, grade, clear margins <1 cm, in Histology it is very important for the operating techniques and L-C curation
- So in 2 cases with a diagnosis of size 0 1 cm x 2 cm CT2NxMx and after the intervention and non-protocol procedures they have completed stage IV.A and IV.B
- Treatment success (Surgery, clear margins <1 cm and a perfect staging.
- ECHO L-C CT Total Body MRI Head and Neck, PET-CT and curation at the best time, and then RT+KT and in the world genetic and molecular tests for personalized treatment have begun.

Keywords: Surgery, Head and Neck Tumors, Lymphatic Shunting, Staging, Squamous Cell Carcinoma, Ex-Tempora Biopsy, Radiation Therapy (RT), Chemotherapy (CT), Histology, Personalized Treatment, Genetic and Molecular Tests

Incidence and Emergency Medical Management in Traffic Accidents in the Pre-Hospital Environment

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Background: Road traffic accidents have become an enormous global public health problem. Every year, approximately 90,000 people are killed in road traffic accidents in the ECE region. The death rate is very high within 30 min after injury. Paying attention to pre-hospital emergency medical in the treatment of traffic accident injuries is the key to ensuring successful and effective treatment.

Methodology: We studied patients affected by road traffic accident and receiving prehospital care in the Regional Hospital Emergency Department, during 2022,2023,2024.

Results: In 2022 there were a total of 41 road traffic accidents, with 49 individuals involved experiencing severe trauma and death. In 2023 there were a total of 50 road traffic accidents, with 70 individuals involved experiencing severe trauma and death. In 2024 there were a total of 83 road traffic accidents, with 121 individuals involved experiencing severe trauma and death.

Conclusion: Road traffic accidents are responisble for a considerable proportion of severe trauma cases in the ED of Elbasan Hospital. Multidisciplinary teams are indispensable for high quality of care

Keywords: Pre-hospital care, road, health problem, menagment, emergency care

Aortic Valve Repair Surgery

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Introduction: Aortic valve (AV) repair is now recognized as a good alternative to prosthetic valve replacement in selected patients suffering from aortic insufficiency (AI) or proximal aorta aneurysm. Several authors have achieved long or very long-term outcomes, up to 20 years, with excellent stability of the repair. Moreover, active ongoing research has led to several significant improvements in the surgical techniques, like better repair stabilization using circumferential annuloplasty and systematic assessment of valve configuration using the effective height concept.

Results: AI is also classified into 3 types according to the mechanism inducing insufficiency. Type 1 AI is caused by aorta dilatation and the regurgitation jet is generally central. Type 2 AI corresponds to aortic cusp prolapse and the regurgitation jet is eccentric. Finally, Type 3 AI is characterized by cusp retraction and reduced motion due to fibrosis or the calcification process. The different types of AI frequently coexist with each other. For aortic root aneurysms, The David procedure remains the gold standard and is characterized by complete excision of the aortic root and reimplantation of the aortic valve directly into a Dacron graft, demonstrating superior long-term durability and lower reoperation rates.

Conclusion: Nowadays, AV repair has reached a degree of maturity as evidenced in excellent long-term durability that is similar between bicuspid and triscuspid valves. These procedures have been standardised during the last years. The fact that it is reproducible will allow AV repair eventually to become the new standard in selected young patients suffering from AI and/or aorta dilatation. We have performed a series of successful repairs at our clinic in the last years and we hope to increase the numbers in the near future, with more patients to benefit from these procedures.

Keywords: Aortic Valve Repair, Aortic Insufficiency, Aortic Root Aneurysm, David Procedure, Long-Term Outcomes, Valve Durability, Surgical Techniques, Circumferential Annuloplasty, Valve Repair, Prosthetic Valve Replacement.

An Apical Left Ventricle Mass: A Diagnostic Dilemma

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Introduction: Pseudoaneurysms of the heart are rare and often pose diagnostic challenges due to their varied clinical presentations and multiple possible etiologies. Apical pseudoaneurysms, although uncommon, are associated with significant morbidity (due to rupture) if not diagnosed early. These pseudoaneurysms are typically a mechanical complication of myocardial infarction in 55% of cases but may result from chest trauma (7%), infection/pericarditis (5%), or even congenital defects and autoimmune disease. Proper identification and management of apical pseudoaneurysms require a thorough understanding of these differential diagnoses, advanced imaging techniques, and, often, histopathological examination. The differential diagnosis of these conditions is crucial for guiding the appropriate treatment approach.

Methods: A 31-year-old female patient presented with ventricular tachycardia and severe hypotension. After initial evaluation with echocardiography and coronary angiography, the first suspicion was potential echinococcal pericardial/epicardial cyst. Laboratory tests were negative, and a more definitive imaging approach was pursued using computed tomography (CT) and magnetic resonance imaging (MRI). The MRI findings raised suspicion for either a pseudoaneurysm or calcified hematoma. The patient then underwent surgical intervention.

Results: Following surgical intervention, the final diagnosis was confirmed as an apical pseudoaneurysm. The procedure performed was a modified Dor procedure, which involved Teflon patch closure. The diagnosis was based on advanced imaging techniques, and the surgical outcome was successful.

Conclusion: This report highlights the diagnostic challenge of identifying an apical pseudoaneurysm and discusses the complexities involved in differentiating between various potential etiologies, such as traumatic, infectious, autoimmune, and congenital causes. It emphasizes the importance of a thorough diagnostic workup in cases of unclear etiology and the role of advanced imaging techniques in guiding surgical intervention. In cases like this, timely diagnosis and intervention are crucial to prevent morbidity associated with rupture.

Keywords: Apical Pseudoaneurysm, Myocardial Infarction, Ventricular Tachycardia, Hypotension, Advanced Imaging, MRI, Computed Tomography, Modified Dor Procedure, Teflon Patch, Differential Diagnosis.

Transvaginal Evisceration of the Small Bowel: A Case Report

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Introduction: Vaginal evisceration is an extremely rare surgical emergency characterized by the extrusion of abdominal viscera through a defect or rupture of the vaginal wall. It represents a life-threatening condition that requires prompt diagnosis and surgical intervention to avoid serious complications such as bowel injury, sepsis, or death.

Methods: A 76-year-old woman presented to the emergency department with generalized abdominal pain, vaginal bleeding, and bowel loops protruding through the vagina. Her medical history included a total hysterectomy performed five years prior and rectal cancer treated with chemoradiation. Clinical examination revealed about 30 cm of edematous small bowel loops protruding through the vaginal vault. Vital signs at presentation were: blood pressure 100/70 mmHg, heart rate 100 bpm, oxygen saturation 97%, temperature 36.3°C, and respiratory rate 20/min. The abdomen was distended with tenderness but without signs of peritoneal irritation, and bowel sounds were absent. An abdominal CT scan with IV contrast was performed, which revealed a whirlpool sign in the pelvis, evidence of prior hysterectomy, the presence of thin bowel loops outside the pelvic floor, and fluid collection with air bubbles at the vaginal vault level. Preoperative therapy included administration of cefazoline, diazepam combined with analgine, NaCl 0.9%, potassium chloride, calcium chloride, and magnesium sulfate IV.

Results: Laboratory findings showed: RBC 3.70 $\times 10^6$/µL, WBC 12.6 K/µL, PLTs 309 K/µL, UREA 53.9 mg/dl, INR 1.09, hemoglobin 13.8 g/dl, and CRP 2.57 mg/dl. The patient underwent a midline laparotomy. The herniated bowel loops were identified and manually reduced. The loops appeared edematous but viable, and there was no need for bowel resection. The vaginal vault defect was primarily repaired, and a drain was placed in the Douglas pouch. Postoperatively, the patient stayed one day in the intensive care unit for vital signs monitoring. No surgical or clinical complications occurred, and the patient was discharged after five days. Follow-up examinations confirmed that the patient remained well.

Conclusion: Transvaginal evisceration, although rare, is a surgical emergency that demands immediate recognition and intervention. Early surgical repair is crucial to prevent complications such as bowel necrosis, sepsis, and death. Thorough clinical evaluation, prompt imaging, and timely operative management ensure favorable outcomes.

Keywords: Transvaginal evisceration, vaginal rupture, small bowel prolapse, hysterectomy complications, surgical emergency, bowel herniation, abdominal surgery.

First Aid

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Introduction: Accidents and medical emergencies occur unexpectedly, requiring immediate action to preserve life and prevent further complications. First aid is the initial care given to an injured or ill person until professional medical assistance is available. Understanding and applying first aid techniques correctly can significantly improve survival and recovery rates. This study examines the effectiveness of structured first aid training, focusing on essential interventions for life-threatening and non-life-threatening emergencies.

Methods: A systematic review of first aid principles and guidelines was conducted using reputable sources such as the American Red Cross and the World Health Organization (WHO). The study evaluated the impact of structured first aid training programs, assessing knowledge retention, response time, and effectiveness in simulated emergency scenarios. The ABCDE (Airway, Breathing, Circulation, Disability, Exposure) approach was analyzed as a structured assessment method. Key first aid techniques, including CPR, Heimlich maneuver, wound care, and trauma management, were reviewed.

Results: The analysis demonstrated that individuals trained in first aid exhibited faster response times and greater confidence in handling emergencies. The ABCDE method improved assessment accuracy, ensuring that life-threatening conditions were prioritized. CPR training significantly increased the likelihood of survival in cardiac arrest cases. The Heimlich maneuver was found to be an effective intervention for airway obstruction. Proper wound management techniques helped reduce infection risks and improved healing outcomes. Additionally, psychological first aid played a crucial role in reducing distress and improving the overall well-being of victims.

Conclusion: First aid training enhances emergency response efficiency, increasing survival rates and reducing complications in medical emergencies. The integration of structured assessment methods such as the ABCDE approach ensures a systematic and effective response. Widespread first aid education is essential for equipping individuals with the knowledge and confidence to provide immediate and appropriate care in emergencies. Promoting first aid awareness can contribute to improved public health and safety.

Keywords: First Aid, Emergency Response, Life-Saving Techniques, Airway Management, ABCDE Approach, Cardiopulmonary Resuscitation (CPR), Heimlich Maneuver, Trauma Care, Patient Assessment, Emergency Medical Services (EMS)

Pulmonary Thromboembolism Leading to Severe Right Heart Failure and Cyanosis: A Case Unveiling Underlying Deep Vein Thrombosis

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Introduction: Pulmonary thromboembolism (PTE) is a life-threatening condition that can lead to significant hemodynamic compromise. While massive PTE is well-documented, segmental PTE causing severe right ventricular (RV) failure and pericardial effusion is rare. This case highlights an atypical presentation of segmental PTE with profound hypoxemia, cardiogenic shock, and pericardial effusion, emphasizing the need for early recognition and aggressive intervention.

Case Presentation: A 40-year-old male with no prior medical history presented with sudden dyspnea, cyanosis, and syncope. On arrival, he was in shock (BP: 75/50 mmHg, HR: 124 bpm, SpO_2: 75%). Echocardiography revealed RV dilation with septal bowing, and CT pulmonary angiography showed segmental emboli in the right pulmonary branches. Lower limb Doppler confirmed deep vein thrombosis (DVT) in the left popliteal vein. Despite the non-massive nature of the embolism, systemic thrombolysis was administered due to hemodynamic instability. Within 24 hours, the patient developed worsening hypotension and echocardiography revealed a rapidly enlarging pericardial effusion, necessitating emergent pericardiocentesis.

Discussion: This case underscores the potential for severe RV failure and systemic hypoxia in segmental PTE, likely due to increased pulmonary vascular resistance and pre-existing RV vulnerability. The development of pericardial effusion in this setting may result from venous congestion and systemic inflammation. Serial echocardiography was crucial in detecting evolving complications.

Conclusions: Non-massive PTE can have severe hemodynamic consequences, requiring individualized management. Early echocardiographic monitoring is essential for detecting complications such as pericardial effusion, and prompt intervention can be life-saving.

Keywords: Pulmonary thromboembolism (PTE), right ventricular failure, pericardial effusion, deep vein thrombosis (DVT), systemic thrombolysis, hypoxemia, cardiogenic shock, echocardiography, pulmonary angiography, venous congestion, intensive care, cardiology, thrombolysis, emergency intervention.

Traumas of the Oral and Maxillofacial Region (Examination and Diagnosis)

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Introduction: Traumatic injuries of the maxillofacial region are rarely life-threatening and generally do not require immediate emergency treatment. This is seen in relative terms when compared to other possible injuries. Early assessment of organ systems and the immediate management of critical injuries are imperative first steps for successful resuscitation. Immediate assessment and treatment, often at a later stage for maxillofacial trauma, are very important from both the functional and aesthetic perspectives of the patient, aspects that directly affect the patient's quality of life throughout their lifetime.

Objectives: To address the treatment of maxillofacial emergencies, situations that require early management and may compromise the life of the traumatized patient by impacting: the face, brain, spine, and respiratory pathways. To determine the origins of maxillofacial trauma, such as: road accidents, civil conflicts, sports injuries, falls, animal bites or attacks, and gunshot wounds.

Materials and Methods: Management and implementation were made possible by conducting the correct extraoral and intraoral examinations on the patient.

Conclusion: The treatment of patients with maxillofacial trauma is of significant importance. Rapid primary treatment ensures a higher success rate. In maxillofacial trauma treatment, the management of complications also plays an essential role.

Keywords: Traumatic Injuries, Maxillofacial Region, Extraoral and Intraoral Examinations.

Dupuytren's Disease and Its Treatment: Case Presentation of Fasciectomy Procedures at the Regional Hospital

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Introduction: Dupuytren's disease is a fibroproliferative pathology of the palmar region of the hand, which leads to a progressive and permanent flexion contracture of the fingers. It often causes deformity of the affected hand, significantly decreasing the patient's quality of life. The pathogenesis of this disease is still not completely understood; it is complex and multifactorial. Risk factors include older age, male gender, Northern European ancestry, a positive family history of Dupuytren's disease, and diabetes mellitus. The disease tends to progress more aggressively in cases where onset occurs at a younger age; these patients may also develop additional fibromatoses affecting the dorsal hands, soles of the feet, and penis.

Methods: Treatment options for Dupuytren's disease are divided into non-surgical and surgical approaches. Percutaneous needle fasciotomy and fasciectomy are among the most commonly chosen surgical procedures. A modern non-surgical treatment is the injection of *Clostridium histolyticum* collagenase (CCH).

Results: Patients with Dupuytren's disease of the hand can achieve significant functional improvement through surgical treatment. With realistic expectations, timely and specialized surgical technique, and proper attention to postoperative rehabilitation (including occupational and physical therapy), a beneficial outcome can be achieved in the majority of cases.

Conclusion: In our country, due to patients often presenting at an advanced stage of the disease and the high cost of collagenase injections, surgical treatment remains the primary therapy for this condition. The outcomes of several treated cases in our institution are presented in this report.

Keywords: Dupuytren's disease, fasciectomy, palmar fibromatosis, hand contracture, surgical treatment, collagenase injection, percutaneous fasciotomy, hand deformity, rehabilitation, orthopedic surgery.

VAP Prevention in ICU Trauma Brain Injury Patients: Use of Closed Endotracheal Catheter (Closed Suction Systems) for Suctioning Endotracheal Secretions

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Introduction: Ventilated Associated Pneumonia (VAP) is a significant cause of morbidity and mortality among Brain Injury Trauma patients admitted to the Intensive care Unit. Intubated brain injury patients are at an increased risk of VAP. They are usually under mechanical respiratory-assisted ventilation for extended periods and require frequent suctioning of endotracheal airway secretions. There are two types of catheters used for this, opened and closed systems.

Method: We evaluated the incidence of VAP in ICU of the University Trauma Hospital in a population of 10 patients during the period they were intubated (before a tracheostomy was performed). For the clearance of the airways secretions in those patients was used only closed suction systems. All patients received antibiotics as prophylaxis. We found that only one patient met the VAP criteria, with fever >38°C, radiology signs of pneumonia, and leucocytosis. The rate of VAP in the literature varies from 20–40%.

Results: Out of 10 patients treated with closed suction systems, only one developed VAP, indicating a 10% incidence rate—substantially lower than the commonly reported 20–40% in the literature.

Conclusion: We recommend that all intubated ICU patients use only closed suction catheters as one of the measures to prevent VAP.

Keywords: VAP prevention, closed suction systems, ICU, trauma brain injury, mechanical ventilation, endotracheal suction, patient safety, ventilator-associated pneumonia.

Endoscopic Brain Biopsy: Our Surgical Experience

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Background: Endoscopic third ventriculostomy, first performed by urologist William Mixter in 1923, is the choice technique in treating obstructive hydrocephalus secondary to cerebral tumors. At '90s there was a flourish in instruments refinement, which lead in early 2000 to EB's routine use. Compared to first attempts of cerebral endoscopy a century ago, EB went a long way and has been used in developed countries as a routine technique for quarter of century now.

Objective: Determine endoscopic biopsy effectiveness and efficacity.
Design, Setting, and Participants: A retrospective observative cohort study by a single surgeon at a single unit: Neurosurgery Service, "Mother Theresa" University Hospital Center (UHC), during September 2022 - June 2024 is performed. A total of 11 patients which undergone intraventricular endoscopic biopsy (VEB) and 4 other patients undergoing intraparenchymal endoscopy (PEB) were evaluated. Data got compiled using Excel Office 16.
Main Outcome(s) and Measure(s): VEB group's age ranges between 6-70 years old, with a mean age of 29.5 years old and median of 35. Female predilection is stated, 73%. While PEB group's age ranges between 25-70 years old, with a mean age of 49 years old and median of 52. Male predilection is stated, 67%.

Results: Diagnosis dispersion in VEB resulted non conclusive only in 9% of cases. Pilocytic astrocytoma resulted the most frequent diagnosis (37%), followed by metastases (27%) and ependymoma (27%). Diagnosis dispersion in PEB showed glioblastoma predominance (75%). Based on intraoperative associated procedures to ETV and EB in VEB, OR time varies from 1.5 hours to 3 hours, while PEB is calculated to last up to 2 ours.

Conclusions and Relevance: EB results a successful approach with 91% diagnostic yield specificity, if done properly giving access to material championing for diagnosis given its minimally invasive approach. Multidisciplinary team is success' key.

Keywords: biopsy, endoscopy, IHC, diagnosis, diagnostic yield, conclusive

Avoiding Medical Errors in Anesthesia Facilities and Intensive Care Units

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Introduction: Medical errors present the third most common cause of mortality and morbidity, due to major challenges in healthcare, high complexity of management, rapid clinical decision especially in critically ill patients. These errors include medication errors, procedural complications, diagnostic inaccuracies, and communication failures. Approximately 35-40% are misdiagnosing and lack of performance. ICU errors include provider fatigue, cognitive overload, inadequate staffing ratios, equipment malfunctions, and miscommunication.

Objectives: To have a summarized scenario on medical errors in intensive care unit, emphasizing our national perspective as well.

Material and methods: The consequences of ICU errors range from minor adverse events to life-threatening complications, prolonged hospital stays, increased healthcare costs, and, in some cases, mortality. Beyond the direct impact on patients, errors in the ICU also contribute to provider burnout, legal implications, and diminished trust in healthcare systems.

Results: Strategies such as the implementation of standardized clinical protocols, computerized physician order entry (CPOE) with clinical decision support systems, robust medication reconciliation processes, and structured handoff communication tools (e.g., SBAR—Situation, Background, Assessment, and Recommendation) have been shown to reduce preventable errors. Enhancing teamwork through simulation-based training, fostering a culture of safety, and integrating artificial intelligence-driven monitoring systems can further improve patient safety. Additionally, ongoing quality improvement initiatives, real-time error reporting, and structured debriefing after critical events play a crucial role in error reduction.

Conclusions: Future research should focus on leveraging emerging technologies, optimizing ICU workflows, and refining human factors engineering to design safer systems. The integration of predictive analytics, automated error detection algorithms, and machine learning applications has the potential to revolutionize error prevention in critical care. These strategies present our national intensive care units' challenges.

Keywords: Medical errors, anesthesia facilities, intensive care units (ICU), medication errors, procedural complications, ICU protocols, computerized physician order entry (CPOE), clinical decision support systems, medication reconciliation, healthcare quality, predictive analytics, machine learning, healthcare systems, national ICU challenges.

Environmental Sustainability: Intensive Care Unit Perspectives

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Introduction: Sustainability is increasingly important and has become a key consideration in daily medical practice. Healthcare services contribute to approximately 5% of global greenhouse gas emissions, making them the fifth-largest contributor. Intensive care physicians play a crucial role in reducing emissions and lowering the carbon footprint of medical care.

Objectives: To identify the strategic steps to ensure sustainability in intensive care units.

Material and methods: I search on current literature regarding the principles of sustainability in intensive care units.

Results: Intensive care units (ICUs) contribute to emissions through various factors, including heating, energy consumption, medical devices (such as ventilators and dialysis machines), sterile packaging, pharmaceutical waste, and intravenous drug delivery pumps.
A sustainable approach can be guided by the 5 R's: Reduce, Reuse, Recycle, Research, and Rethink.

1. Reduce: Physicians should evaluate whether certain procedures are necessary and avoid unnecessary interventions.
2. Reuse: Whenever possible, reusable medical tools should be considered instead of single-use alternatives.
3. Recycle: Utilizing recyclable materials, particularly plastics, can help lower greenhouse gas emissions.
4. Research: Further investigation is needed to develop sustainable medical practices and materials.
5. Rethink: Healthcare professionals should continually reassess traditional practices to incorporate eco-friendly alternatives.

Conclusions: By implementing these principles, intensive care physicians can contribute significantly to a more sustainable healthcare system. Albanian healthcare must play an active role to this topic.

Keywords: Sustainability, intensive care units, healthcare emissions, carbon footprint, medical practice, reduce, reuse, recycle, research, rethink, sustainable healthcare, environmental responsibility, Albania.

Evaluation of Thyroid Nodules with Fine-Needle Aspiration Biopsy

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Background: The incidence of thyroid nodules has increased in the last 30 years due to the widespread use of imaging methods and incidental detection of small thyroid nodules. They are clinically common endocrine pathologies that most frequently require surgical intervention Thyroid fine-needle aspiration biopsy (FNAB) is the most accurate, reliable, and cost-effective test to evaluate thyroid nodules.

Aim: In this research, we aimed to elucidate thyroid fine-needle aspiration cytology (FNAC) to understand how suspicious cases predict malignancy.

Materials and methods: Within this research's scope, 60 patients over 16 years' old who were evaluated in Hospital University Center "Mother Theresa", Tirana, Albania between January to October 2023 and underwent thyroid FNAC followed by thyroid surgery were analyzed retrospectively. The age, gender, thyroid FNAC, operation type, and histopathology of all the patients were reviewed. Individuals with a history of head and neck cancer were excluded from the analysis.

Results: No statistically significant relationship between the pathology results and demographic characteristics was found. A statistically significant correlation existed between the pathology and FNAB results ($p<0.05$). Although 84.5% of the patients were diagnosed as benign, 14.7% as suspicious, and 0.8% as malignant in FNAC, all of these cases were diagnosed as benign in final histopathology results. Similarly, 21.9% of the patients were diagnosed as benign, 58.8% as suspicious, and 19.4% as malignant in FNAC and all of these cases were diagnosed as malignant in final histopathology results. A correlation was determined between the two measurements (Cohen's kappa (κ)=0.557; $p<0.001$). The test's sensitivity was 47%, and the specificity was 99.1%. According to the FNAC results, the rate of being diagnosed with malignancy (positive predictive value (PPV)) was 93.9%, and the rate of being diagnosed as benign (negative predictive value (NPV)) was 85.8% for the individuals initially diagnosed as benign.

Conclusion: Although FNAB remains the most important diagnostic tool to identify benign cases with a high accuracy rate, the operation decision is not clear in suspicious atypia of undetermined significance/follicular lesions of undetermined significance (AUS/FLUS) cytology findings. In conclusion, this study highlights the importance of FNA results and helps in surgical decision-making by emphasizing that the possibility of malignancy in the post-operative final histopathology report is higher, especially in the presence of suspicious FNAC results.

Keywords: Thyroid nodules, fine-needle aspiration biopsy (FNAB), thyroid FNAC, malignancy prediction, histopathology, suspicious FNAC, benign thyroid nodules, follicular lesions of undetermined significance (FLUS), cytology, diagnostic accuracy, thyroid surgery, positive predictive value (PPV), negative predictive value (NPV), surgical decision-making.

Endovascular Treatment of Carotid Artery Stenosis

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Introduction: Carotid artery stenosis (CAS) is a narrowing of the main artery that supplies blood to the cerebral hemispheres, usually due to atherosclerotic plaques. This condition can lead to ischemic strokes and requires intervention to prevent further complications.

Objective: This study aims to present our team's experience in the diagnosis and treatment of CAS and to raise awareness among physicians about the importance of timely referral to specialized centers.

Materials and Methods: The study is based on literature from the past 10 years and international guidelines on CAS, as well as examples from our endovascular treatment practice.

Results: Out of 13 patients treated with stents, 11 were male and 2 were female, with an average age of 68 years. The most common risk factors were hypertension (13 cases), dyslipidemia (10 cases), smoking (8 cases), and cardiovascular diseases (3 cases). Nine patients had right carotid artery stenosis, and 4 had left carotid artery stenosis, with 5 asymptomatic and 8 symptomatic cases. Endovascular treatment showed positive results in both symptomatic and asymptomatic patients.

Conclusions: Invasive treatment of CAS is necessary for stenoses greater than 70% in asymptomatic patients and 50-70% in symptomatic patients. Early diagnosis and immediate treatment are essential to reduce morbidity and mortality. Treatment should be carried out in specialized centers, with an integrated approach involving neurology, neurosurgery, and radiology.

Keywords: Carotid artery stenosis, endovascular treatment, ischemic stroke, atherosclerosis, stent placement, cardiovascular risk factors, neurological intervention, early diagnosis, specialized centers.

Conflicts Between Health and Scientific Protocols in the Diagnosis of Trisomy 21 in Albania: Impact on Medical and Legal Practice

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Introduction: This article examines the discord between the protocols of the Ministry of Health in Albania and international scientific guidelines for the prediction and diagnosis of chromosomal disorders, especially Trisomy 21. The antenatal care protocol in Albania provides screening methods for chromosomal anomalies, such as the Bitest, Triple Test, and Quadruple Test, which are only available in the private sector. However, this protocol has significant deficits in areas such as risk stratification following screening results and the provision of mandatory diagnostic tests, creating uncertainty for both doctors and patients.

Discussion: In international practices, such as those of the Fetal Medicine Foundation (FMF), patients are offered a detailed fetal anatomy scan, assessment of soft markers for chromosomal disorders, first-trimester combined screening, and risk stratification. Based on the results, it is determined whether the patient should be offered an additional screening method, such as NIPT, or a diagnostic test, including chorionic villus sampling (CVS) or amniocentesis. Albanian protocols do not present a structured system for managing intermediate or high-risk cases following screening. This makes it difficult to provide accurate and safe care for pregnant women and is a key factor in increasing the likelihood of medico-legal disputes.

Conclusion: The need for the integration of modern screening and diagnostic methodologies into the Albanian public health system is essential to improve the management of chromosomal disorders, especially Trisomy 21, and to avoid legal consequences that may arise from the uncertainty in protocols.

Keywords: Trisomy 21, prenatal screening, risk stratification, diagnostic protocols, health protocols, combined screening test, NIPT, invasive methods, Albanian health legislation.

Surgical Treatment for Trigeminal Neuralgia: Our Experience with Purely Endoscopic Microvascular Decompression

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Introduction: Trigeminal Neuralgia (TN), also referredas tic douloureux, is a neuropathic disorder characterized by paroxysms of excruciating, lancinating facial pain along the distribution of the trigeminal nerve. Trigeminal neuralgia treatment usually starts with medications (anticonvulsants, antispasmodic agents, Botox injection). If not, successful other methods are proposed: rhizotomy (glycerol injection, Balloon compression, radiofrequency thermal lesioning), radiosurgery (gamma knife) or surgery (microvascular decompression). This study aims to evaluate the outcomes of surgical treatment for TN.

Methods: A prospective, non-comparative case series was conducted using the electronic medical record identifying all patients who underwent purely endoscopic microvascular decompression for TN in the Department of Neurosurgery, UHC "Mother Tereza", for the period October 2021- February 2025, by a singular surgeon (A Xh). For the identified cases clinical data, imaging, intraoperative videos, post-operative neurological exams were collected. Subsequent to the initial assessment, long-term follow-up telephonic interviews were conducted with a focus on pain relief assessment.

Results: Demographics: The study included 21 patients of whom 15 were females, 6 were males. Etiology: Neurovascular Conflict (95.2%), Vestibular Schwannoma (4.8%). Pre operatory clinical classification: TN1 61.5%, TN2 35%, 3.5% trigeminal neuropathic pain. Pre operative BNI (Barrow Neurological Institute Pain intensity score): score 4 63.8 %, score 5 36.1%. Post-operative BNI: score 1 86.1%, score 2 8.3% score 3 5.6%. Current Treatment: 1 patients receive Tegretol.

Conclusion: Purely endoscopic microvascular decompression can significantly alleviate TN-associated pain, with the majority of patients experiencing complete pain relief.

Keywords: Trigeminal Neuralgia, Surgical Interventions, Pain Assessment, MRI Diagnosis

Comparison of Leptomeningeal Dissemination in Large Brain Metastases: Stereotactic Radiosurgery (SRS) vs. Surgery Followed by SRS

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Introduction: Large brain metastases, defined as ≥3 cm in diameter or ≥14 cm^3 in volume, are typically treated with stereotactic radiosurgery (SRS).

Objectives: This study compares leptomeningeal dissemination (LMD) in patients treated only with SRS and those treated with surgery followed by SRS, analyzing the distribution of the primary tumor and risk factors.

Methods: A retrospective analysis was performed on 95 patients with large brain metastases treated with fSRS, with or without prior surgical intervention, from 2014 to 2025, at the Department of Neurosurgery, "Mother Teresa" Hospital, Albania. LMD was defined as focal or diffuse leptomeningeal dissemination >5 mm from the initial metastasis on follow-up imaging.

Results: The most common primary lesions were pulmonary (37.9%), mammary (31.6%), and melanoma (10.5%). Other malignancies included colorectal (5.3%), renal (6.3%), thyroid (2.1%), and rare cases of ovarian, adrenal, esophageal, multiple myeloma, uterine, and urinary bladder cancer (1.1% each). The LMD rate was higher in pulmonary metastases (28.7%), mammary (19.8%), and melanoma (58.7%) in patients treated with surgery followed by SRS. Of the patients who underwent surgery + SRS, 68% had lung metastases, 68.5% had breast metastases, and 32.7% had melanoma metastases.

Conclusions: Surgery prior to SRS appears to increase the risk of LMD in large brain metastases. These findings highlight the need for careful surgical techniques, optimized adjuvant strategies, and close monitoring. Further studies are needed to refine treatment protocols and improve outcomes.

Keywords: Leptomeningeal Dissemination, Large Brain Metastases, Stereotactic Radiosurgery (SRS), Surgery, Adjuvant Therapy, Primary Tumor Distribution, Risk Factors, Pulmonary Metastases, Melanoma, Breast Cancer, Neurosurgery, Metastatic Brain Cancer, Imaging Follow-up, Treatment Protocols, Brain Tumor Management.

Voice Preservation: Prevention and Management of Voice Disorders after Thyroidectomy

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Introduction: Thyroid surgery is a common procedure for both benign and malignant thyroid conditions. Despite advancements in surgical techniques, postoperative voice disorders remain a significant complication, impacting the patient's quality of life. These disorders may result from direct damage to the recurrent laryngeal nerve (RLN), the superior laryngeal nerve (SLN), or non-neurological factors such as laryngeal edema. Early identification and management are crucial to optimize functional outcomes.

Methods: A review of recent literature was conducted to assess the incidence, pathophysiology, and management of voice disorders following thyroidectomy. The impact of intraoperative nerve monitoring (IONM), microsurgical techniques, and early voice rehabilitation strategies were analyzed. Key studies comparing conventional thyroidectomy with nerve-sparing approaches were also evaluated.

Results: Voice disorders occur in up to 30% of patients following thyroidectomy, with transient issues in most cases and permanent deficits in 1-5%. IONM has demonstrated a reduction in RLN injury, but does not completely eliminate the risk. SLN damage remains underdiagnosed, contributing to subtle voice changes that affect pitch and projection. Early postoperative laryngoscopic evaluation and voice therapy have shown improved recovery outcomes.

Conclusion: Voice disorders after thyroid surgery are multifactorial and require a proactive approach to prevention and management. The integration of IONM, meticulous surgical dissection, and early rehabilitation strategies can improve patient outcomes. Further research should focus on refining surgical techniques and postoperative interventions to minimize long-term voice damage.

Keywords: Voice disorders, thyroidectomy, recurrent laryngeal nerve (RLN), superior laryngeal nerve (SLN), intraoperative nerve monitoring (IONM), voice rehabilitation, laryngoscopy, surgical techniques, postoperative care.

Current Situation of Medical Physicists Profession in Albania

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Introduction: Medical physicist was introduced for the first time in Albania in 1966 in Tirana Hospital for radiotherapy application. In the following years (1966-1982) was implemented the nuclear medicine department with two physicists and their qualification on nuclear medicine was supported by IAEA fellowships and equipment manufacturer. After 1990 the number of cancer incidence in country has increased as overall the world and implementation in hospitals of new technologies for diagnostic and treatments of tumours, made an obligatory to increase the number of medical physicists' staff and a task for improvement in education. Medical physicists are a profession that are integrated as medical workers where ionizing and non-ionizing radiations are used for diagnostics or therapeutic purposes. Educations syllabus in universities, clinical residencies and responsibilities of a medical physicists are recommended from international organizations as AAPM, EOFMP, IAEA, etc.

Objectives: The aim of this study is to bring the education requested and role of medical physicists in diagnostic radiology, nuclear medicine and radiotherapy by reviewing literature and showing actual situation of medical physicists integrated in the field of medicine in Albania.

Methods: Responsibilities and basic educational will be summarized according standards regarding medical physicist involved to clinical applications such as: diagnostics radiology, nuclear medicine and radiotherapy and will be compare to actual situation of a medical physicists profession from their recognition as medical physicist, functions specifications by code of practice integration in hospitals regulated by Albanian national authorities.

Results: Medical physicists at time of employed, have a lack of knowledge of completing the tasks and responsibilities of the medical physicists because of a lack of clinical practice during their education. The clinical physicist residency in University Hospitals has not been implemented.

Conclusion: Medical physicists are facing difficulties in Albania for performing their responsibilities according to international standards, because of a absent clinical physicist residency. Main authorities must achieve in forward a possibly residency regulated based on European standard level and training programs performed in clinical in regular bases each year.

Keywords: Medical physicist, education, nuclear medicine, diagnostic radiology, radiotherapy, clinical practice, residency program, international standards, IAEA, AAPM, EOFMP, Albania, healthcare.

Enhancing Medical Education: The Case for Integrating Medical Anthropology

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Introduction: Medical anthropology is a subfield of anthropology that explores how humans experience and understand illness and health, emphasizing the influence of cultural, social, and environmental factors on these experiences (Helman, 2007). It also investigates the comparative study of illness and healing across societies, examining the relationship between medical systems, health practices, and social structures (Kleinman, 1978). Medical anthropology has evolved as a crucial area of study, offering a bridge between the biomedical sciences and the human sciences. The integration of medical anthropology into medical education can enrich the understanding of healthcare practices, contribute to better patient outcomes, and foster a comprehensive understanding of human behavior in medical contexts.

Results: Integrating medical anthropology into medical curricula promotes a broader understanding of health, illness, and healing beyond biomedical perspectives. It helps healthcare providers understand the social and cultural determinants of health and illness, which can reduce health disparities and improve patient-provider interactions. Medical students exposed to this integration are better equipped to address diverse patient needs, customize treatment plans, and manage health inequalities more effectively. Furthermore, it contributes to a more empathetic, patient-centered approach to healthcare.

Conclusion: Embedding medical anthropology into medical curricula is a necessary step for advancing healthcare practices. It offers medical students and practitioners a more holistic understanding of the factors influencing health, enabling them to approach patient care with greater cultural competence. By incorporating the sociocultural and environmental aspects of health, this integration can lead to improved healthcare outcomes and a more equitable healthcare system.

Keywords: Medical anthropology, medical education, healthcare practices, patient outcomes, cultural competence, sociocultural dimensions, health inequalities, curriculum integration, social determinants of health, biomedical education, University of Medicine.

Best Practices in Perioperative Nursing Care for Patients with Aortic Dissection

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Introduction: This study evaluates the best nursing practices in perioperative care for patients with aortic dissection at the University Hospital Center of Tirana (QSUT). Aortic dissection, a critical condition requiring urgent surgical intervention, demands comprehensive nursing care. Using a structured questionnaire, data was collected from 23 cardiac surgery nurses regarding preoperative, intraoperative, and postoperative care, as well as recommendations for new professionals.

Results: The results show that the nursing staff is predominantly experienced and highly qualified. Preoperative care practices include routine comprehensive assessments and a strong emphasis on patient education and informed consent. Intraoperative care is characterized by continuous hemodynamic monitoring, primarily using arterial lines and central venous catheters, with effective communication within the team. Postoperative care prioritizes wound care, infection prevention, multimodal pain management, early mobilization, and physical therapy, although hemodynamic instability remains a frequent challenge.

Discussion: The discussion compares these findings with existing literature, reinforcing the importance of thorough preoperative assessments and multimodal pain management to improve patient outcomes. The study highlights the need to address challenges in maintaining aseptic techniques and managing hemodynamic instability. Adhering to evidence-based practices is crucial for improving patient outcomes, minimizing complications, and standardizing care.

Conclusion: Conclusions show that while current nursing practices are effective, ongoing education and the adoption of advanced monitoring techniques are essential. Recommendations for new professionals include focusing on comprehensive patient assessments, continuous hemodynamic monitoring, and effective pain management. The development of a standardized nursing plan is recommended to ensure continuous and high-quality care. Future research should focus on interventions to address identified challenges and further improve perioperative nursing care for patients with aortic dissection.

Keywords: Aortic dissection, perioperative nursing care, cardiac surgery, hemodynamic monitoring, pain management, evidence-based practices, nursing education, QSUT.

Digestive Hemorrhages and the Role of Nursing Assistance in Their Management Through Endoscopy

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Introduction: Digestive hemorrhages are a medical emergency that requires rapid and effective intervention. Endoscopy is a powerful diagnostic and therapeutic tool in their management. The nurse in the endoscopy unit plays a crucial role in managing patients with hemorrhage: assessing the patient before the procedure, identifying associated diseases, medications that favor bleeding, preparing the necessary endoscopic instruments for the physician's assistance, monitoring the patient during and after the procedure, and intervening to normalize vital signs.

Objective: To become familiar with endoscopic techniques for achieving hemostasis through gastroscopy (when hemorrhages are in the upper gastrointestinal tract) and colonoscopy (when they are in the lower tract). Work planning related to the needs of the endoscopy department and prioritizing urgent situations.

Methods: Cases of patients who presented for diagnosis during the period 2023-2024 were reviewed. Data were obtained from the electronic medical records of patients who reported hematemesis, melena, hematochezia, and rectorrhagia. Cases with esophageal varices, peptic ulcers, and hemorrhagic polyps were selected.

Results: After diagnosing the cause of the hemorrhage, the therapeutic techniques where the nurse assisted were: for esophageal varices, banding with elastic bands; for peptic ulcers, sclerotherapy; and for hemorrhagic polyps, the placement of clips/endoloops in the colon.

Conclusion: The management of digestive hemorrhages through endoscopy requires precise coordination between the physician and the nurse. The education of nurses and their support in developing skills to manage emergency situations during endoscopy helps ensure the safety and success of procedures.

Keywords: Digestive hemorrhage, endoscopy, nursing assistance, hemostasis, gastroscopy, colonoscopy, esophageal varices, peptic ulcers, hemorrhagic polyps, nursing education, emergency situations, endoscopic procedures.

Polypectomy and the Role of Nurses in Managing Post-Polypectomy Complications

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Introduction: The removal of polyps through colonoscopy is the gold standard for reducing the risk of developing colon cancer. Polypectomy carries complications such as post-polypectomy bleeding, post-polypectomy syndrome, and perforation. Nurses play a key role in managing patients undergoing polypectomy, starting with their pre-procedure assessment, associated diseases, medications that promote bleeding, recognizing and preparing the necessary instruments, monitoring the patient during and after the procedure, and intervening to normalize vital signs.

Objectives: The objectives of the study aim to familiarize the nurse with the following: the situations of polypectomy complications, the ability for rapid intervention, and the preparation of a pre-emptive plan for endoscopic instruments and necessary medications.

Methods: The study was conducted for the period 2023-2024. Data were collected using the electronic medical records of patients who presented to the clinic for colonoscopy examination.

Results: In the period 2023-2024, 1564 colonoscopies were performed, resulting in 439 polypectomies. The therapeutic techniques where nurses assisted included: polypectomy with Cold Snare, Hot Snare, EMR, and ESD. Interventions included: applying pressure, injecting adrenaline for sclerotherapy, bipolar cauterization, placing clips, and endoloops to ensure hemostasis.

Conclusion: The endoscopy team must function as a teamwork unit. The nurse's involvement is essential for the success of the procedure. They are responsible for the patient's well-being during the procedure and ensuring the safety of the endoscopic equipment, applying protocols to reduce risks and complications.

Keywords: Polypectomy, colonoscopy, nursing assistance, post-polypectomy complications, Cold Snare, Hot Snare, EMR, ESD, hemostasis, sclerotherapy, bipolar cauterization, endoscopy, nursing protocols, teamwork, patient safety.

Assessment of First Aid Knowledge Among Employees of Tourism Companies in Shkodra Region

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Introduction: Throughout history, people have engaged in tourism activities for a variety of reasons. According to statistics from the World Tourism Organization, in 2024, global tourism experienced a strong revival, with international tourist arrivals reaching approximately 1.4 billion nearly matching pre-pandemic levels. This represented an 11% increase from 2023, driven by strong post-pandemic demand and the recovery of tourist destinations. The tourism sector is growing rapidly and has reached massive dimensions. Among the issues discussed (WTO, 1991), it was emphasized that basic health needs and first aid, emergency treatment, accident prevention, and appropriate health and safety environments in hotels must be assessed within the framework of tourism health. Safety standards should be established accordingly. High-quality education and adequate training are essential for students to become effective first responders and valuable contributors to the tourism industry (Hanushek, 2010).

Purpose: To assess the level of first aid knowledge among tour group leaders.

Objectives:

1. To identify the risk of accidents and the hazards these itineraries present, especially for elderly tourists.
2. To understand how domestic and foreign tourists perceive the level of first aid provided by tour group leaders.

Methodology: This is a descriptive study, using standardized questionnaires filled out by tourism operators and sector employees to evaluate their knowledge of first aid in cases of accidents or worsening health conditions.

Results: The findings of this study will help tourism company managers to professionally assess and improve their staff and will also suggest potential curriculum changes in universities to better train students who choose to work or lead in the tourism sector, particularly in delivering first aid.

Keywords: First aid, tourism, knowledge

Nursing Care for Patients with Cardiovascular Diseases - Heart Failure

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Introduction: Cardiovascular diseases are among the leading causes of death and disability worldwide. They affect the heart and blood vessels, causing a variety of cardiac problems such as heart failure, heart attacks, and angina. Heart failure is a condition in which the heart is unable to meet the body's demands for oxygen and nutrients via blood circulation. This condition may be left-sided, right-sided, or total, requiring careful management and treatment from healthcare professionals.

Methods: This study was conducted by analyzing current literature on heart failure and the role of nurses in managing and treating patients with this condition. The analytical method and data gathered from studies and scientific literature helped identify best practices and strategies for nursing care in treating patients with heart failure.

Results: The study results showed that nursing care for patients with heart failure is intensive and requires a multidimensional approach, including educational support, continuous monitoring, and prompt intervention in emergency situations. Nurses are crucial in monitoring patients' symptoms, administering medications, and providing education on disease management. They also contribute to reducing hospitalization rates and improving the quality of life for patients.

Conclusion: In conclusion, nursing care for patients with heart failure is an essential component of managing and treating cardiovascular diseases. Through continuous support and proper education, nurses can help patients better manage their condition, improve their quality of life, and prevent further deterioration of the disease. The importance of nursing care is invaluable in the treatment of heart failure and cardiovascular diseases in general.

Keywords: heart failure, cardiovascular diseases, education, prevention.

Role of Nurses in Patient Preparing for Imaging Procedures in Gastroenterology and Hepatology

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Introduction: Nurses play a vital role in preparing patients for imaging procedures in gastroenterology and hepatology. These procedures, including ultrasound, CT scans, MRI, endoscopy, and elastography, are essential in diagnosing and managing gastrointestinal and liver diseases such as cirrhosis, hepatitis, GERD, IBD, and pancreatitis. Proper patient preparation ensures safety, enhances image quality, and contributes to accurate diagnosis and effective treatment planning.

Methods: The nurse's role in patient preparation was categorized into five key areas:

1. Patient Education and Information – This includes explaining procedures, addressing concerns, and clarifying instructions.
2. Preparation for Specific Imaging Procedures – Covering aspects such as fasting, dietary restrictions, bowel prep, and medication administration.
3. Physical Preparation and Comfort – Ensuring the patient's physical readiness and comfort prior to procedures.
4. Ensuring Safety and Infection Control – Following protocols to reduce risks and maintain hygiene.
5. Monitoring and Post-Procedure Care – Observing patients during recovery and managing post-procedural needs.

Results: Through effective nursing interventions in each of these categories, patient cooperation improves, procedural success rates increase, and complications or discomfort are minimized. These practices lead to higher-quality diagnostic outcomes and better patient satisfaction.

Conclusion: Nurses are integral to the successful preparation of patients undergoing imaging procedures in gastroenterology and hepatology. Their involvement not only improves the patient experience but also contributes to the safety, efficiency, and accuracy of diagnostic imaging in clinical practice.

Keywords: Nursing care, patient preparation, gastroenterology imaging, hepatology, diagnostic procedures, patient education, infection control, imaging safety.

The Role of Imaging in Preoperative Assessment and Postoperative Follow-Up of Breast Reconstructive Surgery

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Introduction: Breast reconstruction following mastectomy is often sought by women with breast cancer who are not candidates for breast-conserving therapy, as well as those with a high genetic risk for developing breast cancer. Current reconstruction techniques vary and may involve autologous tissue flaps, prosthetic implants, or a combination of both. Regardless of the technique used, cancer recurrence can still occur in the reconstructed breast. Moreover, benign complications such as fat necrosis may develop in reconstructions using autologous flaps. Therefore, imaging plays a vital role in the early detection of both benign and malignant changes in reconstructed breasts**.**

Methods: We reviewed imaging modalities utilized in both the preoperative planning and postoperative follow-up of breast reconstruction surgeries. Particular attention was given to the most commonly used imaging techniques including ultrasound, mammography, and magnetic resonance imaging (MRI). We also examined how imaging contributes to the evaluation of flap vascularity in cases involving autologous tissue.

Results: Imaging before surgery assists in selecting the most appropriate surgical technique and materials, ensuring optimal outcomes. Postoperatively, imaging enables the identification of local recurrence at smaller sizes than can be detected clinically, often before metastatic disease occurs. Furthermore, it facilitates the differentiation between benign postoperative changes and malignant transformations. The assessment of flap vascularization using imaging is also crucial to ensure flap viability and reduce postoperative complications.

Conclusion: Imaging plays a critical role in both preoperative and postoperative phases of breast reconstructive surgery. It enhances surgical planning, allows early detection of recurrence, and contributes significantly to the management of postoperative complications. Familiarity with the spectrum of normal and abnormal imaging appearances of reconstructed breasts is essential for accurate interpretation and patient care.

Keywords: Breast reconstruction, preoperative imaging, postoperative follow-up, autologous flap, fat necrosis, cancer recurrence, ultrasound, mammography, MRI, flap vascularization.

The Impact of Smartphone Uses on Academic Performance, Mental Health, and Social Aspects of Students: Literature Review

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Introduction: Smartphone is an essential tool for students globally, and they depend on them for many aspects of life including studies, welfare, and entertainment, prompting concerns regarding their potential negative impact on academic performance, mental health, and social relationships

Aims and Objectives: This literature review examines the impact of smartphone use on students' academic performance, psychological well-being, and social behavior. It aims to explore how smartphone use affects concentration and academic success, its relationship with mental health issues like anxiety and sleep disturbances, and its influence on social interactions. Additionally, it seeks to identify possible interventions and highlight areas for future research.

Methodology: Databases searched included Scopus, PubMed, Google Scholar, SAGE Journal and Elsevier to identify peer-reviewed studies published in the last 5 years. They included studies that investigated smartphone use and the effects on academic performance, mental health, and social interactions. Themes and patterns were recognized through content analysis.

Results: Excessive use of a smartphone negatively affects academic performance due to an inability to manage the time properly and lack of concentration. It is also closely linked with mental health concerns including anxiety, stress and sleep problems. Moreover, an over-dependence on smartphones lead to a reduction in face-to-face contact, deepening feelings of isolation and loneliness.

Conclusions: Smartphones have become an integral part of students' lives but misuse of smartphones has emerged as a serious issue affecting their academic, psychological, and social lives. To counter these negative impacts, implementing measures to foster responsible usage is necessary. Interventions for reducing smartphone use with academic success is a future research direction.

Keywords: Academic performance; Anxiety; Learning outcomes; Mental health; Smartphone use; Students.

Physiotherapy in Pediatric Age with Autism Spectrum Disorder

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Introduction: Autism is a complex neurological and developmental disorder that manifests in early childhood and is characterized by impairments in three main developmental areas: social interaction, communication, and behavior. Physiotherapy is believed to contribute to motor development, improved focus, and social integration in children with ASD.

Objective: The aim of this study is to assess the effectiveness of physiotherapy in improving symptoms and motor function in children with autism spectrum disorder (ASD).

Methodology and Materials: This is a comparative study involving two pediatric patients aged 5 years, with a height of 100/102 cm and a body weight of 17/18 kg, both male, who had been diagnosed with ASD and had not previously undergone physiotherapy. Two assessment tools were used: CARS (Childhood Autism Rating Scale) and FIM (Functional Independence Measure). Both patients underwent physiotherapy sessions twice a week, each lasting 30–40 minutes.

Results: The integration of physiotherapy techniques and sensory strategies showed an increase in scores on both assessment tools for both patients, indicating improved independence and functionality.

Conclusion: The observed improvements suggest the potential effectiveness of integrating physiotherapeutic techniques and sensory strategies in children with ASD. Further research with larger sample sizes is essential to validate and expand upon these preliminary findings.

Keywords: ASD, physiotherapy, rehabilitation, motor deficit, pediatric autism, functional improvement.

Biomechanics of the Craniocervical Mandibular System: Literature Review

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Introduction: Changes in craniocervical posture have in many cases been reported to be the cause of alterations in the position of the mandible. In many studies in the world literature, this cause-effect relationship has been explained through the biomechanical connection of the craniocervical system with the mandible.

Objectives: This study aims to identify the biomechanical relationships of the craniocervical mandibular system in the medical literature.

Methods: This study is a review of similar articles published in PubMed, Research Gate, Google Scholar regarding the biomechanical connections of the craniocervical mandibular system.

Results: This review included clinical studies of craniocervical posture and mandibular position. The craniocervical mandibular system is no longer considered to consist solely of the temporomandibular joints, masticatory muscles, and ligaments connecting the temporomandibular joint to the cervical region. There is now more discussion that this system should be called the tongue, mandible, hyoid bone system. The mandible and tongue are directly connected by the pharyngeal constrictor and genioglossus muscles. The mandible and hyoid bone are connected by the geniohyoid and mylohyoid muscles. The tongue and hyoid bone are connected by two longitudinal muscles. The sternocleidomastoid, scalene, and trapezius muscles, when contracted, can pull the jaw muscles.

Conclusions: The biomechanical connections of the craniocervical mandibular system are realized through the muscles that connect the mandible and tongue, the mandible and hyoid bone, the tongue and hyoid bone, and the muscles that connect the jaw to the cervical region. Therefore, changes in cervical posture will be reflected in changes in the position of the mandible.

Keywords: biomechanics, craniocervical, mandible.

The Impact of Speech Therapy on Language Development in Children with Cochlear Implants

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Introduction: Cochlear implantation (CI) represents a significant achievement in auditory neuroprosthetics, offering the possibility of language development in children with profound hearing loss.

Objective: This study aims to analyze the impact of various factors—such as the age at implantation, neuroplasticity, and speech therapy—on the language development and auditory perception of children with CI.

Methodology: The study employs a multidimensional approach, including: 1) a review of the scientific literature on speech therapy interventions and factors influencing the neuroplasticity of the auditory system; 2) a comparison of two clinical cases involving children undergoing intensive speech therapy for 18 months post-implantation; and 3) a longitudinal analysis of progress in phonetic perception, articulation, and the use of spontaneous language.

Results: The child who received the cochlear implant at an early age and underwent intensive speech therapy showed significant progress in language and auditory development, whereas the child who was implanted later and had limited support showed slower progress.

Conclusions: Early implantation and personalized therapies are essential for the successful development of language and auditory skills in children with cochlear implants.

Keywords: cochlear implant, language development, speech therapy, auditory rehabilitation, early intervention, neuroplasticity.

Lifestyle Disparities Among Adolescents: Increased Overweight/Obesity Risk in Boys and Physical Inactivity in Girls

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Introduction: The lifestyle habits established during childhood and adolescence have a significant impact on health and well-being during these stages and in later years of life.

Objectives: To investigate the influence of gender on lifestyle habits and body mass index (BMI) among 10- to 15-year-old students.

Methods: A cross-sectional study in the nine public secondary schools in Tirana. Participants completed a self-report questionnaire that assessed their lifestyle habits, level of physical activity, and sports engagement. Weight and height were measured, and BMI was calculated.

Results: The survey included 2020 students, 48.9% girls and 51.1% boys. 32.59% of girls and 41.27% of boys were classified as overweight/obese (according to WHO growth reference curves) P=0.0001. Sports participation was reported by 76.65% of boys and 55.87% of girls, with boys spending 3.91 ± 3.70 hours per week and girls spending 2.16 ± 2.66 hours per week (P < 0.0001). 26% of girls engaged in no physical activity (PA) beyond school physical education classes, compared to 7.7% of boys. Girls spent 5.43 ± 3.48 hours/week in PA, while boys reported 7.81 ± 4.41 hours/week. (P < 0.0001).

Conclusions: Adolescent boys are more prone to overweight and obesity, while girls are more susceptible to physical inactivity. Urgent policies are needed to promote higher levels of physical activity, especially by supporting the inclusion of girls, as the prevalence of physical inactivity among adolescents remains high, posing a risk to their health and well-being.

Keywords: Lifestyle disparities, adolescents, overweight, obesity, gender differences, body mass index (BMI), physical inactivity, sports participation, physical activity.

Endometrial Resection Versus D&C in The Management of Perimenopausal Vaginal Bleeding

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Introduction: Heavy menstrual bleeding is relatively common among women during the perimenopausal period and can significantly affect physical health and quality of life.

Objective: This study aims to evaluate the effectiveness and safety of hysteroscopic endometrial resection in perimenopausal patients with heavy menstrual bleeding without atypical histological findings, in comparison to dilation and curettage (D&C).

Methods: This study was conducted at the University Hospital of Obstetrics and Gynecology “Koco Gliozheni” in Tirana. A total of 23 perimenopausal patients with heavy bleeding, in whom endometrial biopsy excluded endometrial cancer and atypical hyperplasia, underwent hysteroscopic endometrial resection. Treatment efficacy was assessed based on regression of endometrial hyperplasia (evaluated via hysteroscopy and histology), the need for hysterectomy, and subjective assessment of bleeding and patient compliance. The safety of the procedure was evaluated based on adverse events.

Results: In the group treated with endometrial resection, 21 patients (91%) experienced complete remission of vaginal bleeding, and only 1 (4%) had persistent hyperplasia (requiring eventual hysterectomy). Two patients in this group (8%) underwent hysterectomy due to persistent hemorrhage. In the group treated with D&C, 20 patients (44%) achieved complete remission of vaginal bleeding, 11 patients (25%) required a second-line treatment approach, and 14 (31%) had persistent hyperplasia (eventually requiring hysterectomy). Two patients in this group also underwent hysterectomy due to continued hemorrhage.

Conclusions: Hysteroscopic endometrial resection is safer and more effective than D&C in the treatment of hemorrhage in perimenopausal women and can be considered an effective alternative to hysterectomy as a surgical treatment.

Keywords: hysteroscopic endometrial resection, heavy menstrual bleeding, hysteroscopy.

Alcohol Dependence as a Chronic Brain Disease

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Introduction: An inability to regulate alcohol consumption, despite detrimental social, professional, and health effects, is the defining characteristic of alcohol use disorder (AUD). Other terms used to describe AUD include alcoholism, dependency, and abuse. AUD is classified as mild, moderate, or severe and is considered a neurological condition. Alcohol abuse leads to changes in the brain's neurobiology, prolonging AUD and increasing the risk of relapse. Ethanol causes poisoning by altering neurotransmitter systems, including serotonin, dopamine, gamma-aminobutyric acid, glutamate, acetylcholine, and opioids. These neurotransmitter imbalances disrupt the brain's circuits responsible for reward, motivation, decision-making, emotion, and stress response. Despite its serious physical and psychological effects, AUD remains one of the leading causes of death worldwide.

Methods: According to a WHO report, alcohol use accounts for 2.6 million deaths annually, or 4.7% of all deaths, while psychoactive drug use results in 0.6 million deaths. Notably, men account for 0.4 million drug-related deaths and 2 million alcohol-related deaths. Treatment for AUD involves both psychological and pharmacological therapies designed to reduce alcohol use and encourage sobriety. These treatments address dysfunctional behaviors and impaired functioning that stem from AUD. However, social barriers to care and the stigma surrounding alcohol use continue to impact many individuals.

Results: Despite the availability of treatment options, many individuals affected by AUD face significant societal challenges that prevent them from accessing care. The stigma associated with AUD often results in reluctance to seek treatment, and the impact of alcohol on physical and neurological health continues to pose challenges. Effective treatment for AUD must address both the psychological and physical aspects of the disorder, working to repair the damage caused by alcohol poisoning while also confronting the societal barriers that impede recovery.

Conclusion: Treatment for AUD should not only focus on alleviating the immediate physical and neurological damage caused by alcohol but also address the psychosocial aspects that frequently hinder access to care. Overcoming societal obstacles and stigma is crucial for improving the success rate of treatments and ensuring long-term recovery for individuals affected by AUD.

Keywords: Alcohol use disorder, alcoholism, neurobiology, neurotransmitter systems, psychological therapy, pharmacological therapy, societal barriers.

Alcoholic Cardiomyopathy

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Introduction: Alcohol, also known as ethanol or ethyl alcohol, is one of the most widely used substances worldwide, characterized by its toxic, psychoactive, and addictive properties. Various forms of alcoholic beverages have become an integral part of the social landscape in nearly every part of the world. Chronic alcohol consumption, particularly in excessive amounts, has significant effects on multiple organs, including the cardiovascular system. Alcohol and its metabolites are cardiotoxic, causing initial reversible myocardial depression, but prolonged use leads to irreversible dysfunction.

Methods: Alcoholic cardiomyopathy (ACM) does not have a predetermined exposure time, but daily consumption of 80 g or more per day for over five years significantly increases the risk of developing ACM. However, not all chronic alcohol users will develop this condition. Experimental studies have demonstrated the impairment of cardiac contractile function, disruption of cardiac excitation, and the induction of oxidative damage and lipid peroxidation by acetaldehyde, a metabolite of alcohol. This damage contributes to the loss of cardiac myocytes through apoptosis, and the ineffective repair mechanisms result in progressive cardiac fibrosis in genetically predisposed individuals.

Results: ACM is characterized by ventricular dilation, impaired cardiac function, increased left ventricular mass, and heart failure, which can be both systolic and diastolic. The incidence of ACM in patients with alcohol use disorders ranges between 21% and 32%, though the exact prevalence is still unknown. Clinical signs of ACM often present with nonspecific features such as dyspnea and orthopnea due to heart failure, typically appearing in the late stages after ventricular dilation, hypertrophy, and dysfunction have developed.

Conclusion: The mainstay of treatment for alcoholic cardiomyopathy is complete abstinence from alcohol. Pharmacological therapy should follow treatment protocols for idiopathic dilated cardiomyopathy with reduced ejection fraction, which includes a combination of beta-blockers, ACE inhibitors, diuretics, and ARNI (if ejection fraction ≤40%).

Keywords: Alcohol, ethanol, alcoholic cardiomyopathy (ACM), cardiotoxicity, myocardial depression, ventricular dilation, heart failure, oxidative damage.

Diaphragmatic Dysfunction Following Off-Pump Coronary Artery Bypass Grafting (OPCAB): A Case Report and Review of the Literature

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Introduction: Diaphragmatic Dysfunction (DD), after OPCAB is a rare complication, which can impair respiratory function and increase the risk of respiratory failure. DD can result from various causes, particularly phrenic nerve injury. This case report describes a patient, who developed DD after OPCAB and discusses the management plan.

Case Presentation: A 47-year-old man with a medical history of smoking, alcohol and drug use, HBP, and CAD was scheduled for OPCAB, due to severe left main coronary artery disease and triple-vessel coronary artery disease. Preoperative PFT were normal. The surgery was uneventful and the patient was extubated after 6 h without difficulty. On postoperative day 2 (POD), the patient complained of respiratory distress, tachypnea, and low oxygen saturation despite supplemental oxygen. A physical examination revealed decreased breath sounds on the right side of the chest: A chest X-ray was performed and revealed pulmonary consolidation Ultrasonography of the diaphragm (UD) was conducted, which revealed reduced movement of the right hemidiaphragm. The phrenic nerve, responsible for diaphragm movement, was suspected to be injured during the surgery. The patient was treated conservatively with oxygen, physiotherapy, and CPAP. Respiratory physiotherapy included exercises and postural drainage to facilitate diaphragm mobility. Over the next few days, the patient’s respiratory condition was improved, and repeat UD and X-Ray confirmed gradual recovery of diaphragm movement. The patient was discharged on POD-7 with full recovery of diaphragmatic function.

Conclusion and Discussion: This unique case report describes a successful and effective management strategy of DD following OPCAB surgery.

Keywords: Diaphragmatic dysfunction, off-pump coronary artery bypass grafting (OPCAB), phrenic nerve injury, respiratory distress, tachypnea, pulmonary consolidation, diaphragmatic mobility, continuous positive airway pressure (CPAP).

The Application of Piezosurgery in Orthognathic Surgery: A Review of Literature

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Introduction: Piezosurgery is a soft tissue sparing bone-cutting device developed by Italian Surgeon Dr. Tomaso Vercellotti in 1988. It has been successfully used in Le Fort I osteotomy, BSSO, bimaxillary osteotomy and surgically assisted rapid maxillary expansion (SARME).

Aim of the Study: The aim of this literature review is to highlight the advantages of using piezosurgery compared to conventional osteotomy in orthognathic surgery.

Material and methods: A comprehensive literature search was conducted in PubMed and Google Scholar using "orthognathic surgery" and "piezosurgery" as keywords to identify clinical studies, randomized clinical trials (RCTs), reviews, systematic reviews, and meta-analyses.

Results: Of the 12 selected studies selected for this review, five were randomized controlled trials (RCTs), six were non randomized controlled trials (nRCT) and one was a systematic review. Piezosurgery offers reduced intraoperative blood loss and blood-free surgical field which enhances visibility. The osteotomy lines were more precise with piezosurgery and neat cut edges were observed compared to the ragged and uneven edges with bur osteotomy. It reduces the risk of damaging nerves or vessels, however, the surgical time is prolonged with piezosurgery.

Conclusions: Piezosurgery is a safe and effective device which offers many advantages in orthognathic surgery. However, further studies with a larger sample should be conducted to compare piezo-surgery with conventional osteotomy regarding operating time, as well as intra- and post-operative complications in orthognathic surgery.

Keywords: orthognathic surgery, piezosurgery, conventional osteotomy.

Dental Implant Maintenance

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Introduction: Dental implants have become a popular solution for replacing missing teeth, providing long-term benefits in terms of function and aesthetics. While early focus was placed on achieving good primary stability during the surgical phase, it is now recognized that peri-implant maintenance is equally critical for long-term success. The health of the soft and hard tissues surrounding the implant plays a key role in maintaining implant function and preventing complications. This article reviews the anatomy of peri-implant tissues, explores the risk factors and causes of peri-implant diseases, and outlines both surgical and non-surgical treatments for managing these conditions.

Methods: This review synthesizes current literature on peri-implant health, highlighting the anatomy of peri-implant tissues and the factors that contribute to peri-implant diseases, such as infections and poor oral hygiene. The article also discusses various treatment approaches, including mechanical debridement, antimicrobial agents, and surgical interventions like flap surgery. Additionally, it outlines peri-implant maintenance protocols aimed at preventing and treating conditions like peri-implantitis and peri-implant mucositis.

Conclusion: Maintaining peri-implant health is crucial for the long-term success of dental implants. Implementing a comprehensive maintenance protocol that includes regular monitoring, professional cleaning, and patient education is essential. Early intervention for peri-implant diseases, using both non-surgical and surgical methods, helps preserve implant longevity and function, ensuring optimal outcomes.

Keywords: Dental Implant, maintance, surgery.

Management of Dental Trauma in Patients under Fixed Orthodontic Treatment: A Successful Clinical Case

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Introduction: Dental trauma during orthodontic treatment with fixed appliances presents a clinical challenge that requires careful management to preserve tooth vitality and stability.

Methodology: Case Presentation: This case describes a 12-year-old patient who sustained a traumatic injury to a lower incisor following an accidental impact.The patient presented to the clinic within two hours of the trauma.The displaced tooth was released from the orthodontic archwire, manually repositioned, and stabilized with a fixed lingual retainer made of steel.Pulp vitality testing at the time of trauma was positive,suggesting maintained pulpal function.The tooth was excluded from orthodontic forces for three months,with regular radiographic monitoring.After six months, the tooth showed no mobility and continued to respond positively to vitality tests.Upon completion of orthodontic treatment,the tooth remained stable and functional.

Discussion: This case highlights the importance of an individualized approach in managing dental trauma during orthodontic treatment. Stabilization with a fixed retainer helped maintain tooth position and prevented potential complications such as root resorption or pulp necrosis. Careful radiographic monitoring and vitality testing were crucial in assessing the therapeutic outcome.

Conclusion: This case demonstrates that prompt intervention and appropriate management can lead to a favorable outcome, preserving both dental integrity and orthodontic objectives.

Keywords: Dental Trauma, Fixed Orthodontic Treatment, Pulp Vitality, Lingual Retainer, Tooth Stabilization, Orthodontic Injury, Root Resorption, Pulp Necrosis.

Juvenile Gingivitis, Clinical Case

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Introduction: Juvenile Gingivitis is a gum disease that affects children and adolescents. It is characterized by inflammation of the gingiva as a result of the formation of bacterial plaque.

Methodology and Results: Case presentation: A 15-year-old female patient presented to the University Dental Clinic. She complained of pain and bleeding of the gums when brushing them. A clinical examination was performed and it was noted that the gingiva was edematous, erythematous and there was an accumulation of bacterial plaque and calculus. The patient is diagnosed with epilepsy.

Treatment: Professional cleaning of the calculus and bacterial plaque was performed and the gingiva was treated with Chlorexidine gel alcohol free 0.2%. The patient was recommended 2 times a day, topical application for a week. She was reviewed again after 1 month and the clinical picture was improved. Regular hygiene and flossing were recommended. Follow-up in the clinic for 1 year was performed and the gingivae showed no signs of inflammation.

Discussions: The causes of juvenile gingivitis are:

1. Poor hygiene;
2. Hormonal changes that are more pronounced during puberty;
3. Bacterial plaque;
4. Medications and some health problems;
5. Orthodontic appliances;
6. Lack of VIT.C;
7. Diet.

Comments and conclusions: Continuous information about routine visits to the dentist is recommended, as well as instruction on the proper way to maintain oral hygiene.

Keywords: Juvenile Gingivitis, Bacterial Plaque, Gingival Inflammation, Oral Hygiene, Epilepsy, Chlorexidine Gel, Dental Cleaning, Pediatric Periodontal Health, Gingival Treatment, Vitamin C Deficiency, Orthodontic Appliances.

Microsurgical Excision of Intraoral Pigmented Lesions: A Clinical Case

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Introduction: Intraoral pigmented lesions are challenging for diagnosis due to their various etiologies, including melanocytic proliferation, vascular anomalies, and deposition of exogenous materials. These often resemble melanoma, requiring careful evaluation and histopathological confirmation for an accurate diagnosis. One of the most common causes is amalgam tattoo, which occurs due to the accidental deposition of metal particles during dental procedures.

Case Presentation: A 32-year-old female patient presented with a dark blue pigmentation in the mucogingival region of the lower right jaw. Her dental history included an amalgam restoration and tooth extraction due to fracture. Radiographs showed a radiopaque area, and microsurgical excision was performed for confirmation. A metal mass of approximately 4 mm was identified and completely removed. Histology confirmed the presence of metal material.

Discussion: Microsurgical techniques offer a precise approach to the treatment of intraoral pigmented lesions, allowing for minimal excision and reducing damage to surrounding tissues. They enhance postoperative healing and provide the opportunity to confirm the nature of lesions with minimal intervention. This treatment modality offers greater diagnostic certainty and the ability to exclude malignant pathologies.

Conclusion: The use of microsurgical techniques is an ideal option for the treatment of amalgam tattoos, enabling precise excision and a secure diagnosis. This modality ensures the exclusion of malignant pathologies and improves the patient's aesthetics. Microsurgery offers a controlled approach and minimizes damage to surrounding tissues, promoting rapid healing and better post-operative outcomes.

Keywords: Microsurgery, Intraoral Pigmented Lesions, Amalgam Tattoo, Dental Restoration, Histopathology, Excision, Oral Diagnosis, Melanoma, Radiopaque Area, Tissue Healing, Aesthetic Dentistry.

The Impact of Implant-Prosthetic Rehabilitation on Quality of Life

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Introduction: Prosthetic works supported by dental implants are a highly recommended alternative for replacing missing teeth. Numerous studies confirm and support the fact that the use of dental implants has a significant impact on the quality of life of patients. This impact can be evaluated in several aspects, which relate to nutrition, phonetics, self-esteem, social life, as well as the psychological aspect of the patient; reflecting the direct impact of the general condition of the mouth and teeth on the quality of life.

Objective: To highlight and assess the true impact that the replacement of missing teeth using prosthetic works supported by implants has on the quality of life of patients.

Materials and Methods: This study is of a quantitative, cross-sectional type. It involved 144 patients (n=144) aged 45-71; of whom 73 opted for implant-supported prosthetics, and 71 had large tooth losses without any prosthetic replacement. These patients completed a questionnaire, designed based on international indices for assessing the quality of life (OHIP-14, DIDL & SAAS); through which they self-reported the impact of their current oral health condition on their quality of life.

Results: The quality of life related to oral health was higher for patients with implant-supported prosthetics compared to patients with significant tooth loss and no prosthetic replacement, with a statistically significant difference ($p<0.05$). The quality of life ratings for patients with implant-supported prosthetics reflected a relatively high quality of life.

Conclusions: The use of implant-supported prosthetics, as an alternative for replacing missing teeth, has a positive and significant impact on improving quality of life.

Keywords: Implant prosthetics, quality of life, oral health, tooth loss, prosthetic rehabilitation, ohip-14, didl, saas, dental implants, patient satisfaction, cross-sectional study, oral function, self-esteem, social life, phonetics.

Periodontitis and Vitamin D Supplementation in Clinical Trials: Literature Review

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Introduction: Periodontitis is a chronic inflammation of the gums initiated by microbial microorganisms that lead to the destruction of supporting tissues and tooth loss. It remains a major global health concern. Statistics show that about 3.69 billion people are affected by oral diseases, including advanced periodontitis. Vitamin D plays an essential role in maintaining oral health. It is involved in calcium absorption and various immune functions through various mechanisms. In the absence of vitamin D, various oral pathologies are observed, including periodontitis, dental caries, oral infections and even oral cancers.

Methodology and Results: A comprehensive search of articles was conducted in the PUBMED and MEDLINE databases regarding vitamin D and periodontal disease. The search terms were (vitamin D supplementation) AND (periodontal disease) AND (clinical trials). 43 articles were selected as the most relevant. Those evaluated were: the effect of vitamin D supplementation on periodontal health and the association of 25(OH)D and 1,25(OH)2D3 with periodontal disease aggravation, progression and tooth loss. 25(OH)D is the main circulating form of vitamin D in the blood and the most commonly used marker to assess a person's vitamin D status.
Sixty-five percent of the cross-sectional studies reported significant associations between low vitamin D levels and poor periodontal parameters. None of the observational longitudinal studies found that periodontal disease progression could be attributed to lower vitamin D levels. No studies that evaluated the use of vitamin D supplementation as a solely add-on to periodontal treatment, was found.

Results: Clinical trials conducted in different studies do not reach the same conclusion. One of the reasons is related to the fact that the patients were not deficient in vitamin D at the time of the study. Other studies conclude that vitamin D supplementation has multiple benefits in humans by reducing systemic inflammation and, consequently, periodontal parameters.

Conclusions: More clinical trials are needed to examine vitamin D supplementation (placebo-controlled) in conjunction with mechanical therapy, especially in populations with vitamin D deficiency and higher risk of periodontal disease. To draw clearer conclusions, controls are also needed on the doses of vitamin D taken, which in most cases have been minimal doses with no evident effect on oral periodontitis.

Keywords: Periodontitis**,** Vitamin D**,** Supplementation**,** Periodontal Disease**,** Clinical Trials**,** Oral Health**,** Calcium Absorption**,** Immune Response**,** Systemic Inflammation**.**

Oral Candidiasis

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Introduction: Oral candidiasis is a fungal infection that affects the mucous membranes of the mouth and is often caused by the *Candida albicans* species. This infection is one of the most common oral infections and can affect individuals of all ages, though it is more prevalent in those with a weakened immune system, such as patients with diabetes, those undergoing immunosuppressive therapy, antibiotic users over extended periods, or individuals with other health conditions that predispose them to infections. Oral candidiasis often presents as a white lesion resembling creamy deposits, which can be scraped off, leaving behind a burning sensation and irritation of the oral mucosa. In addition to visible signs, symptoms may include pain while eating and speaking, a burning sensation in the mouth, and redness or swelling in various areas of the mouth.

Methods: The causes of oral candidiasis are varied, including the use of antibiotics that may alter the balance of the oral microbiological flora, the presence of dental prostheses, uncontrolled diabetes, corticosteroid use, or contamination by other microorganisms. Additional contributing factors include the moist environment in the mouth, poor oral hygiene, and a weakened immune system, which allow for the overgrowth of *Candida* and the onset of infection. Diagnosis is typically made through oral examination and the patient's medical history. In some cases, microbial culture tests may be required to identify the specific species of fungus responsible for the infection.

Results: Treatment for oral candidiasis involves the use of antifungal medications such as nystatin, fluconazole, or ketoconazole, which may be administered locally or orally, depending on the severity and spread of the infection. In addition to pharmacological treatment, it is essential to improve oral hygiene, remove predispositional factors, and manage any underlying health conditions that may contribute to the development of the infection.

Conclusion: In conclusion, oral candidiasis is a condition that can be successfully treated with early intervention and careful management of risk factors, ensuring full recovery and reducing the chances of recurrence.

Keywords: Oral Candidiasis, Candida albicans, Fungal Infection, Oral Mucosa, Immune System, Antibiotics, Diabetes, Dental Prostheses, Corticosteroids, Microbial Flora.

Presenting a New Psycho-Socio-Dental Model for Determining the Need for Treatment

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Introduction: Dental caries is a public health issue worldwide and the costliest in terms of treatment. Treatment needs should be assessed not only through clinical diagnosis but also by considering factors that impact treatment success. Public dental services with limited resources must also account for treatment demand.

Aim of the Study: This study, the first of its kind in Albania, proposes a new psycho-socio-dental model to assess treatment needs within Tirana's Dental Public Service of Tirana (SHSPT).

Materials and Methods: The proposed model is based on R.M. Andersen's health service utilization model (1995) and S. Gherungpong's socio dental needs model (2004). Data used to explain the model are extracted from a study with 12-15 years old students of Tirana's public schools. The teeth were examined for dental caries by the presence of decay, missing and filled teeth to determine normative need, while a self-administered questionnaire with close-ended questions evaluated additional treatment needs. The data were processed using SPSS, v.16.0. with bivariable and multivariable logistic regression identifying key predictors of treatment needs and demand.

Results: 100% of the study population is in need of preventive treatment and 95.2% need improvement of oral health related behaviors. Strong predictive factors for restorative treatments include a) maternal education level lower than high school, b) experiencing pain sometimes/often, c) perceived need for that type of treatment. Being female, aged 12-13 y.o., having a mother with 8 or less years of education and perceiving the need for at least one treatment were strong predictive factors for demanding at least one treatment.

Conclusions: Restorative treatment needs are high but could decline if assessment considers healthy behavior tendencies and treatment demand. The priority remains preventive care and oral health education.

Recommendations: Strengthening oral health education and fluoride-based prevention programs in school dental units, identify and analyze the reasons for refusal of preventive treatments.

Keywords: Oral health. Public Health. Dental Caries, Normative Need, Demand for Dental Services, Socio-Dental Models, interdisciplinary model.

Pregnancy and Oral Health

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Introduction: Hormonal changes during pregnancy can cause changes in the cavities that are either reversible or irreversible.

Aim: This cross-sectional study aims at the goal of evaluating knowledge, behavior and oral health practices among pregnant women in the city of Tirana.

Material and methods: All the data found by the 130 questionnaires, for the period May-November 2023 have been analyzed with the use of statistics SPSS Version 20 and Microsoft Excel Office 2021.

Results: Based on the results, it can be seen that most of the respondents have good knowledge about oral health compared to studies conducted in other countries. According to our study, 63.8% of the pregnant women questioned knew that dental health issues can causes complications during pregnancy. 56.9% of women are unaware that the mother is the baby's primary source of dental caries-causing germs. 94.6% of pregnant women, were in favor of having a dental checkup included in prenatal exams.

Conclusion: According to our survey, most expectant mothers are well knowledgeable about oral health care, but they have less information about fetal and pregnancy-related problems as well as dental treatment procedures.

Key words: oral health, pregnant women, dental treatment etc.,

Prospective Analysis of Periodontal Health in Patients Undergoing Orthodontic Treatment with Fixed Appliances and Clear Aligners: 3-Month Follow-Up

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Objective: The primary aim of this study was to compare two orthodontic treatments and to assess the presence of clinically significant differences by evaluating specific parameters through the analysis of the PMA index.

Methods: This study included 40 orthodontic patients (20 treated with clear aligners and 20 with fixed appliances), with a mean age of 22 years, non-smokers and without systemic diseases. The periodontal index was assessed at two time points: T0 (before starting treatment) and T1 (after 3 months). Gingival inflammation was measured using the PMA index on 12 dental elements, employing a periodontal probe.

Results: The PMA index increased in both groups between T0 and T1, indicating the impact of orthodontic treatment on gingival health. However, this increase was statistically significantly higher in patients with fixed appliances compared to those treated with clear aligners.

Discussion: Most existing studies use indices such as the Plaque Index, Gingival Index, and Probing Depth, while few directly assess inflammation using the PMA index. This study provides a more detailed analysis of gingival health in orthodontic patients. The results confirm a higher risk of inflammation in patients with fixed appliances, suggesting that clear aligners may be a more favorable option for predisposed individuals. Further long-term follow-up studies are needed to evaluate the prolonged impact of orthodontic treatments on periodontal health.

Conclusion: Orthodontic treatment affects gingival health, with a greater impact observed in patients with fixed appliances. Oral hygiene remains essential in preventing gingival issues in both treatments, and in patients with fixed appliances, the use of specific tools may help reduce the risk of inflammation.

Keywords: Orthodontic Treatment**,** Fixed Appliances**,** Clear Aligners**,** Periodontal Health**,** PMA Index**,** Gingival Inflammation**.**

Local Anesthesia in Pediatric Dentistry

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Introduction: Proper pain control and management in pediatric dentistry are at the center of many clinical studies and research projects.

Objective: This study aims to assess the knowledge of Albanian dentists regarding the use of local and topical anesthesia in pediatric dentistry.

Methods: A questionnaire with 17 questions was sent to 200 dental professionals, requesting information about current local and topical anesthesia practices in children. The data collected from the questionnaire were analyzed using SPSS statistical software Version 20.0 and Microsoft Excel Office 2021.

Results: The questionnaire was completed by 167 dental professionals. The most commonly used anesthetic for female professionals was lidocaine and for male professionals, it was articaine (p=0.012). Only 14.4% used the correct weight and age to determine the anesthetic dose. The needles used for infiltrative anesthesia were short 25 gauge, and for regional anesthesia, they were long 27 gauge. Topical anesthetics are always used by 42.5% of doctors and are never used by 11.4% of them. Side effects after the application of local anesthetics (1.2%) and topical anesthetics (6.1%) were rare.

Conclusion: The most commonly used local anesthetics are lidocaine and articaine, while the most commonly used topical anesthetics are xylocaine and lidocaine. The majority inject one carpule for a time period of less than 60 seconds. Professionals prefer short needles for infiltrative anesthesia and long needles for regional anesthesia. Topical anesthetics are used by the majority, however, their perception of its effectiveness varies.

Keywords: local anesthesia, pediatric dentistry, dental professionals, study, etc.

Comparison of Digital vs Conventional Impressions' Accuracy and Precison in Clinical Practice

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Introduction: Dental impressions are extremely important in prosthodontic rehabilitations. Its accuracy is closely related to the precision of final manufacturing of dental prosthetics. Digital impressions obtained by intraoral scanning are innovative and efficient in clinical practice.

Aim: The main objective of this presentation is to perform a literature review of different scientific articles estimating the efficacity and accuracy of digital impressions compared to conventional dental impressions.

Methods: Online databases like PubMed, Web of Science and Google Scholar were searched with specific keywords, to find and review relevant articles based on clinical and preclinical studies focusing on digital and conventional impressions.

Results: The accuracy of dental impressions and the suitability of the final work are closely related to the accuracy of each clinical and laboratoric phase of the prostheses manufacturing. In order to achieve maximum accuracy in traditional methods, each step of the procedure requires careful implementation and detailed controls. On the other hand, Computer-Aided Design and Manufacturing (CAD/CAM) systems reduce the intermediate phases and consequently in CAD/CAM systems there is a reduction of possible errors that often accompany conventional dental impressions.

Conclusion: Digital impressions have shown advantages in precision, suitability, treatment time and improving the clinical experience of both patients and clinicians.

Keywords: Digital Impressions**,** Conventional Impressions**,** Accuracy**,** Precision**,** Dental Impressions**,** Prosthodontic Rehabilitations

The Impact of Maxillary Lateral Incisor Agenesis on the Eruption and Position of the Maxillary Canine

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Introduction: Agenesis of the maxillary lateral incisor (ILM) is a dental anomaly that affects the aesthetics of the dental arch, and often the final solution to the problem requires a multidisciplinary approach.

Objectives: This study tested the relationship between ILM agenesis and anomalies in the position and eruption of the permanent maxillary incisors (PMI).

Methods: A total of 1,060 radiographs of patients with mixed dentition, aged 6-13 years, were studied. Cases with ILM agenesis were initially selected, followed by only those with unilateral agenesis of the lateral incisor. The position of the PMI was initially studied (parameters: alpha angle, distance, and sector) on both the side with agenesis and the side without agenesis in the same patient. The parameters for PMI on the side without agenesis of the lateral incisor were compared with 13 PMI from the same side randomly selected from radiographs of patients without agenesis. Statistical analysis was performed using SPSS 21.

Results: We found 30 cases of ILM agenesis (2.83%), of which 13 (44%) had unilateral agenesis and 17 (56%) had bilateral agenesis. There was a statistically significant difference in the 3 position parameters of the PMI, within the same patients, between the side with agenesis and the side without agenesis. A correlation was found between the studied parameters, where an increase in one was associated with an increase in the others.

Conclusion: ILM agenesis affects the eruption and abnormal position of the permanent maxillary incisors. Early diagnosis of ILM agenesis may help in the effective planning of orthodontic therapy, avoiding or minimizing its effects on the eruption of the permanent maxillary incisors.

Keywords: Maxillary Lateral Incisor Agenesis**,** ILM Agenesis**,** Dental Anomaly**,** Permanent Maxillary Incisors (PMI)**,** Eruption**,** Position Anomal

The Importance of Temporary Crowns in the Biological Technique of Vertical Preparation, BOPT

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Introduction: Nowadays, dental fixed prosthodontics has many challenges to achieve a successful treatment in the anterior region. The aim is to achieve excellent aesthetic results, that are related not only to the shade, form and the position of the crown, but also to the contour and harmony of gingival margin. Many clinical studies have shown that the design of the crown margin and the emergence profile can guide the contour of the free gingival margin. This review highlights the role of the interim crown in guiding gingival contour in BOPT. In this study will be presented the advantages, the principles of this technique and the fabrication methods of provisional crowns.

Methods: This review includes 80 different articles.

Results: Show different methods of manufacturing the provisional crowns with an appropriate emergence profile.

Conclusion: BOPT offers a lot of advantages. One of them is modification and reshaping the marginal gingiva contour. The BOPT concept ensures a long term stability of gingival tissues.

Keywords: Emergence profile, interim crown, bopt technique.

Oral Manifestations in Children with Autism Spectrum Disorder (ASD)

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Introduction: Autism Spectrum Disorder (ASD) is a complex neurodevelopmental disorder characterized by difficulties in communication and social interaction. Furthermore, this vulnerable group faces unique challenges in oral health. Sensory sensitivities, difficulties in maintaining oral hygiene, and limited cooperation during dental treatments are among the primary factors that complicate the situation. This study aims to analyze the unique challenges of oral health in children with ASD and identify existing gaps in local literature, focusing on the context of Kosovo.

Methods: To gather relevant information, a comprehensive search was conducted in the PubMed and Google Scholar databases, using specific combinations of keywords related to the topic. The findings reveal that children with ASD have a higher prevalence of dental caries and periodontal diseases compared to neurotypical children. Bruxism, chewing of non-food objects, and oral trauma are also common phenomena. Interdisciplinary approaches and adapting the clinical environment are crucial for improving treatment experiences and outcomes.

Results: In the absence of local data, the study emphasizes the need for further research in Kosovo, which could aid in the development of customized and effective protocols for this sensitive patient group. Educating caregivers and training healthcare professionals remains a priority for improving oral care for children with ASD.

Conclusion: Oral health in children with ASD requires special consideration, particularly in terms of prevention, early intervention, and appropriate care strategies. Enhancing the training of professionals and caregivers, along with interdisciplinary approaches, is essential to improve the quality of care for these children.

Keywords: Autism Spectrum Disorder, oral health, children, oral manifestations, dental caries, bruxism, interdisciplinary approaches, Kosovo.

Analysis of Skeletal and Dento-Alveolary Changes in Subjects with Class II Malocclusion and Different Mandibular Morphology, Treated with Functional Therapy

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Introduction: In recent years, authors have emphasized the importance of determining individual patient characteristics before undergoing functional therapy in patients with Class II malocclusion and mandibular retrusion. The purpose of this study was to compare the results of functional therapy in Class II patients with a Co-Go-Me angle <125° to those with a Co-Go-Me angle >125°, and to verify the angle as a cephalometric value predictive of therapy efficacy.

Materials and Methods: The sample was divided into two study groups (11 subjects each), classified according to the Co-Go-Me angle at the beginning of treatment (T0). Treatment was performed during a phase of vertebral maturation from CS1 to CS4. The inclusion criteria for patients included an overjet >5 mm, a complete Class II or molar head-to-head relationship, and an ANB angle >4°. Cephalometric measurements related to sagittal, vertical, dental, and mandibular morphology were evaluated.

Results: The group with a Co-Go-Me angle <125° at T0 showed more favorable results compared to the group with a Co-Go-Me angle >125° at T0. The group with the smaller Co-Go-Me angle exhibited an increase in the SNB angle, an increase in the SNPg angle, a reduction in the ANB angle, and a reduction in the IMPA angle. (P value = 0.02).

Conclusions: Functional therapy in the group with a Co-Go-Me angle <125° resulted in favorable outcomes, highlighting improvements in skeletal relationships, a reduction in the ANB angle, better mandibular projection, improved dento-alveolar relationships, and an enhanced facial profile.

Keywords: Class II malocclusion**,** mandibular retrusion**,** functional therapy**,** Co-Go-Me angle**,** cephalometric analysis**,** sagittal morphology**.**

Prevalence of Dental Malocclusions among Students of the Faculty of Dental Medicine

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Introduction: The prevalence and awareness of malocclusions have increased. Early diagnosis and timely treatment improve bite, smile, and quality of life.

Objective: The aim of this study is to determine the prevalence of dental malocclusions among students of the Faculty of Dental Medicine, including students from both the 5-year Dentistry program and the Dental Hygiene program.

Methods: This observational and retrospective study analyzed existing data from approximately 200 students.

Results: Malocclusions are frequent among students, with sagittal plane malocclusions being the most common. Students demonstrated good knowledge regarding the need and indications for orthodontic treatment.

Conclusions: Malocclusions are common among dental students, particularly in the sagittal plane. Students possess solid knowledge of orthodontic treatment indications and contraindications.

Recommendations: Students should further deepen their knowledge, and public education about malocclusions should be enhanced to improve smiles and quality of life.

Keywords: Prevalence, Dental Malocclusions, Faculty of Dental Medicine, Student, Dentistry Program

Sedentary Behavior and Physical Inactivity: Prevalence and Cardiovascular Impact- A Literature Review

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Background: Physical inactivity and sedentary lifestyle are established risk factors, often considered interchangeable, yet they carry distinct burdens. Understanding their prevalence and cardiovascular impacts—the leading cause of global mortality—is crucial.

Methods: A literature review was conducted to explore systematic reviews retrieved via Boolean searches in PubMed. Initially, 37 studies on the general burden and 57 studies on cardiovascular impacts were identified. After screening, 26 studies were included.

Results: Physical inactivity was found more prevalent than sedentary behavior among adults, with significant regional and demographic variation. Sedentary behavior correlates with increased risk for cardiovascular diseases, stroke, and metabolic disorders, while physical activity is protective. However, uncertainties remain regarding the dose-response relationship, including its linearity.

Conclusions: Sedentary behavior and physical inactivity are significant cardiovascular risk factors. Further refinement of measurement methods and understanding distal determinants are needed to develop effective public health strategies.

Keywords: Sedentary behavior, Physical inactivity, Cardiovascular diseases, Prevalence

The Public Health Impact of Taxation on Sugar-Sweetened Beverages: Evidence and Policy Implications

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Background: Obesity and non-communicable diseases (NCDs) are major global public health challenges. Sugar-sweetened beverages (SSBs) are key contributors due to their high sugar content and low nutritional value.

Methodology: This review analyzed data from WHO, EU reports, the Albanian Demographic and Health Survey (ADHS), and international case studies (e.g., UK, Mexico, Hungary) on the effects of SSB taxation.

Results: SSB taxation significantly reduces consumption—a 10% price increase leads to a 10% decline in purchases. Countries implementing SSB taxes report healthier consumer behaviors, product reformulation, and reductions in obesity and diabetes rates. Tax revenues are often reinvested in public health initiatives.

Conclusions: SSB taxation is an effective strategy to reduce sugar intake, combat NCDs, and improve public health. Proper policy design and enforcement are essential for maximizing long-term health benefits.

Keywords: Public Health Impact, Taxation, Sugar-Sweetened Beverages (SSBs), Obesity, Non-Communicable Diseases (NCDs).Sugar Content,Nutritional Value

Management of the Cancer Registry in Albania

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Introduction: The National Cancer Registry is essential for monitoring cancer incidence in Albania, informing health policies and service planning. The Institute of Public Health manages the registry by governmental mandate.

Methodology: Data from university, regional, and private hospitals are reported electronically and via individual forms. Rigorous data cleaning ensures quality and eliminates duplicates.

Results: From 2014–2023, the registry documented cancer incidence by type, gender, age, and residence. In 2023, 6,691 new cancer cases were recorded (3,656 males; 3,035 females). Lung, breast, skin, colorectal, and stomach cancers were the most common.

Discussion: While the Cancer Registry enhances monitoring and planning, challenges remain, including improving data quality, developing a more advanced electronic system, and training healthcare staff in accurate case registration.

Keywords: Cancer Registry, Incidence, Albania, Public Health

An Acute Gastroenteritis Outbreak in Kukës, Albania, 2022

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Background: On June 22, 2022, an outbreak of acute gastroenteritis was reported in Kukës, Albania, prompting an epidemiological investigation. A total of 961 cases were identified, with predominant symptoms including vomiting (94%), diarrhea (72%), and nausea (48%). The potential for waterborne transmission was initially suspected.

Methods: A descriptive outbreak investigation was conducted using hospital records, emergency department registers, and household visits for case identification. Stool and water samples were analyzed for bacterial and viral pathogens. Epidemiological data were collected to explore the origin and transmission dynamics.

Results: Norovirus GII was identified in 8 of 14 stool samples (57%), confirming viral gastroenteritis. Water samples showed no microbial contamination, excluding a waterborne source. The epidemic curve indicated a point-source outbreak, peaking between June 26–27. However, due to missing food exposure data, the exact source remained unidentified.

Conclusions: The outbreak was most likely caused by foodborne transmission of Norovirus GII, with secondary person-to-person spread sustaining case numbers. Future investigations should integrate systematic laboratory testing and detailed food exposure assessments to improve source identification and outbreak response.

Keywords: Acute gastroenteritis, Norovirus, outbreak investigation, foodborne transmission, epidemiology, public health intervention

The Impact of the European Integration Process on Health Policies in the Western Balkans

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Introduction: The Western Balkan (WB) countries face shared challenges in designing health policies aimed at European Union (EU) membership. The EU is monitoring the development of candidate and potential candidate countries. However, there is no well-documented evidence explaining the specific changes that health policies in the Western Balkan countries face during the process of Europeanization.

Objective: To explore how Europeanization has influenced the development of public health policies in the WB countries from 2005 to 2023.

Methods: This study used temporal trends to explore the health policies of the Western Balkans through a comparative analysis of six countries. The analysis was conducted based on the model of globalization and population health (Huynen et al. 2005). We analyzed 105 progress reports from Albania, Bosnia and Herzegovina, Croatia, Montenegro, North Macedonia, and Serbia from 2005 to 2023, particularly Chapter 28 on "Consumer Protection and Health."

Results: The Europeanization process impacts health policies in the Western Balkans in various ways and forms. WB countries have revised national legislation based on EU acquis, such as healthcare and public health laws in the case of Serbia and North Macedonia in 2009 and 2010, respectively. Healthcare legislation in the region has been amended in line with EU recommendations. Health insurance legislation has been improved to comply with the relevant EU regulations.

Conclusion: The Europeanization process affects general healthcare systems in the Western Balkans through EU policies, directives, and overall EU legislation.

Keywords: Impact, Procesi i integrimit europian - European Integration Process, Health Policies, Western Balkans, Candidate countries

AI-Driven Competency-Based Training for Public Health Professionals in the Balkans: A Digital Approach to Workforce Optimization

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Introduction: The public health workforce in the Balkans faces critical challenges, including skill gaps and limited access to contemporary training resources. AI-driven education may offer effective solutions to enhance workforce competencies.

Objectives: This study explores the effectiveness and feasibility of AI-based competency training for public health workforce development in the Balkan region.

Methodology: A mixed-methods approach was utilized, combining quantitative analysis of training outcomes with qualitative insights from 85 public health professionals and 12 educators/policymakers through surveys and interviews.

Results: AI-driven training significantly improved learning outcomes, with 72% of participants reporting higher competency acquisition compared to traditional methods. While there is strong support for AI integration, infrastructure limitations and digital literacy gaps were identified as key barriers.

Conclusion: AI-based training has strong potential to close competency gaps and enhance public health workforce skills. Addressing infrastructural and literacy challenges is crucial for successful implementation aligned with WHO-ASPHER competency frameworks.

Keywords: Artificial Intelligence, Public Health Workforce, Competency-Based Training, AI-Driven Education, Workforce Optimization, Digital Transformation, Balkans, WHO-ASPHER Framework

The Current Tableau of RNA-Based Therapeutics in Human Diseases: A Review

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Introduction: RNA-based therapies have gained significant attention in recent years. The COVID-19 pandemic brought RNA into the global spotlight through the development of the first mRNA vaccines. RNA is now recognized for its potential to create effective, fast-acting vaccines and novel therapeutic technologies.

Historical Background: RNA technology has been under development since the 1980s. Early work showed promising results in cell cultures and model organisms. Decades of research by pioneering scientists have led to today's breakthroughs.

Evolution of RNA Therapeutics: Discovery of RNA's catalytic properties. Development of antisense therapy. Advances in small interfering RNAs (siRNAs) and microRNAs. Creation of mRNA vaccines. Emergence of CRISPR-Cas9 gene-editing tools.

Current Applications: mRNA vaccines for infectious diseases (e.g., COVID-19). Gene-editing therapies for genetic disorders. RNA-based approaches in cancer therapy and rare diseases.

Challenges and Future Perspectives: Delivery methods remain a major obstacle. Stability and immunogenicity of RNA molecules need improvement. Regulatory and manufacturing hurdles must be addressed. Despite challenges, RNA therapeutics show limitless potential.

Conclusion: RNA-based therapies are poised to become essential tools for drug interventions. They offer significant potential in the prevention and treatment of human diseases. Continued innovation will unlock even greater possibilities in the near future.

Keywords: RNA therapeutics, microRNAs, siRNAs, CRISPR-Cas9.

Implementation and Impact of the "Practice" Subject in the Professional Master in Health Management Program

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Background: The "Practice" subject was introduced in the 2021–2022 academic year within the Professional Master in Health Management at the Department of Public Health, Faculty of Medicine, University of Medicine, Tirana. Its aim was to provide students with supervised practical experience in real-world healthcare environments.

Objectives: To enable students to apply theoretical knowledge, develop managerial and analytical competencies, and facilitate their transition into professional health management roles.

Methods: Students completed a 4-week (100-hour, 4 ECTS) internship at partner healthcare institutions. Requirements included a motivation letter, CV, and practice proposal. Each student, supervised by both an institutional and academic mentor, developed a small-scale project, documented through a practice diary and final report, potentially serving as a basis for their master's thesis.

Results: All students successfully completed the program, demonstrating enhanced analytical, managerial, and communication skills. They gained competencies in assessing organizational needs and proposing evidence-based solutions. Evaluation comprised supervisor assessments (40%), participation in group sessions (20%), and final report evaluations (40%). Both students and mentors provided highly positive feedback regarding the program’s professional value.

Conclusions: The "Practice" subject successfully bridged the gap between theory and practice in health management education. Structured mentorship and rigorous evaluation enhanced student readiness for leadership roles in healthcare organizations.

Keywords: Department of Public Health, Faculty of Medicine, mentorship, Professional Master of Health Management, professional practice, skill development

The Perspective of Healthcare Professionals on the Implementation of Universal Health Coverage Components in the Albanian Healthcare System

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Introduction: The establishment of a universal healthcare system is the ultimate goal of the reforms and improvements currently being developed in the Albanian healthcare system. Although some of these reforms and implementations are still in their early stages, several key issues highlight the need for immediate and extensive intervention.

Research Objectives: The aim of this paper is to investigate the perspectives of, healthcare professionals on the reforms being implemented in the Albanian healthcare system. Analyzing the current structure of the healthcare system and the impact of changes on it can make a significant contribution to developing future recommendations for decision-makers in the healthcare sector, assisting progress toward the ultimate goal of Universal Health Coverage (UHC).

Methodology: To achieve the objectives of this paper, a comprehensive review of the available literature was conducted across various digital platforms such as WHO, PubMed, Google Scholar, and Academia.edu. Additionally, official Albanian government websites such as Shendetesia.gov.al and Ishp.gov.al were used as sources of information. Furthermore, a survey was conducted with healthcare personnel from all fields.

Results: This study demonstrates the hypothesis that recent changes, specifically the introduction of universal healthcare service components in the Albanian healthcare system, have a positive impact not only on workers in this sector but also on their relationships with patients. The vast majority of medical professionals agree that the new developments in the healthcare system are improving patient outcomes and public health in general. An interesting finding was the higher representation of women in this study. Among professions, doctors reported the highest level of satisfaction with the current implementation of the system, which was expected since UHC is more patient-oriented, leading to greater improvements and a more positive doctor-patient relationship. The lack of qualified personnel has been identified as a significant factor contributing to the slow implementation of UHC. Ensuring that the healthcare system is equipped with a sufficient number of professionals who can adequately cover all branches and meet the needs of the population and various departments in different regions is the first step toward achieving UHC.

Keywords: Universal Health Coverage, healthcare reforms, health workforce, doctor-patient relationship, Albania, public health system

Assessment of Eating Habits, Physical Activity, and Lifestyle among Medical Students at the University of Medicine, Tirana

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Introduction: Medical students face many challenges in adapting to a healthy lifestyle due to their busy schedules and academic demands.

Objectives: This study aims to assess eating habits, physical activity, and health-related behaviors among medical students, identifying factors influencing unhealthy behaviors.

Methods: The study included 213 students (78.9% female) from the University of Medicine, Tirana, who completed a questionnaire. Data were analyzed using SPSS v27.

Results: The average age of participants was 20.2 ± 1.5 years. Results showed that 7% of students were underweight, 69.8% had normal weight, and 22.1% were overweight or obese. The average sleep duration was 5.9 ± 1.5 hours at night, and 67.6% of students napped during the day when possible. 43% of students did not have breakfast daily. Fast food and energy drinks were consumed 1-2 times per week. Physical activity was limited, with 48.1% exercising less than one hour per week. Half of the students felt stressed due to academic demands. Students with more sleep problems felt more distracted and insecure about their mental health ($p = 0.000$). Furthermore, those who slept more were less likely to engage in physical activity ($p=0.005$).

Conclusions: The results suggest that despite knowledge of healthy lifestyles, students often do not implement these practices, which may pose significant challenges to their professional careers.

Keywords: Students; medicine; eating habits; physical activity; health; lifestyle.

Stroke Incidence in Albania: Trends by Gender, Age Group and Region

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Introduction: Stroke is one of the main causes of morbidity and mortality in Albania, responsible for 16% of all deaths. Stroke is primarily classified into ischemic and hemorrhagic types. High blood pressure (HBP) is the main risk factor for this disease. This study aims to analyze the incidence of stroke by gender, age group, and region in Albania for the years 2017, 2022, and 2023.

Methodology: The study is based on data collected from regional hospitals and the University Hospital Center "Mother Teresa", which are the main centers for stroke management. The data were processed and standardized by the Institute of Public Health (IPH). The analysis includes incidence rates by age group, gender, and region.

Results: In 2023, were recorded 4,820 new cases of stroke, compared to 4,408 cases in 2017 and 5,242 cases in 2022. The incidence rate in 2023 was higher among males compared to females (226.3/100,000 vs. 175.5/100,000) and increased significantly after the age of 50. The regions with the highest incidence rates were Lezhë, Kukës, and Shkodër, while Berat, Korçë, and Dibër reported lower levels of stroke.

Discussion: The increase of stroke reported incidence may be linked to improvements in the registration system and the aging population. However, discrepancies in reporting between regions suggest the need for improvements in the quality of case reporting of stroke and the implementation of new strategies for prevention. These include better control of HBP, health education, and the expansion of treatment capacities in regional hospitals. This study highlights the importance of continuous monitoring of stroke to improve prevention and management of this disease in Albania.

Keywords: Stroke, HBP, incidence, management, prevention, Albania.

Age at Initial Diagnosis and Mortality of Breast Cancer: Nation-Wide Retrospective Study in Albania

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Background: Breast cancer (BC) is with the highest risk in Albania, and the leading cause of cancer-related death among females in Albania. As at the global level, in Albania too, breast cancer comprises more than 11% of all new cancer cases diagnosed each year (incidence), while it is estimated that about 25% of all women in the population living with a malignant neoplasm, have breast cancer (prevalence). By means of previous studies were lacking high-quality evidence from hospital-based clinical research, the treatment of BC still has limitations in Albania.

Aim: This study aimed to explore the associations between age at initial diagnosis with breast cancer (BC) age of death.

Methods: Medical records of patients newly diagnosed with BC were obtained from all hospitals of Albania from 2015-2022, collected based on the case report form (CRF). Mortality data based on the causes of death reported by INSTAT.

Results: A total of 5547 cases were included in the final analysis. The median age of new cases at the time of diagnosis has increased by 3.5% in the last 7 years, from 55 years in 2015 to 57 years in 2022. More than 73% of new cases in 2022 were diagnosed over the age of 50. In 2022, only 192 deaths from breast cancer were recorded, or 13.7 per 100,000 women. In 2021, there were 225 deaths (15.9 per 100,000 women). It seems that the mortality rate from breast cancer in Albania has a stable stationary trend with a significant decrease in 2022. Compared to 2015 when there were 229 deaths (mortality 16.1 per 100,000 women) in 2022 a decrease of 19% is observed. The standardized death rate according to age (standardized death rate-SMR) has a clearer tendency to decrease, especially for the age group under 70 years old. This indicator (SMR for the age group 30-70 years old) has had a steady downward trend; from 20 deaths per 100,000 inhabitants in 2015 to 17.4 per 100,000 in 2019 or 15% less. Over the years, the increase in the average (median) age of deaths from breast cancer has also been observed, in 2015 the median age of deaths is 61 years, and in 2022 the median age is 64 years. The IAEA has supported Albanian government in national framework Programme, training family doctor for breast clinic examination, training the radiologist, and radiotherapist doctors. The investment on facility of mammography are highlines in Albania.

Conclusion: Age at initial diagnosis in Albania has is increased, is related to the awareness of the person and access in the health care services program. All investments have influenced and the change of the median of death and increasing survivorship in Albania from breast cancer.

Keywords: Breast cancer; diagnosis age; mortality trends; Albania.

The Impact of Chlorination and Water Treatment on Drinking Water Quality and Public Health

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Introduction: The study evaluates the impact of the chlorination process on drinking water quality and was conducted through measurements of residual free chlorine levels in water and the analysis of water samples from the distribution network.

Methods and Results: The water samples represent 31 water supply points in Tirana and 36 in Durres. The study period was from January to December 2023, during which 8,235 water samples from Tirana and 9,081 from Durres were analyzed. Residual Free Chlorine Levels in Water: In Tirana, 9.2% of the measurements (755/8,187) recorded values of 0.5 mg/L, whereas in Durres, this percentage was significantly higher at 92.4% (8,395/9,081). Measurements below 0.5 mg/L accounted for 56.1% of the samples in Tirana (4,597/8,187) and only 4.6% in Durres (421/9,081). A chlorine level of 0 mg/L was recorded in 1.5% of the samples in Tirana (126/8,187) and 0.7% in Durres (72/9,081). Meanwhile, values above 0.5 mg/L were observed in 33% of the samples in Tirana (2,709/8,187) and 2.1% in Durres (193/9,081). Microbial Contamination: In Tirana, 11.8% of the samples (979/8,232) tested positive for microbial contamination, while in Durres, this level was significantly lower at only 0.1% (12/9,081). Physicochemical Analyses: In Tirana, several parameters exceeded standard limits: Ammonia in 13.5% of the samples. Nitrites (NO_2) in 3.5% of the samples. Nitrates (NO_3) in 0.8% of the samples. Other parameters, such as color, odor, taste, turbidity, temperature, and pH, were within the allowable limits. In Durres, only 0.03% of the samples showed deviations from the standard in physicochemical analyses.

Conclusion: The study's findings highlight the importance of the drinking water disinfection process in ensuring water quality and protecting public health. In Tirana, where the number of water samples with deviations from the residual chlorine standard is higher, an increased level of contamination is also observed, contributing to a rise in waterborne diseases. Ensuring the quality of drinking water is essential for preventing waterborne illnesses and epidemic outbreaks. Interventions and damages to the supply network jeopardize proper disinfection, posing risks to public health that require a multidisciplinary approach for effective solutions.

Keywords: Public health, water sample, residual free chlorine, drinking water quality, waterborne diseases.

Evaluation of Cataract Prevalence in Individuals Aged 45-65 Years between January April 2024 at the Ophthalmology Service of "Mother Teresa" University Hospital Center, Tirana

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Introduction: Cataract is a major public health problem due to its impact on vision quality and quality of life. There are around 20 million people blind from cataracts worldwide. Objective: The aim of this study was to assess the prevalence of cataracts among patients aged 45-65 years attending the Ophthalmology Department at QSUT from January to April 2024, to establish a comprehensive screening system for early detection and timely treatment of cataracts.

Methods: A cross-sectional study was conducted with a sample of 273 patients within the specified age group. Data were collected and analyzed using Chi-square tests to examine the potential risk factors associated with cataract prevalence.

Results: Among the 273 participants, 18.32% were diagnosed with cataracts. Notable risk factors included diabetes (28%), hypertension (46%), and glaucoma (12%). Additionally, no patient who had been exposed to sunlight for less than one hour had cataracts. Statistical analysis revealed significant associations between cataract prevalence and factors such as age, gender, residence, diabetes, hypertension, glaucoma, and sunlight exposure.

Conclusion: The findings indicate that demographic and clinical factors, including age, gender, diabetes, hypertension, glaucoma, and sunlight exposure, are significantly associated with cataract prevalence. These results underscore the importance of implementing a targeted screening program and ensuring timely intervention for cataract management in the population.

Keywords: Prevalence, Cataract, 45-65 years, Ophthalmology Service, QSUT, Risk factors.

Trends in Mortality and Morbidity Attributable to Metabolic Risks in the Albanian Population in the Past Three Decades

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Introduction: Metabolic risks including hypertension, obesity, hyperglycaemia, and dyslipidaemia, are major contributors to mortality and morbidity, driving the global burden of cardiovascular diseases, diabetes, and other chronic conditions.

Objective: To assess the mortality and morbidity trends attributable to metabolic risks in Albania during the period 1990-2021.

Methods: Assessment of crude and age-standardized mortality rates, along with Disability-Adjusted Life Years (DALYs), attributable to metabolic risks in Albania during 1990-2021, based on the estimates available from the Institute for Health Metrics and Evaluation (https://vizhub.healthdata.org/gbd-results/).

Results: Crude mortality rate due to metabolic risks in the Albanian population was about 428 (95%CI=358-500) deaths per 100,000 populations in 2021 and 169 (95%CI=150-187) deaths per 100,000 populations in 1990. In contrast, age-standardized mortality rates were 278 (95%CI=233-323) deaths per 100,000 populations in 2021 and 331 (95%CI=293-368) deaths per 100,000 populations in 1990. Crude burden of disease attributable to metabolic risks was 8440 (95%CI=6998-9956) DALYs per 100,000 in 2021 and 4000 (95%CI=3494-4499) DALYs per 100,000 in 1990. Conversely, the age-standardized burden of disease rate was 5398 (95%CI=4477-6371) DALYs per 100,000 in 2021 and 6739 (95%CI=5910-7551) DALYs per 100,000 in 1990.

Conclusion: There is evidence of a declining trend in age-standardized mortality and disease burden rates attributable to metabolic risks in the Albanian population, indicating improvements in healthcare, prevention, and management of metabolic conditions. Notwithstanding this progress, there is need for sustained public health interventions targeting metabolic risk factors, such as obesity, hypertension, and hyperglycaemia, to prevent morbidity and mortality and promote long-term health of the Albanian population.

Keywords: burden of disease, Disability-Adjusted Life Years (DALYs), estimate, Institute for Health Metrics and Evaluation, metabolic risks, mortality rate.

Determining Quality Indicators in Healthcare Services for Children, Women and Other Victims of Domestic Violence

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Introduction: Albanian society, like all modern societies, is facing a noticeable increase in violence in general, particularly domestic violence. Currently, the healthcare system remains unprepared in terms of available human resources, their management, geographical distribution, and the specialized knowledge required for handling such cases.

Objective: This study aims to analyze the state of healthcare services and propose quality indicators to improve healthcare services for victims of domestic violence.

Methodology: A descriptive analysis was conducted on the institutional framework, human resource distribution, management aspects, and medical staff training curriculum to identify quality improvement needs in handling domestic violence cases. Additionally, based on the experiences of countries such as Italy, England, and the Republic of Kosovo, as well as the current situation analysis, specific quality indicators for medical services for this patient category in Albania are proposed.

Results: The study revealed that the current healthcare service structure and its geographical distribution are inadequate in both qualitative and quantitative aspects in meeting the demand for quality healthcare services. Furthermore, medical personnel lack the necessary qualifications to properly treat this category of patients.

Conclusions: The findings highlight the urgent need to reassess the geographical distribution, management, and organization of medical services. There is also a necessity to update the national curriculum for training medical personnel in handling, detecting, preventing, and reporting all acts of domestic violence. Additionally, aligning national quality indicators with those of developed countries is recommended.

Keywords: Quality indicators in healthcare, victims of domestic violence, healthcare system in Albania, medical personnel training curriculum, descriptive analysis.

Cost Assessment of ILI and SARI Sentinel Surveillance in Albania: Insights for Sustainable Public Health Investment

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Background: Cost assessments are essential for evaluating the financial sustainability of public health surveillance systems. ILI and SARI surveillance are critical for detecting emerging respiratory pathogens, tracking seasonal influenza trends, and guiding vaccination policies. A systematic cost assessment ensures efficient resource allocation and long-term sustainability of surveillance programs, especially in resource-limited settings. According to global public health literature, underfunded or inefficient surveillance systems can lead to delayed outbreak detection, insufficient response capacity, and misallocation of resources (WHO, 2019; CDC, 2021) Costing studies provide valuable insights for policymakers to secure sustainable funding, optimize laboratory and field operations, and justify investments in pandemic preparedness (Nair et al., 2015; Barboza et al., 2020).
This study aims to estimate the cost of Albania's Influenza-Like Illness (ILI) and Severe Acute Respiratory Infections (SARI) sentinel surveillance system for the period of September 1, 2021, to August 31, 2022.

Methodology: This assessment utilized a mixed-methods approach, incorporating both activity-based and non-activity-based costing methods to estimate personnel, laboratory operations, specimen transport, and travel costs.
Data collection involved structured interviews with national, district, and sentinel site staff, review of financial records, and surveillance system reports.
Activity-based costing quantified time and resources allocated to specific surveillance tasks, while non-activity-based costing estimated overall personnel expenses based on the percentage of time dedicated to surveillance activities.

Results: The total annual operating cost of Albania's sentinel surveillance system was estimated at 37,455,488 Albanian Lek (ALL) (~$317,743 USD).
Personnel costs accounted for 14,117,588 ALL (~$119,672 USD), while laboratory operations represented the largest expense at 17,570,293 ALL (~$149,052 USD).
Specimen transport and travel expenses were estimated at 4,687,825 ALL (~$39,768 USD) and 1,079,781 ALL (~$9,160 USD), respectively. The average cost per specimen varied significantly, ranging from 4,951 ALL (~$42.00 USD) in Tirana to 18,114 ALL (~$153.66 USD) in Kukes Regional Hospital. These differences highlight regional variations in accessibility, personnel workload, and laboratory expenses.

Conclusions: Cost assessments help keep ILI and SARI surveillance sustainable. Financial challenges limit expansion in many low- and middle-income countries, making accurate cost estimates essential for securing funding (Hadjichristodoulou et al., 2021; Mulholland et al., 2022). This study shows that cost estimation support better planning, funding, and program

sustainability. However, some costs, like PPE and utilities, were not included and should be considered in future assessments. Given the global shift towards integrating SARS-CoV-2 and RSV monitoring into influenza surveillance platforms, the need for financially sustainable, data-driven public health surveillance systems is more pressing than ever. Systematic identification of main cost drivers enables health authorities to make data-driven financial decisions, strengthen surveillance infrastructure, and ensure long-term program sustainability.

Keywords: Cost Assessment, ILI (Influenza-Like Illness), SARI (Severe Acute Respiratory Infections), Sentinel Surveillance, Public Health Surveillance Systems, Financial Sustainability

Review of the Local Action Plan on Health Promotion in Peqin Municipality

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Introduction: In 2022, the Swiss project "Shkollat për Shëndetin" supported the development of a Local Action Plan on Health Promotion for Peqin Municipality. This plan aimed to guide effective health interventions at the municipal level. To ensure its effectiveness, a review was conducted to assess the timeliness and effectiveness of its implementation.

Methodology: A mixed-methods approach was used, combining quantitative data analysis (project indicators and surveys) with qualitative methods (interviews and focus groups with stakeholders). A systematic evaluation framework assessed the plan's relevance, effectiveness, efficiency, and sustainability, prioritizing community engagement.

Results: The review found that many planned activities have been implemented successfully, aligning with project targets. Notable achievements include the medical check-up program for individuals aged 35-70 years and school-based health promotion interventions, supported by "Shkollat për Shëndetin". However, several planned activities have not yet started, and some interventions have had limited impact. Key challenges include the lack of innovative and sustainable private sector engagement and unclear inter-sectoral collaboration, particularly regarding funding responsibilities. The absence of official financial commitments from local institutions poses a risk to the plan's long
term implementation.

Conclusion: Despite challenges, this review highlights successes and gaps in implementation and provides actionable recommendations to scale up, adapt, and improve health promotion efforts in Peqin Municipality, aligning with local and national priorities. Strengthening financing mechanisms and inter-sectoral coordination is crucial for achieving sustainable health promotion outcomes in Peqin.

Keywords: Health Promotion, School-Based Interventions, Inter-Sectoral Collaboration.

Community Awareness Activities on Climate Change and WASH

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Introduction: During last year, a series of information sessions were conducted across seven districts of country in both urban and rural areas. The aim was to enhance community awareness and improve knowledge about climate change and its socioeconomic and health consequences. Additionally, the intervention sought to highlight the importance of Water, Sanitation, and Hygiene (WASH) practices and promote the rational use of water among the general population. These sessions were supported by UNICEF and facilitated by public health experts and local government representative.

Methods: A total of 21 information sessions were organized, reaching 451 community members and professionals in Korça (n=80), Elbasan (n=105), Lezha (n=41), Vlora (n=16), Peqin (n=34), Kukës (n=32), Tirana (n=101), Gramsh (n=23), and Librazhd (n=19). Public health experts led discussions on the impact of climate change on health and the environment, fostering a deeper understanding of these challenges and encouraging community-driven adaptation strategies.

Results: The sessions highlighted the local impact of climate change on water availability and quality. Participants gained insights into rising health risks, including waterborne diseases, heat related illnesses, and respiratory conditions. Emphasis was placed on sustainable water use and WASH practices to prevent disease and promote hygiene. Community-driven adaptation strategies were encouraged to develop local solutions to climate-related challenges. Additionally, emergency preparedness and the role of public health experts in resilience-building were reinforced.

Conclusion: These sessions enhanced community knowledge on climate change, WASH, and water conservation. These also emphasized the role of public health experts in mitigating climate related risks. These activities promoted community-driven adaptation strategies, contributing to improved climate resilience and public health preparedness.

Keywords: Climate change, Community awareness, WASH, Health risks.

Obesity and the Focus on Continuing Education for Healthcare Professionals

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Introduction: Obesity is one of the most concerning eating disorders today and a major risk factor for chronic diseases. Body Mass Index (BMI), calculated as weight divided by height squared, is used to classify obesity. A BMI over 30 defines obesity, which is increasingly regarded not only as a health risk but as a disease in itself. Awareness about obesity is growing among both individuals and healthcare professionals (physicians, nurses), who often encounter chronic diseases associated with this condition.

Objective: This study aims to evaluate the need for healthcare professionals to update their knowledge about obesity and assess the accuracy of their responses during knowledge testing in continuing medical education (CME) activities.

Methods: In this retrospective study, we analyzed data from knowledge-based questionnaires collected during CME activities from 2023 to 2025. A total of 502 participants (physicians and nurses) from 10 cities across the country responded to a questionnaire at the end of an online session titled "Obesity." The accuracy of responses was used to evaluate continuing education needs.
Results: The highest percentage of correct answers was observed in questions related to chronic diseases caused by obesity (92%) and key contributing factors (87%). The lowest accuracy was seen in questions about leptin (12% correct answers) and the disadvantages of pharmacological therapy (8% correct answers).

Conclusions: Despite healthcare professionals' growing knowledge about obesity, the need for updated and accurate information remains clear. Innovative educational approaches should be prioritized in CME programs to help reduce obesity rates. Professionals must continue to emphasize education on this topic and integrate this knowledge into their clinical practice.

Keywords: Obesity, BMI, Continuing Education, Healthcare Professionals

The Impact of Vaccination on the Prevalence, Severity, and Other Outcomes of Long Covid-19: A Literature Review

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Background: COVID-19 vaccination has shown promise in preventing morbidity and mortality from COVID-19. Long COVID-19, a chronic condition arising after SARS-CoV-2 infection, affects patients' well-being. Various studies have explored whether vaccination can mitigate the prevalence and severity of Long COVID-19 and other health outcomes.

Methods: A literature review was conducted to assess the effectiveness of vaccines in reducing the prevalence and severity of Long COVID-19. A Boolean operator search in PubMed identified 58 studies from 2021, with 19 meeting the criteria for inclusion.

Results: Results demonstrated that about one in three COVID-19-positive patients may develop Long COVID-19 symptoms. Vaccination appears to lower the risk and severity of Long COVID-19, though results vary by vaccine type, booster status, timing relative to infection, and SARS-CoV-2 variant. Other factors such as age, comorbidities, and immune response variability may explain the inconsistent findings.

Conclusions: While evidence suggests a protective role of vaccination against Long COVID-19, further research is required to establish definitive causal relationships. Future studies should focus on the mechanisms through which vaccination influences Long COVID-19 and address inconsistencies by including diverse populations and standardized outcome measures.

Keywords: Long COVID-19, Vaccination, Effectiveness, Outcomes

The Reconnected Project in Kosovo: Applying Artificial Intelligence to Mental Health

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Introduction: Global societal challenges threaten the mental well-being of European citizens. The RECONNECTED project, supported by the EU/Horizon Europe program, aims to address mental health issues in vulnerable populations, including in Kosovo, particularly individuals from low socio-economic backgrounds.

Objective: The objective of the RECONNECTED project is to demonstrate the application of Artificial Intelligence (AI) through Reinforcement Learning (RL) for mental health support.

Methodology: This section describes the use of AI in the project and provides a literature review on Reinforcement Learning's application in mental health.

Results: The RECONNECTED project, currently being implemented in Kosovo, utilizes micro-interventions through the Moodbuster application. This app employs Reinforcement Learning (RL) within a Machine Learning framework to optimize mental health interventions. RL helps determine appropriate activities, timing, delivery methods, reminders, emotional tracking, and engagement strategies, ensuring personalized experiences for users. RL is increasingly explored for mental health applications, including personalized therapies, treatment planning, and early interventions.

Conclusions: The RECONNECTED project applies interactive Machine Learning algorithms to enhance psychological resilience by identifying personalized goals for micro-interventions. This approach aims to effectively integrate Reinforcement Learning in mental healthcare.

Keywords: RECONNECTED, AI, Reinforcement Learning, Mental Health, Kosovo

Exploring the Rise of Post-Covid-19 Mental Health Disorders and their Association with Inflammatory Biomarkers in Primary Health Care Settings

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Background: The COVID-19 pandemic has significantly impacted mental health, leading to an increase in depression and anxiety cases in outpatient services. Recent studies suggest systemic inflammation may contribute to the development of psychiatric symptoms. Inflammatory markers such as C-Reactive Protein (CRP) and Interleukin-6 (IL-6) are linked to neuropsychiatric symptoms, prompting investigation into their role in post-COVID-19 mental health disorders.

Methods: A historical cohort study will be conducted at a Community Mental Health Center in Tirana. Adults seeking mental health treatment post-COVID-19 infection will be categorized by primary diagnoses (depression and anxiety) and compared to a healthy control group. Clinical and laboratory assessments will evaluate the relationship between psychiatric symptoms and inflammatory markers, including CRP, IL-6, WBC, and ESR.

Results: Preliminary data indicate a significant rise in post-COVID-19 mental health cases in outpatient services compared to pre-pandemic levels. A positive correlation was found between elevated inflammatory markers and psychiatric symptom severity. Patients with post-COVID-19 depression and anxiety exhibited higher levels of CRP, IL-6, WBC, and ESR.

Conclusions: This study may provide evidence for the link between post-COVID-19 inflammation and the increase in mental health cases. Further research is needed to explore targeted interventions to improve patient outcomes.

Keywords: COVID-19 Pandemic, Mental Health Impact, Depression, Anxiety, Outpatient Services, Systemic Inflammation

Case Study on the Identification, Assessment, Psycho-Social Support and Educational Integration of Children with Intellectual Disabilities

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Background: Inclusive education for children with intellectual disabilities remains a significant challenge, particularly in rural areas where resources are limited. This case study examines the identification, assessment, psycho-social support, and educational integration of a student diagnosed with moderate intellectual disability and short-term memory issues at the "Gani Duraku" public school in Morin, Kukës, Albania. The study aims to explore the barriers faced by students, teachers, and parents in ensuring effective learning and social inclusion.

Methods: A qualitative research approach was used, incorporating direct observations, interviews with teachers, school staff, and the student's family, as well as document analysis. Data collection focused on understanding the student's academic performance, social interactions, and the challenges of teachers working in collective classrooms. The study also examined the psycho-social and educational support systems available for children with intellectual disabilities.

Results: Findings reveal that the student faced significant difficulties in academic achievement and social adaptation due to a lack of individualized support, limited teacher training, and insufficient parental involvement. Teachers struggled to modify their teaching methods due to the constraints of working in large, multi-level classrooms. However, peer support and targeted psycho-social interventions had a positive impact on the student's engagement and emotional well-being. Despite these efforts, systemic gaps in educational policies and school resources hindered full integration.

Conclusions: The study highlights the urgent need for improved teacher training, early intervention strategies, and enhanced collaboration between schools and families to support children with intellectual disabilities effectively. Recommendations include implementing specialized training programs for educators, developing inclusive teaching strategies, and providing additional psycho-social support to both students and their families. Strengthening these areas can contribute to a more inclusive and supportive learning environment.

Keywords: intellectual disability, inclusive education, psycho-social support, special education, learning challenges.

Towards a Psychological Pandemic Among Healthcare Professionals Due to COVID-19: A Literature Review

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Introduction: A psychological pandemic is a term that describes the profound and widespread impact of pandemics on the mental health of populations. This occurs when stress, anxiety, depression, and other mental disorders increase significantly as a result of a physical pandemic, such as the COVID-19 crisis.

Objective: This study aims to assess the impact of COVID-19 on levels of stress, anxiety, and depression among healthcare professionals, by analyzing data from studies published in the international scientific literature.

Methodology: The analysis included 19 studies conducted across six regions: Africa, South America, North America, Europe, Asia, and Oceania. From these, 6 final studies were selected that reported numerical data on the incidence of psychological effects. The reviewed studies were published and indexed in the PubMed scientific platform.

Results: The results showed that levels of stress, anxiety, and depression varied by region. In Nigeria, the stress level was 62.4%, anxiety was 5%, and depression was 9.8%. In Egypt, these values were significantly higher, with stress at 98.5%, anxiety at 90.5%, and depression at 94%. In Oceania, including Australia and New Zealand, the psychological impact was lower compared to other regions.

Conclusion: The duration of the COVID-19 pandemic has negatively impacted the mental health of healthcare professionals. With high levels of reported stress, anxiety, and depression in several regions, the healthcare system is facing a new challenge: the psychological pandemic. Further studies are needed to better understand the influencing factors and to develop effective strategies for providing psychological support to healthcare professionals.

Keywords: Psychological pandemic, healthcare professionals, mental health, stress, anxiety, depression, COVID-19.

Risk and Protective Factors of Nonsuicidal Self-Injury Behavior in Adolescents and Young Adults: A Literature Review

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Introduction: Nonsuicidal self-injury (NSSI) is a widespread mental health concern among adolescents and young adults. This literature review aims to explore the key risk and protective factors associated with NSSI, integrating global research with recent studies from Albania.

Objective: To examine the risk and protective factors influencing NSSI behavior among adolescents and young adults.

Methodology: A systematic search was conducted across academic databases, including PubMed, PsycINFO, and Google Scholar, using keywords such as "non-suicidal self-injury," "risk factors," "protective factors," "young adults," and "adolescents." Studies published between 2010 and 2023 were reviewed, with inclusion criteria focusing on empirical research and systematic literature reviews involving adolescent and young adult populations.

Results: Key risk factors identified include mental health disorders, childhood trauma, and peer bullying, while protective factors such as self-compassion, emotional regulation, and social support were highlighted. Research from Albania mirrors these trends, although studies in the region primarily describe the characteristics of NSSI rather than investigating its risk factors.

Conclusion: Despite the growing body of literature, much of the existing research is cross-sectional, emphasizing the need for longitudinal studies to establish causal relationships. These findings underline the importance of early intervention strategies aimed at strengthening emotional resilience and coping mechanisms in at-risk populations.

Keywords: Nonsuicidal Self-Injury (NSSI), Adolescents, Young Adults, Risk Factors, Protective Factors, Mental Health Disorders

The Level of Anxiety, Depression, and Quality of Life in Parents of Children with Autism, Down Syndrome and Intellectual Disabilities

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Introduction: When a child is diagnosed with a physical or developmental disability, parents experience a storm of emotions.

Aim: The aim of this study is to assess and compare the level of anxiety, depression, and quality of life in parents of children with Autism, Down Syndrome, and intellectual disabilities.

Methods: Three instruments were used: The Beck Anxiety Inventory, the Beck Depression Inventory, and WHOQOL-BREF for quality of life. To carry out this study, 78 parents were included, of whom 34 were parents of children with Autism, 32 were parents of children with Down Syndrome, and 12 were parents of children with intellectual disabilities. Among the interviewed parents, 69 were women and 9 were men.

Results: The results of the study showed that parents of children with intellectual disabilities had a higher level of anxiety and depression compared to parents of children with Autism and Down Syndrome. The quality of life was generally good, but widowed women showed a slightly lower quality of life due to the difficulties of being single parents. Parents of older children showed higher levels of anxiety and depression as a result of the lack of change in the condition of their children and due to uncertainty about the future. Parents were found to be discouraged about the future and did not feel hopeful about improving their situation, especially parents of children with intellectual disabilities.

Conclusion: Based on the findings of this study, we can say that the level of symptoms of anxiety and depression is present in parents of children with Intellectual Disabilities, Autism, and Down Syndrome.

Keywords: Autism, Down Syndrome, Intellectual Disabilities, anxiety, depression, quality of life, parents.

Promotion and Prevention of Mental Health at Work: Increasing the Health Promotion Skills in Mental Health at Work with Specialist from Local Health Care Units

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Background: According to WHO "Safe and healthy working environments are not only a fundamental right but are also more likely to minimize tension and conflicts at work and improve staff retention, work performance and productivity." For this purpose and based on the National Mental Health Working Plan 2023 – 2026 document, we aim to provide an effective intervention for the promotion and prevention of mental heath at work.

Methodology: We developed a training module based on the MentHub web materials for health care professionals in order to increase the effectiveness of the intervention with the purpose to create cascade trainings with the participation of managers and supervisors.

Results: We conducted 4 regional training of trainers on how to provide mental health support in work settings with the participation of more than 50 health workers from the local health care units (NJOVKSH.) Participants were interested to learn about mental health interventions at work and possibly conduct trainings with teachers or managers.

Conclusions: Despite the evidence that mental health interventions at work protect mental health of workers and defies stigma related to mental health disorders, and that promotion of mental health at organizational and community level are first step to increase awareness and create discussion for interventions; we faced resistance in organizing training activities with managers from the participants. Understanding the challenges related to implementation of promotion and prevention of mental health interventions at work and tackle those challenges will help to provide tailored activities based on the community's needs.

Keywords: Mental Health at Work, Workplace Health Promotion, Mental Health Prevention Health Promotion Skills, Workplace Interventions, Local Health Care Units (NJOVKSH)

Increasing the Effectiveness of Depression Treatment through the Use of Computer-Based Psychotherapy Interventions: Reflections from the Use of I Fight Depression Tool

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Background: To provide a thorough presentation of some of the achievements and challenges of the use of iFD tool in the previous years and provide some recommendations for successful implementation of iFD tool based on current scientific evidence.

Methodology: For our study we have conducted a mixed research method such as literature review focused only on published research on the use of I FD for the treatment of depression and anxiety and qualitative studies such as group and individual interviews with service users and health professionals.

Results: Previous research suggest that iFD tool is effective in reducing symptoms in patients that have been diagnosed with mild to moderate depression as an add-on intervention to the treatment as usual (TAU). In Albania the iFD tool is being implemented since 2018 with considerable success in relation to accessibility to the instrument of people in need despite the difficulties associated with patients interacting with the iFD device and providing guidance by healthcare personnel such as: preference for direct counseling sessions with the psychologist instead of using a self-guided tool and lack of motivation or severity of depressive symptoms that prevent interaction with the tool or in the case of minors, difficulties to provide access without parental approval or guidance.

Conclusions: iFD has been proved to be a cost – effective instrument for the treatment of mild to moderate depression in both preventive and treatment settings. Health professionals and Therapist are kin to learn about innovative interventions that can be effective in addressing depression despite the challenges related to personal and organizational issues that hinder the integration of these interventions such as iFD in the traditional mental health services.

Keywords: depression, psychotherapy, iFD tool

Transverse Myelitis as a Consequence of Lyme Borreliosis: A Literature Review

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Introduction: Transverse myelitis is a rare inflammatory pathology of the spinal cord that can occur as a result of infections, autoimmune diseases, or idiopathic factors. One of the infectious etiologies associated with transverse myelitis is Lyme Borreliosis, caused by *Borrelia burgdorferi*. This tick-borne disease can lead to neurological complications, including transverse myelitis, although such cases are rarely reported. The aim of this review is to analyze the existing literature on the association between Lyme Borreliosis and transverse myelitis.

Methodology: Published articles were reviewed from scientific platforms such as PubMed, ScienceDirect, and Karger, including clinical case reports, retrospective studies, and literature reviews regarding transverse myelitis associated with Lyme Borreliosis.

Results: Reported cases indicate that patients with transverse myelitis caused by Lyme Borreliosis present various neurological symptoms, including paraparesis or paraplegia, sensory loss, autonomic dysfunction, and neuropathic pain. MRI of the spinal cord often reveals inflammatory lesions, while cerebrospinal fluid (CSF) analysis typically shows pleocytosis and elevated protein concentrations. Diagnosis relies on serological tests and PCR for *Borrelia burgdorferi*. Treatment involves antibiotics such as ceftriaxone, often combined with corticosteroids to reduce inflammation. Clinical outcomes range from full recovery to persistent neurological deficits.

Conclusion: Transverse myelitis as a consequence of Lyme Borreliosis is a rare but potentially serious complication. Early recognition, accurate diagnosis, and aggressive treatment are essential for improving clinical outcomes. Broader prospective studies are needed to strengthen the evidence base.

Keywords: Transverse Myelitis, Lyme Borreliosis, Borrelia burgdorferi, Neurological Complications, Antibiotic Treatment

Tetralogy of Fallot- Agenesis of Pulmonary Valve - Reported Case

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Introduction: Tetralogy of Fallot is one of the most common forms of cyanotic congenital heart disease. This case study is important to be reported because of early prenatal diagnoses and follow up with anatomic repair surgery as guidelines protocol.

Reported case: I this case we reported prenatal diagnosis of TF pulmonary agenesis on 22-week gestation age. The case was referred by obstetrician after morphology exam as suspect congenital heart malformation. The delivery was organized nearby a specific cardio-chirurgical hospital in Italy. The baby was born at 40 weeks and 5 days per cesarean section. Male baby with birth weight 3200 gr, after birth was observed in intensive care unit for 3 weeks to be clinically stabilized for anatomic correction. On the 23rd day after birth, the newborn underwent a surgical intervention with anatomical correction. For AV block as surgical complication it was implanted definitive epicardial bicameral pacemaker and was under treatment with B-blockers for run ventricular.

Discussion: From the morphology echography till the birth the fetus has underwent of periodically echo exam.

Conclusions: An early prenatal diagnosis for this complex cardiopathy serves for better assistance at birth and to coordinate teamwork between the obstetrician, cardiologist, pediatrician, neonatologist, and cardiac surgeon with the ultimate goal of reducing mortality and increasing the chances of surgical success.

Keywords: Congenital herat disease, fetal echography, cardiac surgery.

Prevalence of Vaginal Infection in Reproduction Age Woman

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Introduction: Vaginal infection is the inflammation of the vagina, caused by various factors, as irritants, microorganisms and hormonal changes.

Objective: Our main objective was to determine the prevalence of vaginal infection in reproduction age woman and distribution of them according to the type of causative microorganisms.

Material and Method: In this study were included 238 women. Their age varied from 18 to 45 years old. The testing process included microscopic examination, cultivation on culture media as blood agar 5% and MacConkey agar, identification by Vitek MS (MALDI-TOF MS) and antimicrobial susceptibility testing (AST) were performed according to EUCAST recommendation with Vitek 2 Compact.

Results: The prevalence of vaginal infection was 24.78 %. The prevalence of bacterial infection was 16.8%, candidiasis infection 5.88% and co infection bacterial infection with candida 2.1%. According to age group vaginal infection was 16% in women younger 20 years, 34.72% in 21- 30 age group, 22.1% in 31-40 age group and 19.56% in 41-45 age group.

Conclusion: The prevalence of vaginal infectious is high among reproductive-age women. The prevalence of bacterial infection was higher that candidiasis infection. The results showed that *Candida albicans* and enterococcus faecalis were the most frequently agent in vaginal infections. All isolated bacteria from sample were resistant to more than two antibiotics.

Keywords: Vaginal infection, bacterial infection, microorganism, antimicrobial susceptibility testing, antifungal

Diagnostic Evolution: The Use of the Urea Breath Test and the Transformation of Diagnostic Practices for the Detection of *Helicobacter Pylori* in Albania

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Introduction: *Helicobacter pylori* (H. pylori) infection is a major concern for gastrointestinal health, with diagnostic methods historically based primarily on invasive approaches. Non-invasive alternatives such as serological tests and fecal antigen tests have different sensitivities and specificities. The Urea Breath Test (UBT) is a highly sensitive and specific method for detecting active H. pylori infections. This study analyzes the use of UBT in patients in Albania, comparing the prevalence and impact of this diagnostic method.

Objectives: The aim of this study is to evaluate the effectiveness of UBT for diagnosing H. pylori, to analyze the prevalence of the infection in a large group of patients, and to identify variations according to gender.

Methods: The UBT was performed on 746 patients, recommended by gastroenterologists. Patients were required to fast before the administration of the urease capsule, and breath samples were collected at two intervals, followed by isotopic carbon dioxide analysis. The results were interpreted in consultation with doctors, and descriptive statistics were used to evaluate the prevalence.

Results: Of the patients studied, 59.09% tested positive for H. pylori. The prevalence in men was 34.26%, while in women it was 47.27%, showing a higher incidence in females. The positive-to-negative ratio was 1.44, reflecting a high presence of the infection in the population.

Conclusion: UBT proved to be a highly sensitive method for diagnosing H. pylori, with a prevalence 41.04% higher than previous methods in our clinic. The differences between genders emphasize the need for personalized approaches in diagnosis and management. Our findings support the use of UBT as a new standard for the effective diagnosis of H. pylori in Albania.

Keywords: Helicobacter pylori, Urea Breath Test (UBT), Prevalence, Gender differences, Diagnostic methods.

Hydrocephalus: A Review of Global Epidemiology and Management Challenges in Resource-Limited Countries

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Introduction: The brain ventricles are hollow structures located within the brain that produce, store, and regulate the flow of a substance known as cerebrospinal fluid (CSF). There are four brain ventricles: the lateral ventricles (a pair, one in each hemisphere), the third ventricle, and the fourth ventricle. These ventricles communicate with each other through apertures (foramina), ensuring the circulation of CSF, while the fourth ventricle also communicates with the subarachnoid space. Cerebrospinal fluid is an ultrafiltrate of plasma, produced from blood, primarily by structures called the choroid plexuses found in the ventricles. CSF circulates through the ventricular system and subarachnoid space, and is reabsorbed into the bloodstream via special structures known as arachnoid granulations. This fluid serves multiple functions, including mechanical protection, regulation of homeostasis within the central nervous system, and facilitation of brain development.

Objective: The main goal of this paper is to clarify the anatomy, clinical significance, development, and physiological functions of the brain ventricles through a review of local and global literature. Furthermore, it aims to explain the physiology and function of cerebrospinal fluid, as well as ventricular anomalies, including hydrocephalus as the most important pathology. By delving into these aspects, the study seeks to provide a deeper understanding of ventricular anatomy, the physiological aspects of cerebrospinal fluid, imaging views, and the surgical methods used to treat these anomalies.

Materials and Methodology: This paper is a literature review and, as such, contains analyzed and combined information from books, articles, and scientific papers published in professional scientific journals such as PubMed, Medline, Medscape, and Google Scholar.

Conclusion: In conclusion, we understand that the ventricular system constitutes a crucial part of the nervous system, with detailed morphology that ensures the continuous flow of cerebrospinal fluid. Maintaining the circulation of cerebrospinal fluid is a critical factor in ensuring homeostasis of the central nervous system. When the circulation is blocked, hydrocephalus arises, which is a pathological condition that requires intervention, otherwise leading to neurological consequences due to brain structural disruption.

Keywords: Brain ventricles, cerebrospinal fluid, hydrocephalus.

Fetal Sacrococcygeal Teratoma: MRI Characterization and Correlation with Ultrasonographic Findings

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Introduction: Sacrococcygeal teratoma (SCT) is a rare congenital tumor, yet it remains the most common fetal neoplasm, with an incidence of approximately 1 in 40,000 live births. It predominantly affects female infants, accounting for nearly 75% of cases. This study aims to evaluate and compare the ultrasonographic and magnetic resonance imaging (MRI) characteristics of fetal sacrococcygeal teratoma, highlighting MRI's role in precise diagnosis and management planning.

Objectives: The goal of this study is to assess the effectiveness of ultrasonography and MRI in characterizing the fetal sacrococcygeal teratoma, emphasizing MRI's superiority in accurately visualizing the tumor's extent and aiding in management planning.

Materials and Methods: Three pregnant women, each at 27 weeks of gestation, underwent fetal MRI following ultrasonographic findings suggestive of sacrococcygeal teratoma. The tumor's size, location, extent, and composition were assessed using both imaging modalities. In all cases, MRI and ultrasonography provided consistent findings regarding tumor localization, dimensions, and internal content.

Conclusion: MRI demonstrated superior capability in delineating tumor extent, providing more precise visualization of pelvic involvement compared to ultrasonography. These findings underscore the critical role of fetal MRI as a complementary tool to obstetric sonography, offering enhanced accuracy in characterizing tumor structure and guiding therapeutic decision-making. By improving preoperative planning, MRI contributes to optimizing clinical outcomes and increasing the likelihood of successful neonatal intervention.

Keywords: Fetal tumors, sacrococcygeal teratoma, prenatal imaging, Ultrasonography, Magnetic Resonance Imaging.

MRI Diagnosis of Takayasu Arteritis in a Young Female: A Rare Case of Large-Vessel Vasculitis

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Introduction: Takayasu arteritis (TA) is a rare, chronic granulomatous vasculitis affecting large-caliber vessels, predominantly the aorta and its major branches. This inflammatory condition leads to progressive arterial stenosis, occlusion, or aneurysm formation, often resulting in severe ischemic complications. Clinical presentation varies widely, ranging from nonspecific systemic symptoms to life-threatening vascular impairment.

Case Report: We present the case of a 29-year-old female who underwent right carotid artery stenting three months prior due to significant arterial stenosis. She presented with nonspecific symptoms, including malaise, arthralgia, and intermittent blurry vision. Initial clinical evaluation raised concerns for a systemic inflammatory disorder, prompting advanced imaging for further assessment. Magnetic resonance imaging (MRI) of the vascular system revealed diffuse arterial wall thickening, luminal narrowing, and contrast enhancement of the aortic arch and its major branches, findings highly suggestive of active inflammatory vasculitis. These imaging features, in conjunction with the patient's clinical presentation, supported the diagnosis of Takayasu arteritis. Laboratory workup further confirmed systemic inflammation with elevated inflammatory markers.

Conclusion: Takayasu arteritis remains a diagnostic challenge due to its heterogeneous presentation and gradual disease progression. MRI plays a pivotal role in the non-invasive assessment of vascular inflammation, offering detailed visualization of arterial involvement and disease activity. Early recognition and timely intervention are crucial to prevent long-term complications, including ischemic stroke, vascular stenosis, and aneurysm formation. This case highlights the significance of MRI in diagnosing and monitoring large-vessel vasculitis, reinforcing its value as a critical imaging modality in suspected Takayasu arteritis.

Keywords: Takayasu arteritis, large-vessel vasculitis, MRI, aortic inflammation, Vvscular imaging.

Evaluation of the Performance of Testosterone and Progesterone Tests on Various Immunological Testing Platforms

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Objective: The objective of this study is to verify the performance characteristics declared by the manufacturer for the Progesterone (PGN) and Testosterone tests on the Maglumi X3 immunological platform by Snibe, using the guidelines recommended by the Clinical Laboratory Standard Institute (CLSI). To complete the study, we compared the performance of these tests with two different methodologies: CLIA (Chemiluminescence Immunoassay) on Maglumi and CMIA (Chemiluminescent Microparticle Immunoassay) on the Abbott Alinity platform, which is currently in use. Performance verification is a requirement of ISO 15189, which every laboratory must carry out when introducing new equipment or a new test/method on an existing platform, before new tests are implemented into the daily routine. The laboratory must verify objectively that the new tests, conducted under the specific conditions of the laboratory and the final user, meet the performance characteristics declared by the manufacturer.

Method: To verify the performance, we conducted evaluations of precision and accuracy by measuring, in 5 replicates over 5 consecutive days, two third-party control levels for each test in the study. The results were processed using Analyse-it software and compared with the manufacturer's claims for precision (Within-Run and Within-Laboratory). For accuracy evaluation, the same measurements were used, and a student's t-test was applied to assess the significance of error. Furthermore, the EFLM database for biological variation was used to compare our results with the total allowable error.

Results: For both tests in the study, SD (Standard Deviation) and CV (Coefficient of Variation) for precision showed no significant differences compared to the manufacturer's claims ($p > 0.05$). The bias (error) was found to be significant ($p < 0.05$), but smaller than the total allowable bias according to the EFLM biological variation database. Specifically, the bias for PGN met the minimum specifications for the allowable total bias, while the bias for Testosterone met the optimal specifications for allowable total bias according to the EFLM database. In the comparison tests between the CLIA method (Snibe) and the CMIA method (Abbott), PGN and Testosterone showed no significant differences ($p > 0.05$).

Conclusions: The new method meets the manufacturer's claims regarding precision (Within-run and Within-laboratory) and is within the specifications of the EFLM database for the total allowable error. From the comparison experiments between the CLIA and CMIA methods, it was found that for FSH, PGN, and Testosterone, the two methods are comparable and can be used interchangeably.

Keywords: Testosterone test, Progesterone test, Performance verification, Chemiluminescence Immunoassay (CLIA), Precision and accuracy

Serum Levels of Lipoprotein(A) and SYNTAX Score

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Introduction: The Syntax Score (SS) is an angiographic scoring system used to assess the complexity of coronary artery disease (CAD), but its relationship with serum levels of lipoprotein(a) [Lp(a)] remains underexplored. This study examines the correlation between SS, Lp(a), and inflammatory biomarkers in patients with CAD, as well as their levels of low-density lipoprotein cholesterol (LDL-C).

Methodology and Results: Methodology: A group of patients with angiographically confirmed CAD was categorized based on their LDL-C levels. The concentrations of Lp(a) and inflammatory biomarkers, including C-reactive protein (CRP), were measured. The SS was determined for each patient, and correlations with Lp(a) and inflammatory biomarkers were analyzed using multivariate regression models.

Results: A higher SS was significantly associated with increased levels of Lp(a) and inflammatory biomarkers (CRP, $p < 0.05$). This relationship persisted across all LDL-C subgroups.

Conclusions: Lp(a) and inflammatory biomarkers are independently associated with the complexity of CAD (Coronary Artery Disease) as assessed by the SYNTAX Score. These findings suggest that Lp(a) and inflammation may contribute to disease severity beyond LDL-C levels, highlighting their potential role in risk stratification and therapeutic targeting in patients with CAD.

Keywords: Lipoprotein(a), SYNTAX Score, Coronary Artery Disease (CAD), Inflammatory Biomarkers, Low-Density Lipoprotein Cholesterol (LDL-C)

Neonatal Screening for G6PD Deficiency in Albania: Trends and Key Findings

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Introduction: G6PD deficiency is an inherited enzymatic disorder that affects the protective mechanisms of red blood cells, making them more vulnerable to oxidative factors. In Albania, neonatal screening has expanded significantly, allowing for earlier diagnosis and management of this condition.

Objectives: This study examines the development of neonatal screening for G6PD by analyzing the increase in testing, incidence, and gender distribution of cases with G6PD deficiency in Albania from 2016 to 2023.

Methods: Data from infants tested for G6PD via a quantitative fluorometric test were analyzed, using blood samples collected from the heels of newborns. Statistical analyses facilitated the identification of trends and changes in the prevalence of G6PD deficiency.

Results: The number of infants tested increased by 187.57%, reflecting a greater commitment to early diagnosis. The average incidence was 14.63 cases per 1000 infants, with 92.75% of the pathological cases being male, confirming the genetically inherited nature of this disorder.

Conclusion: The expansion of neonatal screening for G6PD in Albania has brought significant diagnostic benefits. The findings indicate a marked gender disparity, underscoring the need for personalized follow-up and advanced monitoring strategies to minimize risks and improve care for affected infants.

Keywords: G6PD deficiency, Neonatal screening, Incidence, Gender distribution, Early diagnosis

The Diagnosis of Trigeminal Neuralgia

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Introduction: The trigeminal nerve (TN) is the fifth cranial nerve and the largest of all the cranial nerves. It contains mixed nerve fibers, both sensory and motor, and branches into three main branches: the ophthalmic nerve, the maxillary nerve, and the mandibular nerve. Trigeminal neuralgia (TN) is a painful neurological condition often described as a lightning; in the face, occurring episodically with a duration of 10-15 seconds. There are two types of trigeminal neuralgia: Type I (unilateral, episodic pain) and Type II (bilateral, continuous pain even without stimuli). Procedures required for the diagnosis of trigeminal neuralgia include blood tests, CT, electromyography, MRI, neurological examination, physical tests, and PET scan. However, the most effective imaging method for diagnosis remains magnetic resonance imaging (MRI), through which secondary causes of neuralgia, such as tumors and microvascular compression,
can be identified.

Purpose of the Paper: The purpose of this paper is to analyze the diagnostic methods that contribute to the identification and evaluation of trigeminal neuralgia, determining and localizing the problem that has manifested the symptoms and signs of the disease. This study describes the frequency of neurovascular contacts in TN, as identified by MRI; assesses the different MRI grading patterns in TN patients, and identifies the main vessels involved in NVC. The paper explains how trigeminal neuralgia occurs and manifests, which can be enabled through imaging methods, as well as the role of MRI and CT in the diagnosis of trigeminal neuralgia.

Material and Methodology: This paper is a literature review and as such includes information analyzed and compiled from books, articles, and scientific papers published in professional scientific journals such as PubMed, Medline, Medscape, and Google Scholar.

Conclusion: In conclusion, MRI and CT play a key role in the diagnosis of trigeminal neuralgia, determining the extent of the disease, preparing for surgical interventions, and monitoring the patient's treatment. Although MRI clearly identifies neurovascular contacts, the gold standard method for diagnosis remains intraoperative confirmation. CT is not as widely used as MRI, but in certain cases, it plays a key role in identifying skeletal malformations or skull base anomaliesmthat compress the trigeminal nerve.

Keywords: trigeminal nerve, trigeminal neuralgia, MRI, CT

Job Insecurity in Medical Laboratories due to Replacement by Artificial Intelligence

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Introduction: Artificial Intelligence (AI) has the potential for widespread use in Laboratory Medicine, mainly due to the availability of large sources of structured, coded, and highly reliable quantitative data. The implementation of AI is expected to revolutionize the healthcare job market by closing some positions and creating new ones.

Objectives: Exploring the perception of medical laboratory professionals on job insecurity as a result of AI replacement.

Methods: The perception of laboratory professionals was investigated through a cross-sectional questionnaire conducted from July 16 to August 13, 2024. The questionnaire was designed in Google Forms and distributed electronically to members of the Albanian Society of Clinical Biochemistry and Laboratory Medicine and their staff.

Results: The questionnaire was completed by 220 professionals, 198 women and 22 men with an average age of 38 years. 31% of the interviewees were laboratory doctors and 60% laboratory technicians. 55% of the participants worked in laboratories accredited according to ISO 15189, while 33.6% in laboratories in the process of accreditation. 71% were employed in public laboratories. 31% of the participants were concerned that they might lose their job position as a result of replacement by AI. Fear of losing their job was most prominent among laboratory professionals aged 21-30, 43.5% of whom think that they might lose their job due to AI.

Conclusion: Laboratory professionals must be aware of new developments, adapt to changes, and prepare for the resizing of job positions by AI in the future.

Keywords: Artificial Intelligence (AI), Job insecurity, Medical laboratory professionals, Perception, Accreditation

The Importance of Identifying Genetic Mutations for Diagnosis, Prognosis and Genetic Counseling of Microdeletions

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Introduction: Microdeletions are structural variations in DNA associated with genetic disorders that have significant clinical impacts. One of the most widely used methods for identifying microdeletions is Multiplex Ligation-dependent Probe Amplification (MLPA), which is highly sensitive and cost-effective for analyzing copy number variations (CNVs), including deletions and duplications.

Objective: This method is used for the diagnosis of the 31 most common chromosomal microdeletions, which are linked to various clinically important genetic disorders. Identifying these microdeletions is essential for making an accurate diagnosis, evaluating prognosis, and providing genetic counseling, enabling better management of affected patients and their families.

Methodology: In the Clinical Genetics Laboratory Service, the Multiplex Ligation-dependent Probe Amplification (MLPA) technique is used to identify deletions and duplications. To perform this method, DNA is first isolated from the patient, followed by hybridization with specific probes for each microdeletion. This is followed by ligation and amplification using PCR. The amplification products are analyzed via capillary electrophoresis to assess changes in copy number, allowing the identification of specific microdeletions for each patient.

Results: The MLPA technique was performed for the molecular diagnosis of 44 patients suspected of having a microdeletion syndrome. Seven patients showed deletions in chromosomal regions 22q11, 15q11, 4p16, 22q13 (SHARK3 gene), and 7q11.23. Specifically, 3 patients were diagnosed with DiGeorge syndrome, 1 patient with Wolf-Hirschhorn syndrome, 1 patient with Angelman syndrome, 1 patient with Phelan-McDermid syndrome, and 1 patient with Williams-Beuren syndrome. For patients who tested negative with the MLPA method, ArrayCGH was suggested as an alternative.

Conclusion: The use of the MLPA method is effective for identifying microdeletions and microduplications, enabling the diagnosis of various genetic diseases, including DiGeorge syndrome, Angelman syndrome, and others. Through MLPA, accurate diagnosis, prognosis evaluation, and genetic counseling can be provided, allowing for better management of affected patients and families. Furthermore, this method offers high sensitivity and is cost-effective.

Keywords: Molecular Biology, Microdeletion, Microduplication, MLPA.

The Importance of Diagnostic Questionnaires in Different Medical Settings to Diagnose Alcohol Use Disorders

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Introduction: Alcohol is a psychoactive substance that leads to addiction. Every year, around 3.3 million people die directly or indirectly due to alcohol use. 25% of these deaths occur in the age group of 20-39 years.

Objective: This study describes the structural and functional features of the AUDIT (Alcohol Use Disorders Identification Test) questionnaire and methodological problems with the validation of alcohol consumption questions (AUDIT-C) (shorter version of AUDIT).

Matherials and Method: This is a review study focusing on the consumption elements of the AUDIT. Four studies of the AUDIT-C are reviewed and evaluated.

Results: We identified 74 studies including the key word "AUDIT". It is one of the most important questionnaires used to detect alcohol use disorders and has been translated and used extensively in many languages. Due to different patterns of drinking in different countries and the equivalence of a standard drink in specific countries compared to a standard drink as per the National Institute on Alcohol Abuse and Alcoholism (NIAAA) definition, cultural differences betteween countries, a shorter version of the AUDIT questionnaire, named AUDIT-C is needed. Although numerous studies have supported the recommended cutoff thresholds for a possible alcohol use disorder, only three studies evaluated the classification accuracy of the AUDIT's graded severity system.
Other questionnaires such as CAGE, T-ACE, MAST, etc., have also been successfully used and they have several advantages compared to other diagnostic methods.

Conclusion: The use of different questionnaires by the family doctor serves as a good diagnostic method; it is cost-free, non-invasive, and produces excellent results. Moreover, early diagnosis of patients with alcohol use problems prevents serious illnesses, reduces costs for patients, families, and public health.

Keywords: alcohol, questionnaires, AUDIT, AUDIT-C

Case Report: Laparoscopic Management of Hydatid Liver Cyst

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Introduction: Echinococcosis is a zoonotic infection caused by the larval stage of *Echinococcus granulosus*, with humans serving as intermediate hosts. The disease is primarily transmitted through contact with infected animals, especially sheep and dogs. The liver is the most commonly affected organ, with the disease being classified based on Gharbi's classification into five different types. Diagnosis is confirmed through radiological imaging, such as ultrasound, CT, or MRI, and serological tests to detect specific IgE antibodies. The treatment options include conservative therapy, percutaneous aspiration and drainage, and surgery. Surgical treatment can be performed using either an open or minimally invasive approach, such as laparoscopy.

Objective: The objective of this case report is to present the laparoscopic management of a hydatid liver cyst, detailing the diagnostic approach, preoperative treatment, surgical procedure, and postoperative outcomes.

Materials and Methods: A 70-year-old female patient from a rural area presented with vague upper abdominal pain radiating to the right side. On ultrasonography, a 9*6 cm cyst with a thick layer and daughter cysts in the left lobe of the liver was observed. MRI confirmed the presence of the hydatid cyst. Serological tests for IgE antibodies were positive. The patient underwent one month of preoperative antihelminthic treatment with Albendazole (400 mg twice daily). A laparoscopic procedure was performed using an umbilical Hassan approach, where pneumoperitoneum was created, and three trocars were inserted. The cyst was aspirated, flushed with saline, fenestrated, and the daughter cysts were removed. An omental patch was used to seal the cystic cavity, and a large bore drain was placed.

Conclusion: The laparoscopic management of hydatid liver cysts is a safe and effective method for treating this condition. It allows for minimally invasive treatment with good postoperative recovery. The patient's cyst was successfully removed, and follow-up imaging six weeks post-surgery showed no signs of recurrence.

Keywords: Hydatid liver cyst, Echinococcosis, Laparoscopic surgery, Albendazole, Cyst fenestration, Minimally invasive treatment

Indications for Liver Biopsy

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Objective: Despite advancements in serological and radiological techniques, liver biopsy remains the most reliable method for diagnosing diffuse liver diseases or differentiating solitary lesions. The indication for this invasive procedure should be weighed against the small, but not negligible, risk of complications.

Materials and Methods: The indications for liver biopsy are summarized based on a review of the literature, including publications from both domestic and international sources over the years. The data gathered from the literature are complemented by an evaluation of the authors' own experience.

Results: The success of liver biopsy depends on the selection of the biopsy technique, the identification of absolute and relative contraindications, and the experience of the person performing the procedure. Hepatic formations that are difficult to identify using imaging methods necessitate a biopsy to make a differential diagnosis between various types of liver tumors, as the treatment plan will depend on this. For patients with hepatitis of different etiologies, liver biopsy may sometimes be necessary not only to determine the cause of the disorder but also to assess the degree of inflammatory activity (grade) and the extent of fibrosis (stage).

Conclusion: Liver biopsy enables the establishment of a reliable diagnosis for liver lesions and is an important aid for treatment planning and prognosis.

Keywords: Liver biopsy, Diffuse liver diseases, Hepatic formations, Hepatitis diagnosis, Inflammatory activity and fibrosis

The Guiding Role of Erythrocyte Indices in Improving the Laboratory Diagnosis of Myelodysplastic Syndromes

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Introduction: Myelodysplastic syndromes (MDS) are clonal disorders of multipotent hematopoietic cells characterized by ineffective hematopoiesis and dysplasia.
The aim of this study is to evaluate the importance of erythrocyte parameters such as MCV, RDW, and MCH in the early identification of MDS.

Method: This is a retrospective, observational study. Laboratory data from 120 patients were analyzed and divided into two groups: Group 1: patients with a confirmed diagnosis of MDS, Group 2: patients with anemia, but without laboratory criteria for MDS.The studied parameters MCV, RDW, and MCH were obtained from complete blood count analyses performed using automated hematology analyzers (Alinity). Data were processed using SPSS.

Results: The mean MCV in Group 1 (patients with MDS) was 103.00 fL (95% CI: 101.60 – 104.41), while in Group 2 it was 92.10 fL (95% CI: 90.88 – 93.32), ($p < 0.001$).For RDW, the mean value in Group 1 was 16.82% compared to 13.35% in Group 2 (95% CI: 13.04 – 13.66), ($p < 0.001$).ROC analysis for RDW showed an AUC of 0.94, with a cut-off value of 15%, sensitivity of 86%, and specificity of 90% for MDS identification.MCH was also higher in Group 1 with MDS (30.01 pg; 95% CI: 29.31 – 30.70) compared to Group 2 (28.46 pg; 95% CI: 27.81 – 29.10), with $p = 0.0014$.

Conclusions: Erythrocyte indices such as MCV and RDW provide significant value in the evaluation of patients with MDS and may serve as tools for early identification of Myelodysplastic Syndromes.

Keywords: Myelodysplastic syndromes (MDS), Erythrocyte indices, MCV (Mean Corpuscular Volume), RDW (Red Cell Distribution Width), Early identification

MRI Diagnosis of a Large Infantile Cardiac Rhabdomyoma: Case Report

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Introduction: Cardiac rhabdomyoma is the most common primary cardiac tumor in fetuses and infants, representing over 60% of all congenital heart tumors. It is a benign tumor of myocardial origin, often detected either prenatally or within the first year of life. While many cases regress spontaneously, larger tumors that cause hemodynamic compromise or arrhythmias may require surgical intervention.

Objective: The objective of this case report is to present the diagnosis, clinical findings, and successful surgical management of a large cardiac rhabdomyoma in an infant, and to emphasize the role of imaging techniques in diagnosis and preoperative planning.

Materials and Methods: A 6-month-old infant with respiratory distress and persistent coughing was hospitalized. The patient underwent clinical examination, echocardiography, and cardiac MRI to assess the size, location, and characteristics of the cardiac mass. Surgical intervention was performed, and histopathological analysis confirmed the diagnosis of a cardiac rhabdomyoma.

Conclusion: Cardiac rhabdomyomas often regress spontaneously and do not require treatment. However, large tumors that cause left ventricular outflow tract obstruction or arrhythmias may require surgical excision. Fetal echocardiography is the primary method for prenatal diagnosis, and MRI plays a vital role in detailed lesion characterization and preoperative planning.

Keywords: Cardiac Rhabdomyoma, congenital heart tumor, fetal Echocardiography, Magnetic Resonance Imaging, pediatric cardiology.

A Rare Case of RSV Bronchiolitis Complicated with *B. Pertussis* Pneumonia in A 3-Month Infant': Case Report

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Introduction: Bronchiolitis, primarily caused by Respiratory Syncytial Virus (RSV), is a common respiratory infection in infants. Pertussis (whooping cough), caused by *Bordetella pertussis*, is a bacterial infection that can present with similar early symptoms, making diagnosis challenging. Co-infections of RSV and *B. pertussis* are rare but can complicate diagnosis and treatment. This case report highlights a 3-month-old unvaccinated male infant who presented with RSV bronchiolitis, which progressed into fully developed *B. pertussis* pneumonia with characteristic whooping cough and positive serology.

Objective: This case aims to emphasize the importance of early recognition of co-infections, particularly in unvaccinated infants, and to describe the clinical progression of a rare co-infection between RSV and *B. pertussis*.

Materials and Methods: The patient was a 3-month-old unvaccinated infant who presented with typical symptoms of RSV bronchiolitis, including wheezing and respiratory distress. Over the course of hospitalization, the infant developed paroxysmal coughing and lymphocytosis, leading to the diagnosis of co-infection with *B. pertussis*. Diagnosis was confirmed through serology, and appropriate antibiotic therapy was initiated.

Conclusion: Co-infections between *B. pertussis* and viral pathogens like RSV, while rare, can complicate the clinical course of respiratory illnesses in infants. Early identification of bacterial co-infections in infants presenting with viral respiratory symptoms is crucial for proper treatment. Prompt initiation of antibiotic therapy is recommended when *B. pertussis* is suspected, particularly in unvaccinated children presenting with characteristic paroxysmal cough and lymphocytosis.

Keywords: RSV bronchiolitis, B. pertussis pneumonia, Co-infection, Infant respiratory illness, Paroxysmal cough

Degree and Prevalence of Non-Alcoholic Fatty Liver Disease (NAFLD) in Patients with Diabetes Mellitus

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Introduction: Non-Alcoholic Fatty Liver Disease (NAFLD) is the accumulation of fat in the liver that can progress to liver damage in the absence of alcohol abuse. As one of the most common hepatic disorders worldwide, its prevalence has been observed to increase in parallel with obesity and type 2 diabetes mellitus.

Aim of the Study: The aim of this study is to analyze the association between NAFLD and type 2 diabetes mellitus (DMT2), focusing on the prevalence and degree of hepatic steatosis in patients with diabetes. This study also seeks to identify risk factors that contribute to the progression of NAFLD in diabetic patients.

Methodology: This cohort study included 109 patients (56 diabetics and 53 non-diabetic) admitted to the respective wards from January to July 2024. Data were collected through medical records, physical examinations, and laboratory results. The degree of hepatic steatosis was assessed using ultrasonography and the FIB-4 score for evaluating the risk of fibrosis.

Results: BMI and abdominal circumference showed an increase with the progression of steatosis. Diabetic patients had a higher prevalence of advanced steatosis (G3) and a higher risk of fibrosis compared to non-diabetic patients.

Conclusion: This study emphasizes the link between DMT2 and NAFLD, showing that diabetic patients have a higher prevalence of severe hepatic steatosis, with obesity playing a central role in disease progression. Factors such as BMI, abdominal circumference, and AST levels were found to significantly influence the progression of the disease. These findings highlight the importance of managing obesity and metabolic control in diabetic patients with NAFLD.

Keyword: Non-Alcoholic Fatty Liver Disease (NAFLD), Diabetes Mellitus Type 2 (DMT2), Hepatic steatosis, Obesity, Risk factors for fibrosis

Artificial Intelligence in the Management and Diagnosis of Asthma: A Literature Review

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Introduction: Asthma is a chronic inflammatory disease of the airways that presents significant management challenges due to its variability in symptoms and the need for personalized treatment strategies. Despite advancements in treatment, asthma care remains complex, which has led to the exploration of artificial intelligence (AI) to improve diagnostic and management strategies. This literature review explores how AI is being integrated into asthma care, including its use in diagnosis, prediction, and treatment optimization.

Objective: The aim of this review is to assess the current applications of artificial intelligence (AI), including machine learning (ML) and deep learning (DL), in improving asthma management and diagnosis. The study evaluates the effectiveness of AI in predicting exacerbations, diagnosing early signs of asthma, and optimizing treatment plans.

Materials and Methods: This literature review synthesizes data from multiple sources on AI applications in asthma care. The reviewed studies focus on how AI has been utilized to analyze clinical data, biomarkers, spirometry results, and patient-reported outcomes, with the goal of improving diagnostic accuracy and treatment personalization. The review also examines AI's use in mobile applications for real-time monitoring and tracking environmental factors influencing asthma flare-ups.

Conclusion: AI offers significant potential in enhancing the management and diagnosis of asthma, especially through personalized treatment approaches and real-time monitoring. However, challenges related to data quality, system interoperability, and patient privacy need to be addressed before full integration into clinical practice.

Keyword: Artificial Intelligence (AI), Asthma management, Machine learning (ML), Spirometry analysis, Personalized treatment

Resmetirom and Non-Alcoholic Steatohepatitis (NASH)

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Introduction: Non-Alcoholic Steatohepatitis (NASH) is a common chronic liver disease affecting approximately one-third of the global population. It is often associated with comorbidities such as Hypertension (HTA) and Type 2 Diabetes Mellitus (T2DM). The growing interest in thyroid hormones as a treatment for NASH has emerged due to the connection between thyroid dysfunction and liver disease progression.

Aim of the Study: The aim of this study is to explore the role of thyroid hormones and Resmetirom in the treatment of NASH, particularly focusing on Resmetirom's mechanism of action, its impact on liver metabolism, and its approval by the FDA for treating liver fibrosis.

Materials and Methods: This study examines the latest updates on NASH treatment guidelines, the role of incretin mimetics and insulin sensitizers for patients with T2DM, and the application of Resmetirom, a thyroid hormone receptor beta (THR-β) agonist. The study also discusses the ongoing clinical trials evaluating the clinical benefits of Resmetirom for treating NASH and liver fibrosis.

Conclusion: Resmetirom, with its high selectivity for THR-β, has been approved by the FDA as the first treatment for patients with liver fibrosis due to steatotic liver disease. It works by improving hepatic fat metabolism and reducing lipotoxicity, thus offering a promising therapeutic option for NASH. Ongoing studies are expected to further clarify its clinical benefits.

Keywords: Non-Alcoholic Steatohepatitis (NASH), Resmetirom, Thyroid hormone receptors (THR-α, THR-β), Liver fibrosis, FDA approval

The Impact of Serum-Ascites Albumin Gradient on Predicting Spontaneous Bacterial Peritonitis in Patients with Decompensated Cirrhosis

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Introduction: Spontaneous Bacterial Peritonitis (SBP) is a major issue in patients with decompensated liver cirrhosis. Identifying risk factors for SBP is critical for preventing severe outcomes.

Aim: This study aimed to evaluate the serum-ascites albumin gradient (SAAG) as a predictive marker for SBP in first-time hospitalized patients with decompensated cirrhosis.

Methods: A retrospective analysis was conducted at the University Hospital Center "Mother Teresa" in Tirana, Albania, between January 2023 and December 2024, including 72 first-time hospitalized patients with decompensated liver cirrhosis. Data on demographics, disease etiology, and ascitic fluid analysis were collected. The diagnosis of SBP is established with an ascites polymorphonuclear leukocytes (PMN) count >250/mm3. Statistical analysis was performed using SPSS Version 29.0.2.0.

Results: The cohort included 62 males (86.1%) and 10 females (13.9%), with a mean age of 57.78 ± 11.71 years. SBP was diagnosed in 39 patients (54.9%). The mean SAAG was significantly lower in the SBP group (1.64 ± 0.30) compared to the non-SBP group (2.04 ± 0.35) with a p-value < 0.001. A negative correlation between SAAG and SBP was observed ($r = -0.523$, $p < 0.001$). Logistic regression analysis showed that higher SAAG values significantly reduce the likelihood of SBP, with a negative coefficient of -3.963 ($p < 0.001$). The model showed strong discriminatory power (AUC = 0.812), with an optimal cutoff SAAG of 0.54.

Conclusion: SAAG is a reliable predictor of SBP in decompensated cirrhosis. Lower SAAG levels are associated with a high risk of SBP, supporting its role in early detection.

Keywords: Non-Alcoholic Steatohepatitis (NASH), Resmetirom, Serum-Ascites Albumin Gradient (SAAG), Spontaneous Bacterial Peritonitis (SBP), Decompensated Cirrhosis

The Most Common Comorbidities and Complications in Patients with Heart Failure

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Introduction: Heart failure (HF) is the inability of the heart to pump blood at a rate adequate to meet the metabolic demands of tissues. In addition to the direct symptoms of heart failure, patients often face a large number of comorbidities that further worsen their health condition and complicate treatment.

Study Objective: This study aims to examine and analyze the most common comorbidities and complications that occur in patients with heart failure.

Study Methodology: This is a quantitative case-control study that included a total of 120 individuals, divided into two groups. The first group consisted of 60 patients with heart failure, while the second group, the control group, consisted of 60 randomly selected individuals from the population.

Results: The study showed that patients with heart failure have a higher number of comorbidities, with the most common being hypertension, atrial fibrillation, Type 2 Diabetes Mellitus (DM), and chronic kidney diseases. The coexistence of multiple diseases in these patients is more frequent, with the most common acute complication being the acute decompensation of heart failure without any identifiable cause.

Conclusion: These results emphasize the importance of lifestyle changes in these patients, as well as appropriate management of comorbidities to improve their overall condition and prevent acute complications. This abstract focuses on the key findings related to the comorbidities and complications in heart failure patients, highlighting the need for a comprehensive and targeted approach to their care.

Keyword: Heart failure, Comorbidities, Hypertension, Atrial fibrillation, Acute decompensation

A Case Report of a 29-Year-Old Patient with Acute-Onset Autoimmune Hepatitis

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Background: Autoimmune hepatitis (AIH) is a chronic, immune-mediated liver disease characterized by hepatocellular inflammation and necrosis, driven by autoantibodies and T-cell activation, which can lead to fibrosis and liver failure if untreated. It can present with a wide spectrum of clinical manifestations, ranging from asymptomatic elevation of liver enzymes to acute liver failure.

Case Presentation: We report the case of a 29-year-old male patient who presented with yellow-colored diarrhea, generalized fatigue, and jaundice persisting for five days before hospital admission. Laboratory tests revealed RBC 4.22 x 106/uL, HCT 40.5%, PLTs 107K/uL elevated liver enzymes ALT 1776 U/L, AST 1739, total bilirubin 12.88 mg/dL, direct bilirubin 9.67, GGT 136 U/L, LDH 517 U/L, CRP 1.27 mg/dL, cholinesterase 2973 U/L, Gly 58mg/Dl, albumin 2.4 g/dL, urobilinogen 8mg/dL, γ-globulin 52.6%, INR 2.73, Aptt 46.1 sec. Serological markers for viral hepatitis were negative, while autoimmune markers, ANA 640 and AMA <100, were positive. The patient was started on corticosteroid therapy, with a favorable clinical and biochemical response.

Conclusion: This case highlights the importance of considering AIH in young patients presenting with unexplained liver dysfunction. Early diagnosis and appropriate immunosuppressive therapy can significantly improve outcomes and prevent disease progression.

Keywords: autoimmune hepatitis, hepatollogy, young patient.

Clinical and Epidemiological Assessment of Heart Failure with Reduced Ejection Fraction: An Analysis of Patients Admitted to the University Hospital Center "Mother Teresa" in Tirana

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Ethical Aspects: This scientific research was conducted following the Helsinki guidelines for "Good Clinical Practice." The data collected are retrospective and were analyzed anonymously to ensure patient privacy.

Introduction: Chronic Heart Failure with Reduced Ejection Fraction (HFrEF) is a global health challenge. In Albania, clinical epidemiological data are lacking, hindering proper health system planning and necessary interventions.

Objective: To analyze the demographic, clinical, and therapeutic profile of patients with HFrEF in a representative Albanian sample.

Methods: This retrospective study analyzed the data of 204 patients with HFrEF (EF < 40%) hospitalized at the University Hospital Center of Tirana between October 2023 and March 2024. Data on demographics, comorbidities, and treatments were collected to identify predictors of outcomes.

Results: The average age of patients was 71 years, with 74% being male. Coronary artery disease (CAD) was present in 75% of patients, while 25% had dilated cardiomyopathy (DCM). Major comorbidities included hypertension (65%), dyslipidemia (57%), type 2 diabetes (40%), and chronic kidney disease (21%). Women had a higher prevalence of NYHA class III-IV symptoms (58% vs. 30%, p=0.008). Patients with CAD had more comorbidities than those with DCM (p=0.00001). The main treatments included diuretics, beta-blockers, ACE inhibitors, ARBs, and SGLT2 inhibitors. NYHA class III-IV, stroke, and dyslipidemia were independent predictors of poor prognosis.

Conclusions: The clinical profile of patients with HFrEF in Albania is similar to that in European countries. Female gender and limited use of modern treatments affect the incidence of heart failure. This study highlights the need for health strategies tailored to gender and indications for new therapies.

Keywords: Heart failure, ejection fraction, University Hospital Center of Tirana, coronary artery disease, dilated cardiomyopathy.

Vital Pulp Treatments

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Introduction: The dental pulp represents a connective-vascular and neural tissue, located in the pulp cavity and root canal system. Pulpal damage caused by deep caries, pulp exposure, dental fractures, or aggressive restorative procedures can result in pulp inflammation (pulpitis) or necrosis. Vital pulp treatments (VPT) aim to preserve the pulp vitality and the biological function of the tooth through stimulation of secondary or tertiary dentin formation.

Objectives: This study aims to analyze the clinical and biological effectiveness of VPT techniques, including direct and indirect pulp capping, partial and full pulpotomy, as well as revascularization in the management of reversible pulpitis.

Methods: A descriptive literature review was conducted on the use of bioactive materials in vital pulp treatments. The techniques included are pulp capping with calcium hydroxide ($Ca(OH)_2$), calcium silicate MTA (Mineral Trioxide Aggregate), and Biodentine. Revascularization was analyzed in the context of using stem cells and growth factors for stimulating odontogenesis.

Results: The use of bioactive materials such as MTA and Biodentine ensures hermetic sealing, reduces pulpal inflammation, and stimulates odontoblast differentiation. Revascularization has shown promising results in teeth with open apices, promoting the formation of dentin-like tissue. Clinical success is higher in cases of reversible pulpitis when treatment is performed under aseptic conditions and pulp exposure is minimal.

Conclusion: Vital pulp treatments represent an effective therapeutic approach in the management of reversible pulpitis, preserving pulp vitality and the biological function of the tooth. Modern bioactive materials have significantly improved treatment prognosis, but long-term studies are needed to confirm the biological and structural stability of the treated pulp.

Keywords: dental pulp, treatment, bioactive materials

CPT II Deficiency as a Cause of Recurrent Episodes of Myalgia: Case Report

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Introduction: Carnitine palmitoyltransferase II (CPT II) deficiency is a rare genetic metabolic disorder. This condition affects the oxidation of long-chain fatty acids at the mitochondrial level, impairing their utilization as an energy source. The disease is inherited in an autosomal recessive manner. There are three main forms of the disease: the lethal neonatal form, the infantile form, and the myopathic form, which is the most common (86% of cases). The myopathic form is the mildest and typically presents between the ages of 1-6 years, characterized by recurrent episodes of muscle pain, rhabdomyolysis, and fatigue. These episodes are often triggered by prolonged physical activity, extended fasting, viral infections, or exposure to extreme temperatures. Rhabdomyolysis episodes are accompanied by significant increases in creatine kinase (CK) levels and myoglobinuria (in 75% of cases).

Case report: This case report presents the case of a young girl who, at the age of 12 months, was hospitalized in the infectious disease pediatric ward with a SARS-CoV-2 infection. About five months after the COVID infection, she was readmitted to the hospital due to inability to walk and severe leg pain. Laboratory tests revealed an elevated CK level of 9000 U/L. At 18 months old, she was hospitalized again with a five-day febrile state, muscle pain, and complaints of pain in her right leg and right arm. During this hospitalization, Whole Exome Sequencing (WES) was performed. While awaiting results, the child had two more hospital admissions, during which CK levels ranged between 45,000 and 60,000 U/L. Genetic diagnosis confirmed the presence of two heterozygous mutations for carnitine palmitoyltransferase II deficiency: c.338C>T p.(Ser113Leu) / c.1726G>A p.(Asp576Asn).

Conclusion: Treatment in this case consists of controlling fever with antipyretics, avoiding fasting periods longer than 6 hours, maintaining a diet rich in carbohydrates, and using complex carbohydrates at night (corn starch). Long-chain fatty acids should be avoided, and medium-chain fatty acids should be used.

Keywords: Carnitine palmitoyltransferase II, rhabdomyolysis, myoglobinuria, creatine kinase.

Cryoablation of Pulmonary Tumor

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Introduction: Cryoablation is an effective treatment method for lung cancer. Although the classical treatment for lung cancer is surgical resection, a large number of patients are not suitable candidates for surgical resection.

Method and Results: CT-guided cryoablation plays an important role in patients with lung cancer who are not suitable for surgery and/or choose this treatment method instead of surgery. CT-guided cryoablation is widely used in the clinical treatment of lung tumors due to its advantages, such as less trauma, fewer complications, high efficacy, and faster recovery.
Cryoablation not only induces tumor necrosis and apoptosis but also leads to the release of tumor-derived autoantigens into the bloodstream, thereby stimulating the immune system to produce an anti-tumor immune response against both primary and metastatic tumors.

Conclusion: A strong connection has been observed between cryoablation treatment and immune mechanisms in the management of pulmonary tumors. Notably, a synergistic effect has been seen when combining cryoablation with immunotherapy.

Keywords: Cryoablation, pulmonary cancer, interventional radiology.

Cryoablation of Osteoid Osteoma

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Introduction: Osteoid osteoma is a benign bone tumor with characteristic clinical symptoms. The treatment method of choice is percutaneous cryoablation.

Method and Results: This method is performed under CT guidance via a percutaneous approach. A bone biopsy needle is used through which a bone “core” is extracted from within the tumor to confirm the histological diagnosis, and in that same position the Ice Force probe is placed. During the procedure, the formation of the ice ball is monitored, which must cover the entire geometry of the bony lesion. The effect is immediate — the patient feels relief from the first day after the procedure.

Conclusion: Follow-up is scheduled one month after treatment, during which the treated area is clearly visualized.

Keywords: Cryoablation, osteoid osteoma, orthopedics, interventional radiology.

The Importance of Metabolic Evaluation in Renal Calculi in Children from Elbasan

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Introduction: Renal calculi are increasingly observed in the pediatric population. In order to prevent this pathology, pediatric nephrologists should evaluate stone formation. Patients with urolithiasis often present with various metabolic disorders related to stone formation.

Methods: The study was conducted on 62 children, 35 of whom were boys, who presented at our hospital with kidney stones. The male/female ratio was 1.3:1 in the first group. Clinical data and family history of kidney stones were analyzed. Blood tests were performed for urea, creatinine, and uric acid, while 24-hour urine samples were analyzed for sodium, potassium, creatinine, calcium, citrate, oxalate, and magnesium. The Calcium/Creatinine, Sodium/Potassium, and Magnesium/Creatinine ratios were also evaluated.

Results: The most common clinical symptom was abdominal pain, present in 61% of children. Hypercalciuria was found in 48% of cases. A positive family history of kidney stones was reported in 43.9% of children. A significant correlation was found between the Calcium/Creatinine ratio and family history of urolithiasis ($p \approx 0.002$), as well as between the Calcium/Creatinine and Sodium/Potassium ratios ($p \approx 0.001$). The Calcium/Creatinine ratio was 2.009.

Conclusion: To detect and prevent lithogenic factors in children with kidney stones, metabolic evaluation through 24-hour urine analysis remains an important tool.

Keywords: renal calculi, lithogenic factors, hypercalciuria.

Correlation of Dupuytren's Contracture with Carpal Tunnel Syndrome Release, Palmar Fasciectomy, Frozen Shoulder and Metabolic Changes

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Introduction: Carpal tunnel syndrome (CTS) and Dupuytren's disease (DD) are fibrotic conditions that affect the connective tissue of the hand and limit its functionality.
Frozen shoulder (FS) is a common joint disease that causes pain and stiffness (1). FS is the third most common cause of musculoskeletal disability. DD and FS have very similar histopathological and immunocytochemical characteristics. Carpal tunnel syndrome (CTS) is the most common compression neuropathy. It is defined as a compression of the median nerve at the level of the wrist joint associated with decreased function of the nerve at that level Idiopathic CTS has no known cause, unlike secondary CTS which is associated with diseases, such as diabetes mellitus, autoimmune diseases (rheumatoid arthritis, scleroderma etc.), and hypothyroidism. Symptoms consist of pain, numbness, and a tingling sensation in the hands. In recent literature, surgical treatment has been reported to be more effective than splinting and other conservative treatments. Dupuytren's disease is a condition that affects the palmar fascia — the fibrous layer of tissue that lies underneath the skin and above the tendons, nerves, blood vessels, and bones in the palm and fingers. In patients with Dupuytren's, the fascia thickens and contracts (shortens) over time. The fascia may pull on the fingers during this process, causing them to be forced inward, toward the palm. This may make it difficult or impossible to fully straighten the fingers, resulting in what is known as a "Dupuytren's contracture."The exact cause of Dupuytren's contracture is unknown and very complex. It is a hereditary disease. This means family history and ancestry play a role. The problem is more common in men, people over age 40, and people of Northern European descent.[1] The etiology of CTS and DD is believed to be associated with changes of blood vessel walls and sweat glands, as well as numerous profibrotic factors, including fibroblast and connective tissue growth factors (FGF, CTGF), transforming growth factors (TGF-β) and transmembrane proteoglycans.[2]It is associated with other diseases and situational conditions like Peyronie's disease, the Lederhose disease (plantar fibromatosis), Garrod's digital knucklepads, diabetes , epilepsy, alcoholism, micro traumatisms, stenosing tenosynovitis and not the least with carpal tunnel syndrome.

Case Presentation: A 69 years old man smoker, alcoholic came to the hospital for the functional impotence of the *left hand*, for the permanent flexion contracture of the metacarpophalangeal joint (MCP) and proximal interphalangeal joint (PIP) of the 4th finger with extension deficit, for nocturnal paresthesia of fingers I-III and pain that radiates into the fingertips up to the upper arm resulting in difficulties of using arm for long hours of work. After clinical, image evaluation and electrical investigations, he was diagnosed with FS, CTS and DD and is obvious to have small cord on the right hand but with no complains. A decision was made for the left hand surgery treatment. It was practiced subtotal palmar fasciectomy, carpal ligament section, external neurolysis of the median nerve, flexor tendon tenolisys.

Discussion and conclusion: The disposition in this case is the accordance of this two pathologies, Carpal Tunnel Syndrome (CTS)and Dupuytren's Contracture(DC). Performing both surgery treatments at the same surgical session, thereby has shown to have fewer clinical risk.[4] In some patients, simultaneous surgical management of DC and CTS can be accomplished safely with minimal increased risk of Complex Regional Pain Syndrome.[5]
DM and excessive alcohol consumption constitute major risk factors for the development of DD. Furthermore, we found an inverse association between obesity among men and DD. We also present data proposing an inverse association between ApoB/ApoA1 ratio and DD[7] Frozen shoulder (FS) and Dupuytren's disease (DD) are two closely related diseases, but the mechanism of their interaction is unknown. The molecular mechanism of these two diseases through shared gene and protein interactions[8].

Keywords: Carpal Tunnel Syndrome, Dupuytren's Disease, Frozen Shoulder, Fibrosis, Surgery.

Anthropometric Measurements and Their Impact on Orthodontics

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Introduction: Anthropometric measurements play a key role in the evaluation and analysis of craniofacial structures, providing essential data for diagnosis, orthodontic treatment planning, and outcome assessment.

Method and Results: This literature review aims to analyze various anthropometric measurement methods, including traditional techniques with calipers and modern methods such as 3D scanning. Through a detailed analysis of existing studies, the impact of these measurements on determining facial types, craniofacial indices, and their relationship with orthodontic treatments is examined.

Conclusion: Literature findings suggest that anthropometric measurements are crucial not only for accurate diagnosis but also for orthodontic treatment planning, helping to achieve both aesthetic and functional harmony. This review highlights the importance of continued research in this field to optimize treatments and advance clinical practice in orthodontics.

Keywords: Anthropometry, 3D scanning, craniofacial measurements, orthodontics, traditional methods, measurement accuracy, digital analysis, calipers, orthodontic treatment.

Clinical Characteristics and Treatment Outcomes of Angioid Streak Associated Choroidal Neovascular Membrane (AS-CNV)

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Introduction: Angioid streaks (AS) are described as irregular radial lines radiating from the optic nerve head to the retinal periphery. They represent visible crack-like dehiscences in Bruch's membrane, often associated with atrophic degeneration of the overlying retinal pigmented epithelium (RPE). AS are frequently bilateral and located in the posterior pole. Systemic diseases commonly associated with AS include pseudoxanthoma elasticum (PXE), Paget's disease of bone, and sickle-cell anemia, among others. AS are typically asymptomatic unless they involve the foveola or develop complications such as traumatic Bruch's membrane rupture or macular choroidal neovascular membrane (CNV). The advent of anti-VEGF intravitreal drugs has revolutionized the treatment of AS-CNV, proving their long-term efficacy in stabilizing CNV and preserving or even improving vision.

Case Report: A 42-year-old female presented with blurred vision in the left eye, with best corrected visual acuity (BCVA) of 20/60 in the left eye (LE) and 20/20 BCVA in the right eye (RE). Anterior segment examination was normal. Fundus examination revealed AS radiating from the optic disc in both eyes. The macula of the left eye showed a complex CNVM with subretinal hemorrhage. The mid-periphery of the retina exhibited comet-tail lesions in both eyes, more prominently in the posterior pole of the right eye. Fluorescein angiography showed linear hyperfluorescent streaks radiating from the optic disc in both eyes. The left eye macula showed an early hyperfluorescent lesion of roughly 1.5 disc diameters (DD) with surrounding blocked fluorescence in the early phase, followed by increasing hyperfluorescence in the mid-phase and leakage in the late phase. Spectral-domain optical coherence tomography (SD-OCT) of the left eye showed fibrovascular pigment epithelial detachment (FVPED) with subretinal fluid and macular edema (central macular thickness [CMT] 342µm), suggestive of type II CNV. The patient underwent three consecutive intravitreal anti-VEGF ranibizumab injections at monthly intervals, which resulted in drying of the macula, quiescence of the CNVM, reduction in CMT to 212µm, and improvement in BCVA to 20/30.

Conclusion: Anti-VEGF therapy has proven to be an effective treatment for stabilizing CNV associated with angioid streaks. In this case, the patient experienced significant improvement in visual acuity and macular health following intravitreal injections. Early intervention with anti-VEGF therapy is crucial in managing CNV associated with AS to prevent further vision loss.

Keywords: Angioid streaks, choroidal neovascularization, anti-VEGF therapy, ranibizumab, retinal pigment epithelium, spectral-domain optical coherence tomography.

TIPIC Syndrome and Amaurosis Fugax in a Patient with Giant Cell Arteritis and Polymyalgia Rheumatica

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Introduction: TIPIC Syndrome (Transient perivascular inflammation of the carotid artery) is a rare idiopathic neck pain syndrome, which characterized by unilateral pain in the region of the carotid bifurcation.

Case Report: We present the case of a 60-year-old patient with Giant cell arteritis and Polymyalgia Rheumatic who had a retinal transient ischemic attack, complaining of a rare symptom such as carotidynia, among others. TIPIC Syndrome has been reported in 7% [1]of Giant cell arteritis cases. TIPIC syndrome is a diagnosis of exclusion, and the following diagnoses should be excluded: aterothrombosis, fibromuscular dysplasia, aneurysm, dissection, lymphadenitis, submandibular gland disease, and neck cancer. Stroke is uncommon in Giant cell arteritis, but transient retinal ischemic attacks occur often in this entity[2].

Results and conclusions: Neurologists should always consider Giant cell arteritis in the differential diagnosis of a new-onset severe headache in patients ≥ 50 years-old with an elevated erythrocyte sedimentation rate (ERS).

Keywords: TIPIC Syndrome, carotidynia, Giant cell arteritis, amaurosis fugax

Conflicts Between Health and Scientific Protocols in the Diagnosis of Trisomy 21 in Albania: Impact on Medical and Legal Practice

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Introduction: This article examines the discordance between the protocols of the Ministry of Health in Albania and international scientific guidelines for the prediction and diagnosis of chromosomal disorders, particularly Trisomy 21. The antenatal care protocol in Albania offers screening methods for chromosomal anomalies such as the Bitest, Triple Test, and Quadruple Test, which are available only in the private sector. [1] However, this protocol has significant deficiencies in areas such as risk stratification[2] following screening results and the provision of mandatory diagnostic tests, which creates uncertainty for both doctors and patients.

Discussion: In international practices, such as those of the Fetal Medicine Foundation (FMF), patients are offered a detailed examination of fetal anatomy, evaluation of soft markers for chromosomal disorders, "first trimester combined screening," and risk stratification.[34] Depending on the result, the patient is then offered another screening method, such as NIPT, or diagnostic procedures,[56] such as chorionic villus sampling or amniocentesis.[7] The Albanian protocols do not present a structured system for managing cases with intermediate or high risk after screening. This makes it difficult to provide accurate and safe care for pregnant women and is a key factor in the increased likelihood of medico-legal conflicts.

Conclusion: The need to integrate modern methodologies of screening and diagnosis into the Albanian public healthcare system is essential for improving the management of chromosomal disorders, especially Trisomy 21, and for avoiding legal consequences that may arise from the uncertainty in current protocols.

Keywords: Trisomy 21, prenatal screening, risk stratification, diagnostic protocols, health protocols, combined screening test, NIPT, invasive methods, Albanian health legislation.

Platelet-to-Albumin Ratio and Early Lactate Levels as Predictive Biomarkers of Acute Kidney Injury in Critically Ill Trauma Patients

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Background and Aims: Acute kidney injury (AKI) is a severe complication in trauma ICU patients, leading to increased morbidity and mortality. This study highlights early predictive markers while examining the incidence, risk factors, and clinical impact of AKI in trauma patients at our sole tertiary Trauma Center ICU.

Method: A prospective observational study was conducted over 9 months, enrolling 120 trauma patients in a university-affiliated ICU. AKI was diagnosed and staged according to the Kidney Disease: Improving Global Outcomes (KDIGO) criteria.

Results: The cohort's mean age was 54.5 years (±19.5), with 84.7% males. Hypertension and obesity were documented in 34.5% each, diabetes mellitus in 29.5%, and cardiovascular disease in 10.6%. Surgical intervention was needed in 13.9% of cases; 70.8% required intubation, 19.4% inotropic support, and 9.7% received nephrotoxic medications. AKI occurred in 40.28% (60 patients): 37.93% at KDIGO Stage I, 41.38% at Stage II, and 20.69% at Stage III. Elevated white blood cell counts ($>15\times10^3$) and mean arterial pressure (>89 mmHg) in the first 24 hours correlated with higher AKI risk. AKI patients had higher lactate (>2.2 mmol/L) and lower bicarbonate (<22 mmol/L) levels ($p<0.05$) and longer ICU stays. Combining the PLT/Albumin ratio on day 2 (cutoff 77.42) with lactate >2.2 mmol/L produced an AUC of 0.87, sensitivity of 90%, and specificity of 85.7% Figure1. Vancomycin and NSAID use were also significantly associated with AKI.

Conclusion: AKI remains a frequent, severe complication among ICU trauma patients. Early monitoring using the PLT/Albumin ratio and lactate provides valuable prognostic information, warranting larger studies to validate these predictive models.

Funding: This project is supported by "The National Agency for Scientific Research, Technology and Innovation (NASRI)".

Keywords: Acute kidney injury; Lactate, blood pressure.

Study on the Causes of Syncope and Its Accompanying Symptoms in Patients Presenting to "Mother Teresa" University Hospital Center, Tirana, Albania

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Introduction: Syncope is a transient loss of consciousness and postural tone, followed by spontaneous recovery, as a consequence of cerebral hypoxia. Its causes are classified into three major groups: cardiac, hypotensive, and reflexive. Accompanying symptoms include dizziness, sweating, etc. Accurate diagnosis of the cause is often a medical challenge.

Objectives:
- To assess the epidemiological data of the studied population (age, gender)
- To determine the frequency of the causes of syncope in this population
- To identify the main accompanying symptoms of syncope

Methodology: The study is a descriptive cross-sectional one, aiming to evaluate the causes of syncope and its accompanying symptoms in patients presenting to QSUNT, Albania, during the period 16.07.2024 - 16.11.2024. General data and accompanying symptoms were obtained through interviews with each patient. ECG and other examination data were collected from hospital health records. Patients with other forms of loss of consciousness, such as stroke, convulsive seizures, or hypoglycemia, were not included.

Results: A total of 99 patients were included in the study, among whom 1 case resulted in *exitus letalis*. The average age was 64.4 years. 37% were female and 63% male. These patients were classified as follows: 56.5% cardiac causes, 4% hypotensive, 1% reflexive, and 38.3% undetermined. The most frequent symptom was "dizziness," found in 80% (n=62) of the interviewed patients.

Conclusions: A careful evaluation of patients with syncope is necessary due to the variety of pathologies that may cause it.

Keywords: Syncope, cerebral hypoxia, cardiac causes, hypotensive causes, reflexive causes.

Hamstring Muscle Injury in Sports Orthopedics

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Introduction: Hamstring muscle injuries are among the most common injuries in sports orthopedics, especially during activities involving high-intensity running. These injuries usually occur due to sudden stretching in the musculotendinous area, accounting for 12–16% of all muscle injuries. The risk of recurrence is high, with a rate of up to 30% within the first year after recovery. This paper aims to analyze the mechanisms of injury, risk factors, diagnostic methods, therapeutic options, and the most effective prevention strategies.

Case Presentation: Hamstring injuries primarily occur during rapid eccentric contractions, especially in the terminal phase of the swing phase during running. Risk factors include: muscle strength imbalances between the hamstrings and quadriceps, low flexibility, history of previous injuries, and training overload. Clinical diagnosis includes palpation of the painful area, functional tests, and imaging examinations such as ultrasonography and magnetic resonance imaging (MRI), which help determine the extent of the injury.

Discussion: Therapeutic management depends on the severity of the injury. For mild injuries, the RICE protocol (rest, ice, compression, and elevation) is recommended. Severe injuries, particularly complete tendon ruptures, may require surgical intervention. Active rehabilitation with eccentric exercises – such as the "Nordic Hamstring Curl" and "Romanian Deadlift" – has been shown to be effective in improving function and reducing the risk of recurrence.

Conclusion: The prevention and management of hamstring injuries require an integrated approach that includes early diagnosis, personalized treatment, and rehabilitation programs based on functional exercises. Proper strategies can significantly reduce recovery time and minimize the risk of recurrent injuries.

Keywords: Hamstring muscle injuries, sports orthopedics, musculotendinous area, eccentric contractions, risk factors.

Biochemical Parameters as Predictors of Mortality in Patients with Cardiogenic Shock after Acute Myocardial Infarction

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Introduction: Cardiogenic shock (CS) following acute myocardial infarction (AMI) is associated with a high risk of mortality. Biochemical parameters assist in early risk stratification.

Aim: To evaluate biochemical parameters as predictors of mortality in patients with CS after AMI.

Methods: In this prospective study, 40 patients with AMI complicated by CS were included at the Cardiology Clinic, UCCK, divided into two groups: survivors (n=22) and non-survivors (n=18). The analyzed parameters were: potassium (K), creatinine, lactate dehydrogenase (LDH), aspartate aminotransferase (AST), and platelets. Parameters with significant differences were further analyzed using multiple regression.

Results: Non-surviving patients had higher levels of potassium (4.9 ± 1.3 mmol/l vs. 3.4 ± 0.7 mmol/l, p<0.0001), creatinine (241.6 ± 119.5 μmol/l vs. 113.7 ± 34.5 μmol/l, p<0.0001), LDH (1729.4 ± 1583 U/L vs. 922.7 ± 607.7 U/L, p=0.03), and AST (497.3 ± 920.7 U/L vs. 93.8 ± 96 U/L, p=0.04), and lower platelet counts (188.1 ± 46.5 x10^9/L vs. 230.9 ± 76.6 x10^9/L, p=0.04). Multivariate analysis confirmed potassium (p=0.003) and creatinine (p=0.003) as independent predictors of mortality.

Conclusion: Elevated potassium and creatinine levels are independent predictors of mortality in patients with AMI complicated by cardiogenic shock. Early identification of these parameters may improve clinical outcomes.

Keywords: Cardiogenic shock, acute myocardial infarction, mortality predictors, biochemical parameters

Etiology and Assessment of Antimicrobial Susceptibility Against Uropathogens in Pediatric Age Group

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Introduction: Urinary tract infections (UTIs) are among the most common bacterial infections in the pediatric age group. The main causative agents are gram-negative bacteria, including Escherichia coli, Proteus mirabilis, Pseudomonas aeruginosa, and Klebsiella pneumoniae.

Aim of the Study: To determine the etiology of urinary tract infections, the prevalence, and to assess antimicrobial susceptibility in the pediatric age group in outpatient cases.

Materials and Methods: We retrospectively examined complete urinalysis, urine culture, and antibiogram of 167 patients ranging from neonates to 16 years old, who presented to the "Alfa Diagnostic Center" between 2015 and 2023.

Results: Out of 167 subjects, 64 (38.3%) were diagnosed with urinary tract infections. The most common age group was 3-6 years, with 22 (13.2%) cases. E. coli was isolated in 61% of the cases, and other pathogens were identified in 39% of the cases. Contaminated urine cultures were observed in 11 (6.6%) cases, accompanied by leukocyturia <5 fields. Among the oral antibiotics tested, fosfomycin showed the highest activity against E. coli (97.0%), Proteus mirabilis (92.85%), Klebsiella pneumoniae (100%), while TZP (100%) was effective against Pseudomonas aeruginosa and Enterococcus spp.

Conclusions: The most common uropathogen identified was Escherichia coli, with a prevalence of 61%. The prevalence was higher in females (43.4%), while fosfomycin demonstrated the highest activity against the isolated uropathogens.

Keywords: Uropathogen, pediatric age group

Cognitive and Emotional Consequences in Patients with Renal Transplantation

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Introduction: Renal transplantation is a surgical procedure resulting from renal damage as in the case of CKD (stage IV-V). Numerous studies have shown that post-transplant patients exhibit cognitive alterations in the period following the intervention, which have impacted their quality of life.

Objectives:

- To investigate the correlation between transplantation and emotional state
- To study the etiology of cognitive alterations
- To analyze the results of the MoCa test

Methodology: After collecting data from the UHCMT registers and contacting patients by phone, interview sessions were conducted. Patients, with guaranteed anonymity, underwent MoCa testing. Their family members were also interviewed regarding the period before and after the transplant. The results were converted into numerical data and analyzed.

Results:

Scores	**30 - 26**	**25-22**	**<22**
Number of patients	18 (18%)	53 (53%)	29 (29%)
Education Level	**Low -** 2 (11,11%)	**Low -** 12 (22,6%)	**Low -** 15 (51,7%)
	Medium - 10 (55,56%)	**Medium -** 24 (45,3%)	**Medium -** 8 (27,6%)
	High - 6 (33,33%)	**High -** 17 (32,1%)	**High -** 6 (20,7%)
Year	**Before 2015 -** 0 (0%)	**Before 2015 -** 12 (22,6%)	**Before 2015** - 19 (65,5%)
	After 2015 - 18 (100%)	**After 2015 -** 41 (77,4%)	**After 2015 -** 10 (34,5%)

Conclusions: Patients who underwent transplantation before 2015 and had low educational levels show more serious cognitive alterations. A performance change at below-normal levels (25–22 points) is observed in the majority of patients; however, in this group, no correlation was found between educational level and the time the transplant was performed.

Keywords: Renal transplantation, cognitive alterations, emotional state, chronic kidney disease

TRAM (Transverse Rectus Abdominis Musculocutaneous) Flap in Breast Reconstruction

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Objective: This case report aims to describe the surgical technique, clinical outcomes, and possible complications of breast reconstruction using a musculocutaneous flap of the rectus abdominis muscle (TRAM flap). By presenting a specific case, the article highlights the indications, advantages, and challenges associated with TRAM flap reconstruction, offering insights into patient selection, postoperative recovery, and long-term aesthetic and functional outcomes.

Method: This study is based on the case report of a patient who underwent breast reconstruction with a TRAM flap. Clinical data were collected retrospectively, including the patient's medical history, indications for the procedure, surgical techniques used, and postoperative management. The assessment of outcomes was conducted based on clinical, aesthetic, and functional parameters, while potential complications and long-term results were also analyzed. The study also considers the surgical team's experience and the existing literature to compare outcomes and provide practical recommendations for similar cases.

Results and onclusion: The patient successfully underwent breast reconstruction using the TRAM flap technique. Postoperative recovery was uneventful, with no immediate surgical complications such as necrosis, infection, or significant hematoma. During follow-up visits, the patient reported high satisfaction with the aesthetic outcome and functional recovery. Overall, reconstruction with a TRAM flap provided a stable and aesthetically pleasing result, improving the patient's quality of life.

Keywords: breast reconstruction, TRAM flap

Stabilization of Pharmaceutical Formulations Containing the Carvacrol-B-CD Complex with Various Polymers

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Introduction: Carvacrol is a monoterpenic phenol, mainly found in aromatic-medicinal plants of the Origanum, Thymus, and Satureja genera. Despite its promising antibacterial, antifungal, and anti-inflammatory effects, the physicochemical properties of carvacrol make the production of pharmaceutical formulations challenging. Microencapsulation of carvacrol in cyclodextrins (CD) is a method to overcome these issues, enhancing its solubility and stability in various pharmaceutical formulations. This study aims to develop and optimize pharmaceutical formulations with the carvacrol-β-cyclodextrin complex, using polymers such as Hydroxyethyl cellulose and Carbomer.

Methodology: The study began with the complexation of carvacrol into β-cyclodextrin at the most efficient molar ratio according to the literature. The solubility characterization of the complex was performed according to the monograph of the European Pharmacopoeia. Additionally, rheological measurements were conducted using a Brookfield viscometer to determine the optimal polymer concentration for the final pharmaceutical formulation.

Results: The carvacrol-β-cyclodextrin complex demonstrated better solubility compared to uncomplexed carvacrol. The optimal polymer concentration was determined based on the viscosity values measured with the Brookfield viscometer. Pharmaceutical formulations based on Hydroxyethyl cellulose (HEC) and Carbomer demonstrated stable viscosity suitable for pharmaceutical applications, with stable values ranging from 3,000–21,000 cP for the HEC gel and 52,000–100,000 cP for the Carbomer gel, depending on the polymer concentration used.

Conclusions: This study highlights the impact of microencapsulation in β-CD on the improvement of carvacrol's solubility, emphasizing the potential of incorporating the carvacrol-β-CD complex into stabilized and durable pharmaceutical formulations with polymers such as Hydroxyethyl cellulose and Carbomer. However, further studies are needed to evaluate the long-term stability and release rate of carvacrol from the β-CD complex.

Keywords: Carvacrol, cyclodextrin, hydrogel, polymers.

Influenza-Associated Encephalopathy (IAE): Case Report

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Introduction: Although influenza is generally a self-limiting illness and usually without complications in healthy children, it can be associated with significant morbidity and mortality[1]. According to the CDC, during the 2024-2025 influenza season, 68 pediatric deaths were reported, 9 of which were due to influenza-associated encephalopathy (IAE)[2]. Neurological complications of influenza include febrile seizures, encephalopathy, acute encephalitis, aseptic meningitis, acute cerebellar ataxia, myelitis, Guillain-Barre syndrome, acute disseminated encephalomyelitis (ADEM), cerebrovascular disease, among others[3].

Case Presentation: During January–February 2025, three children in very critical health condition with influenza were hospitalized in the Pediatric Intensive Care Unit. The case we present concerns a child with influenza-associated encephalopathy, exhibiting a highly aggressive course. Initially presenting with high fever, the child subsequently experienced altered consciousness, progressing to coma (massive cerebral edema; tonsillar herniation into the foramen magnum) over a period of three days. Despite the initiation of aggressive treatment (mechanical ventilation, intravenous immunoglobulin, corticosteroid therapy, oseltamivir), the child did not survive and passed away afterfivedays.

Conclusions: Influenza-associated encephalopathy in children is a disease with a high incidence between 6 and 18 months of age. It is a severe disorder with an approximate fatality rate of 30%, and persistent disability occurs in about one-third of survivors[4].

Keywords: Influenza, encephalopathy, pediatric mortality, viral infections, cerebral edema

Age-related Variations of Creatinine and Glomerular Filtration Rate (GFR) in Clinically Healthy Individuals

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Introduction: Biochemical examinations, such as glucose, lipid profile (glucose, cholesterol, HDL-cholesterol, LDL-cholesterol, creatinine, urea), are the most common tests in adults, aiming to minimize risk factors for atherosclerosis, hypertension, diabetes, or cardiorenal events, as the most common chronic pathologies found in the global population.

Objective: To study the age-related variations of creatinine in clinically healthy individuals.

Materials and Methods: 68 clinically healthy patients were examined, in whom creatinine levels were measured using the picric acid method. Of these, 38 were aged 35-55 years, and 30 were aged 55-70 years.

Results: Creatinine (CRE) levels fluctuated as follows: 35-40 years, CRE=0.83±0.114; 41-45, CRE=0.81±0.197; 46-50, CRE=0.76±0.12; 51-55, CRE=0.79±0.08; 56-60, CRE=1.06±0.29; 61-65, CRE=1.07±0.3; 66-70, CRE=1.18±0.4; 71-75, CRE=0.9±0.35. A statistically significant difference was observed between the creatinine values in the 38 cases of the 35-55 age group (I), CRE=0.83±0.2 and 30 cases of the 55-70 age group (II), CRE=1.1±0.3 ($p<0.0001$). In group I, GFR fluctuated at 98.94±20.24, stage I-II of renal insufficiency, while in group II, GFR=70.8±20.5, $p<0.0001$, stage II-IIIa. A strong negative correlation was observed between the GFR values and creatinine values ($r=-0.8967$).

Conclusions: Creatinine values are age-dependent. Age 55 represents a significant inflection point and a statistically significant difference between the 35-55 and 55-70 age groups ($p<0.0001$), referring to both creatinine and GFR values. GFR provides more comprehensive information about the stage of renal insufficiency, increasing the need for specialist care. A preventive approach is the early detection of pathologies with renal impact, especially diabetes and hypertension, as the two major causes of renal insufficiency.

Keywords: Creatinine, GFR, biochemical tests.

The Eye and Pregnancy

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Objective: To refer to our collaboration based on the physiological or non-physiological changes that occur in the eye and vision of the mother during pregnancy.

Materials and Methods: Based on the literature and our daily interactions with patients, where blurred vision is often encountered in the third trimester, as well as rare cases of vision loss, we have compiled the diseases and issues most commonly encountered in healthy pregnant mothers or even those with associated systemic diseases.

Results: Blurred vision during pregnancy is a temporary change in the quality of vision in pregnant women. The hormones that support the growing baby, which changes day by day, also cause fluid retention in the body, leading to reversible changes in the pregnant woman's eyes, such as:

- Changes (reversible worsening) in refractive errors, mainly myopia
- Changes in the shape or thickness of the cornea
- Reduced tear production, which affects the quality of vision
- Changes in intraocular pressure

However, blurred vision can also be a sign of pregnancy complications:

- Gestational diabetes
- Preeclampsia
- Central serous chorioretinitis
- Thrombotic vasculopathy
  Or from the worsening of the mother’s systemic diseases.

Conclusions: The ocular manifestations of pregnancy can be grouped into three categories: physiological changes, eye diseases specific to pregnancy, and modifications of existing eye diseases. Since the range of possible ocular changes related to pregnancy is wide, this necessitates increasingly close collaboration between obstetricians and ophthalmologists. Many of these conditions resolve during the postpartum period. Management may include monitoring benign findings, referring the patient to another specialist, and taking medical or surgical treatment.

Keywords: Pregnancy, blurred vision, refractive errors, myopia, corneal changes, intraocular pressure, gestational diabete.

DRESS Syndrome Induced by Allopurinol: Impact on Renal Insufficiency (Clinical Case)

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Introduction: DRESS Syndrome (Drug Reaction with Eosinophilia and Systemic Symptoms) is a rare, severe drug reaction with delayed hypersensitivity mediated by T-cells. It is characterized by widespread cutaneous rash and involvement of visceral organs, lymphadenopathy, eosinophilia, and atypical lymphocytosis. The use of allopurinol in patients with chronic kidney disease (CKD) and gouty arthritis remains a controversial topic. The aim of this presentation is to raise awareness of the high risk of DRESS syndrome, the importance of early diagnosis, the impact of renal dysfunction, especially in patients with genetic predisposition, the reactivation of HHV viruses, and improper dosing of allopurinol.

Clinical Case: A 68-year-old female patient, previously hospitalized in our service a year ago, presented with the following complaints: temperature >38.5 - 40°C, diarrhea for 3 days, body weakness, nausea, and reduced urination. On her skin, maculopapular elements in the form of a rash were noted, spreading all over her body and face, lymphadenopathy, and facial edema. She had been on treatment with allopurinol 300 mg/day for hyperuricemia for the past 4 weeks. Her medical history included: stage II hypertension, treated with enalapril, furosemide, atenolol; stage G2-G3 CKD; and dyslipidemia. Laboratory results on admission showed acute alteration in renal function superimposed on chronic renal disease, elevated transaminases, leukocytosis with neutrophils, without eosinophils, and high CRP. Allopurinol and enalapril were discontinued, and she was treated with high doses of corticosteroids. The patient was discharged from the hospital improved after one month of treatment.

Conclusion: DRESS syndrome induced by allopurinol is a rare reaction but with serious health consequences, even life-threatening. Timely diagnosis and treatment are crucial for its management. In patients with CKD, associated cardiovascular diseases, metabolic impairments, genetic predisposition, and advanced age, care must be taken with the dosing of allopurinol.

Keywords: Renal insufficiency, DRESS syndrome, allopurinol, skin rash, eosinophilia, corticosteroids.

Cardiac Arrhythmias in Patients with Rheumatoid Arthritis: A Clinical Study

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Introduction: Rheumatoid Arthritis (RA) is a chronic systemic inflammatory disease associated with an increased risk of mortality in these patients. In addition to accelerating the development of atherosclerosis, RA is associated with a high incidence of cardiac arrhythmias, particularly in females. Atrial fibrillation (AF) is the most common cardiac arrhythmia in the general population and in the RA patient group. In these patients, this high incidence is linked to chronic inflammation and the presence of high inflammatory markers such as CRP, IL-6, and ESR. Specifically, for RA patients, the incidence of AF is 40% higher than in the general population. Although less frequent, other cardiac arrhythmias have also been evaluated as being more common in RA patients compared to the general population.

Objectives: Evaluation of the incidence of cardiac arrhythmias in patients with RA.

Methods: This is a retrospective cohort study including 65 patients diagnosed with RA according to the updated ACR/EULAR criteria. Patients included in the study had been diagnosed with RA for more than 5 years. Of the participants, 46 (71%) were female and 19 (29%) were male. The average age of the patients was 51 ± 7 years. All patients were referred for cardiology evaluation, which included history-taking, clinical examination (including auscultation), echocardiography, EKG, and in 11 cases, a Holter monitor was used to evaluate rhythm disturbances.

Results: Of the 65 patients, 46 (71%) did not show any cardiac rhythm disorders based on all the cardiac evaluation methods. 19 patients (29%) presented with cardiac arrhythmias, primarily atrial fibrillation, which was detected via simple EKG and Holter monitoring. Among these 19 patients, 14 were female.

Conclusions: Patients with RA, who have been diagnosed and treated according to protocols for several years, have an increased incidence of developing cardiac arrhythmias, primarily atrial fibrillation, compared to the general population.

Keywords: Rheumatoid Arthritis, Cardiac Arrhythmias, Atrial Fibrillation, Inflammation, Incidence, Cardiology Evaluation, Holter Monitor, EKG, Echocardiography, Mortality Risk

Cryptorchidism from a Practical Perspective for the Pediatrician

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Introduction: Cryptorchidism is the absence of at least one testis in the scrotum and is the most common genital disorder in males. 80% of cryptorchid testes at birth descend in the first three months after birth, and the incidence decreases to about 1%. Bilateral cryptorchidism accounts for 10% of all cases. Testes begin intra-abdominal development in-utero at week 6-7 and descend into the scrotum in weeks 32-36. The descent is influenced by mechanical, hormonal, and paracrine factors. If the testis has not descended by six months after birth, it will not descend spontaneously and is considered cryptorchidic. Cryptorchidic testes are classified as palpable (canalicular, superficial, and ectopic) and non-palpable (intra-abdominal and/or atrophic). In some cases, retractile testes around the age of 4-10 years may become cryptorchidic (acquired cryptorchidism). For the diagnosis of cryptorchidism, physical examination, imaging, and laparoscopy (in cases with intra-abdominal testes) are useful. The consequences of cryptorchidism are numerous and serious: decreased fertility (50-60% in bilateral cases), malignancy of the cryptorchid testis, testicular torsion, associated inguinal hernia, testicular trauma, psychological and cosmetic problems. Treatment is surgical, consisting of orchidopexy or orchidectomy (for rudimentary, atrophic testes). Orchidopexy should be performed between 6-18 months of age. Hormonal therapy is not recommended due to the very low success rate.

Conclusions: Cryptorchidism should be diagnosed and treated in a timely manner (between 6-18 months of age). It is a surgical condition. Medicinal therapies are not recommended. There are serious risks and complications if it is not treated or if treatment is delayed. Surgery prevents morphological changes in the testes, preserving fertility and reducing the chances of malignancy, testicular torsion, and trauma, while also preventing psychological trauma during puberty or later in life. During orchidopexy, associated hernias are also repaired.

Keywords: Cryptorchidism, Orchidopexy, Orchidectomy, Infertility, Treatment

Hyperuricemia and Mortality in Patients Undergoing Hemodialysis Treatment

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Introduction: Uric acid is the end product of purine metabolism. Its normal serum levels are considered to be 4-8.5 mg/dl for adult males and 2.7-7.3 mg/dl for adult females. Studies have shown that high levels of uricemia are risk factors for mortality in the healthy population, particularly in patients with chronic kidney disease not undergoing hemodialysis. However, in the hemodialysis population, the data is contradictory. This study conducted in Albanian patients undergoing hemodialysis aims to shed more light on this conflicting result.

Objective: This randomized longitudinal national study aims to assess the role of serum uric acid in the mortality rate of a specific population, such as those with chronic kidney disease undergoing hemodialysis.

Methods and Results: Uric acid is known to stimulate cell proliferation, the production of angiotensin II, and oxidative stress in smooth muscle cells of the vascular system through the RAS system, thereby suggesting the initiation of cardiovascular diseases. Hyon K. Choi et al. demonstrated in their study that an increase in serum uric acid levels is also associated with an increase in the prevalence of metabolic syndrome. The KNOW-CKD study showed a strong correlation between serum uric acid levels and the initiation of renal replacement therapy. Meanwhile, the question that arises in these cases is whether hyperuricemia, which is suggested to promote cardiovascular diseases and metabolic syndrome in pre-hemodialysis patients, has a positive or negative effect in populations already undergoing renal replacement therapy, particularly hemodialysis. Our study seeks to evaluate whether hyperuricemia has a negative or positive effect on the development of cardiovascular diseases, mortality from these pathologies, and total mortality, as well as whether other factors contribute to this effect.

Conclusion: Thus, 54 patients receiving chronic hemodialysis treatment in Albania were included in the study, with an average age of 61 years, with a predominance of males (around 69%). Hyperuricemia was evaluated along with other variables such as URR, serum albumin, calcium, phosphate, lipid profile, hemoglobin levels, and comorbidities identified at the start of the study.

Keywords: Hyperuricemia, mortality, hemodialysis, cardiovascular diseases.

Acute Pancreatitis as a Rare Complication of Seasonal Influenza A: Case Report

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Introduction: Influenza is an acute viral respiratory infection and Pneumonia is its most common complication, but there are other cases that are complicated by respiratory failure and multiple organ failure until death. Pancreatitis is a rare complication of Influenza but also a rare possible side effect of the influenza vaccine.

Purpose: Here we report a case of influenza A (H1N1) during the 2024-2025 season, complicated by acute pancreatitis. Through this case, we draw attention to these rare complications of influenza, which will enable both identification and prognosis.

Case presentation: A 79-year-old female patient who had been suffering from hypertension and atrial fibrillation for a long time came to the emergency room after a 4-day history of fever, high temperature, cough, myoarthralgia. The influenza A test was positive. On the third day of hospitalization, she complained of severe abdominal pain radiating to the back, nausea, and vomiting. Laboratory results showed increased amylase, 942 U/L, and lipase, 1785 U/L. The patient's clinical complaints regressed after complex treatment and she left the hospital on the 14th day of hospitalization.

Conclusion: Influenza virus should be considered as an agent in the etiology of acute pancreatitis, although it is a rare viral agent. Early recognition leads to timely diagnosis and treatment, avoiding fatality.

Keywords: influenza, virus, acute pancreatitis, complication.

Chickenpox and Herpes Zoster in Pregnancy: Case Report and Follow-up Strategy

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Introduction: Chickenpox and herpes zoster are infections caused by the Varicella Zoster Virus (VZV), which can have serious consequences during pregnancy. Primary VZV infection leads to chickenpox, a highly contagious disease that can cause severe complications such as pneumonia in the mother and fetal varicella syndrome when it occurs in the first or second trimester. Herpes zoster, a reactivation of the latent virus, usually does not involve viremia, and complications for the fetus are rare.

Case Presentation: We present three cases of pregnant women with VZV infections. Two women were in the second trimester (5 months and 5.5 months pregnant), and one in the third trimester (32 weeks pregnant). Two patients exhibited typical symptoms of chickenpox, including fever and a pruritic vesicular rash. The third patient presented with a rare form, showing both abortive chickenpox and herpes zoster simultaneously, raising concerns for clinical management.

Management and Prophylaxis: For pregnant women exposed to VZV who are not immune, post-exposure prophylaxis (PEP) with aciclovir, valaciclovir, or varicella-zoster immunoglobulin (VZIG) is recommended, ideally administered within 10 days after exposure. Antiviral therapy, particularly aciclovir, can improve clinical outcomes, reduce the risk of maternal and fetal complications, and shorten the duration of symptoms.

Conclusion: Management of these cases requires careful monitoring and close collaboration between infectious disease specialists and obstetricians-gynecologists. Prevention strategies, including vaccination and post-exposure prophylaxis, along with effective follow-up, are crucial to reducing maternal-fetal risks and improving prognosis for both the mother and fetus.

Keywords: herpes zoster, pregnancy, Varicella Zoster Virus, post-exposure prophylaxis, antiviral therapy.

Asymptomatic Leishmaniasis in Blood Donors: A Challenge for Public Health

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Introduction: Leishmaniasis is an infectious disease caused by unicellular protozoans of the *Leishmania* genus, which can present in various clinical forms, ranging from cutaneous to disseminated visceral infections. Human leishmaniasis is primarily transmitted through the bite of *Leishmania*-infected sand flies, although rare transmission routes include the transplacental route, sexual intercourse, blood transfusions, and, in some cases, laboratory acquisition. The Mediterranean and Balkan regions are known to be endemic areas for *Leishmania* species.

Case Presentation: We present the case of a 46-year-old woman with a history of Thalassemia Intermedia, hepatitis C, splenectomy, and regular blood transfusions. The patient presented with fever, fatigue, anorexia, and myalgia. Microscopic examination of bone marrow samples and an enzyme-linked immunoassay (ELISA) test for *Leishmania* were both positive. Treatment with liposomal amphotericin B was initiated, leading to a significant improvement in the patient's condition.

Discussion: Diagnosis of Visceral Leishmaniasis is still a challenge. Early detection and treatment are crucial, given the high mortality rate among untreated patients. Asymptomatic *Leishmania* infection is frequent, and significant variations in *Leishmania* seroprevalence have been observed among blood donors in different regions, with an estimated prevalence of 4.8% - 19%.

Conclusions: Asymptomatic leishmaniasis among blood donors is an important public health concern. Screening for *Leishmania* spp. in blood donations particularly in endemic regions is essential to detect infection markers and prevent the release of infected blood and blood components for clinical use.

Keywords: Visceral Leishmaniasis, Asymptomatic Blood Donors, Blood Transfusion, Blood Safety.

Immediate or Delayed Reconstruction: European, Regional, and Albanian Trends

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Objective: The objective of this study is to analyze and compare immediate and delayed breast reconstruction, focusing on European and regional trends. By analyzing these trends, the study aims to provide insights into best practices and potential improvements in breast reconstruction strategies, along with suggestions regarding practices in Albania.

Methodology and Results: This study is a literature review that analyzes European and regional trends in immediate and delayed breast reconstruction. To ensure a comprehensive and evidence-based analysis, a systematic search was conducted in scientific databases such as PubMed, Scopus, Web of Science, and Google Scholar. The results of the included studies were synthesized and compared to identify key trends and to offer a clear perspective on best practices and challenges in breast reconstruction across Europe and various regions.

Conclusions: Based on European and regional experience with reconstructive methods and the standardization of outcomes, initial steps can be taken toward building a common pathway under the concept of a "breast unit," in line with European schools and guidelines.

Keywords: breast reconstruction, immediate reconstruction, delayed reconstruction, prosthesis, flap, radiotherapy, chemotherapy

Kyphoplasty for the Treatment of Vertebral Compression Lesions

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Introduction: Vertebroplasty and kyphoplasty are vertebral augmentation procedures that have seen a drastic increase in application for vertebral compression fractures. These are minimally invasive, palliative procedures designed to treat pain and spinal deformity by restoring vertebral body height. Osteoporosis, secondary vertebral osteolytic lesions caused by specific neoplasms, and spinal trauma are the most frequent causes. The maximum number of vertebrae treated during one procedure remains a topic of discussion, where balance must be assessed between the risk of multiple interventions and the risk of leaving vertebrae untreated. Female gender, single vertebral compression fractures, and active smoking status are predictors of a positive outcome. Junctional level of the fractured vertebra, multiple fractures, previous radiotherapy, presence of myelopathy, and advanced primary disease are indicators of an unfavorable outcome. Complications such as extracorporeal cement leakage, myelopathy, and consecutive vertebral fractures have a low incidence. Proper technique and the viscosity of the cement during injection are factors that can overcome difficulties in cases with relative contraindications.

Materials and Methods: The team conducted a retrospective analysis of vertebral compression fracture cases that underwent kyphoplasty as a classic or combined procedure in our department during the period 2020–2023. Clinical, imaging, epidemiological, and therapeutic data were included.

Results: A total of 128 patients were treated during this period, with an age range of 38 to 88 years. Four patients underwent open kyphoplasty with decompression. Ten patients underwent balloon kyphoplasty for hemangiomas, and 15 for metastatic cases. The remaining patients were treated for osteoporotic compression fractures. Post-surgery, a significant reduction in pain intensity and mobilization of the patients was noted. Extracorporeal cement leakage occurred in 10 patients but without concerning consequences, while 2 patients experienced a cerebral stroke.

Conclusion: Balloon kyphoplasty is the treatment of choice in cases of vertebral compression fractures, regardless of cause—osteoporosis, secondary vertebral lesions, or trauma. Pain relief, correction of spinal angulation, and restoration of vertebral body height are the goals of the procedure. This technique can also be combined with other invasive spinal procedures, depending on the specific anatomical condition of the spine.

Keywords: Balloon kyphoplasty, vertebral body height, compression fracture, metastasis, osteoporosis, multiple vertebral infiltrative disease

Oral Manifestations in Patients with Diabetes Mellitus and Their Management

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Introduction: Diabetes Mellitus (DM) is a chronic disease that occurs when the pancreas does not produce insulin or produces a small amount of insulin. According to the data from the International Diabetes Federation (IDF), 537 million adults (aged 20-79) are affected by diabetes.

Objectives: This paper aims to increase awareness of the oral manifestations of diabetic patients, the complications related to this disease, and their management.

Material and method: To find relevant literature for this paper, a search was conducted in various electronic databases (PubMed, Medline, Google Scholar) using appropriate search terms. The data was collected, and the results were reported.

Results: This disease can lead to many different systemic complications, including those affecting the oral cavity. Systemic complications of DM include heart disease, kidney damage, eye damage, and nerve damage. Significant oral manifestations and complications include xerostomia, dental caries, gingivitis, periodontal disease, increased tendency for oral infections, burning sensation in the mouth, taste disturbances, and difficulty in wound healing.

Conclusion: Changes in lifestyle, regular dental check-ups with an emphasis on periodontal evaluation, and reinforcing oral health instructions can effectively prevent the oral complications of DM.

Keywords: Diabetes Mellitus, oral manifestations, complications, management

Dependence of the Ozone Hole on the Joint Activity of Flora and Man on Earth and the Influence on Climateric Changes

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Introduction: The fact of the Greenhouse effect is known, originating from Industrial pollution which is present every day of the year, as well as the appearance of the Ozone hole at the South Pole and only in Autumn. While the impact of pollution on the dilution of the Ozonosphere is constant, why is the Ozone hole created only in a few months?

Purpose: This study aims to shed light on the possibility of a possible link between: Temperature-Forests-Arctic Ice and the Ozone hole.

Methodology: The study is based on the data comparison method.

Results: The dimensions of the Ozone Hole measured in the manual[1], according to NASA[2], when approaching the Sun change according to a polynomial equation (R2 = 0.999). The increase in temperatures in August, September, October is proportional to the variability of the O_3 Ozone hole. The dimensions of the hole of O_3 are antagonized by the change of the forest surface. Correspondence between the years included in the analysis: is proportional between the surface of the Ozone hole: Temperature & the surface of the Arctic ice (56.4%&51.3%); is antagonistic between the temperature on the one hand: the surface of the ice & the minimum value of Ozone (56.4% & 63.2%); is antagonistic between the ice surface and the minimum value of Ozone at 55.3%. Countries that have a large decrease in forest area have a large temperature contrast[3] between Summer and Winter.

Conclusion: The Ozone Hole is in balance with Flora. Enlargement of the O3 Ozone Hole: affects the temperature change and the surface of the glaciers in the North Pole. The influence of the human being can be two-way[4].

Keywords: Manuali[1]-Are self-measurement of Ozone Hole data, referring to NASA photos; NASA[2]- National Aeronautics and Space Administration; Contrast[3]-is the difference between the maximum temperature and the minimum temperature for each location. two-way[4]-means Afforestation and

Efficacy of Anti-VEGF Therapy in the Treatment of Central Retinal Vein Occlusion: A Retrospective Study

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Background: Central retinal vein occlusion (CRVO) is a significant cause of visual impairment, resulting from partial or complete blockage of the main retinal vein. This leads to macular edema and immediate vision loss. Effective management, particularly through anti-VEGF therapy, is critical to preserving visual function. This study aims to evaluate the long-term anatomical and functional outcomes in patients with CRVO-associated macular edema treated primarily with intravitreal anti-VEGF injections.

Methodology: This was a retrospective descriptive study conducted at the "INTERNATIONAL" clinic between January 2023 and December 2024. Twenty-five patients diagnosed with CRVO and macular edema were included. All patients received at least three intravitreal anti-VEGF injections, followed by a pro re nata (PRN) treatment strategy based on clinical evaluation. Best-corrected visual acuity (VA) and optical coherence tomography (OCT) parameters, such as central retinal thickness (CRT), were assessed during a two-year follow-up period.

Results: The study demonstrated that 88% of patients experienced an improvement in visual acuity after anti-VEGF treatment. A significant reduction in central retinal thickness was also observed. After six anti-VEGF injections, approximately 90% of patients showed substantial visual improvement. Compared to other therapies, including corticosteroids, carbonic anhydrase inhibitors, and laser photocoagulation, anti-VEGF treatment proved the most effective in enhancing visual and anatomical outcomes.

Discussion: Anti-VEGF therapy showed high efficacy and safety in managing CRVO-induced macular edema over the 6-month critical period. Predictors of poor outcomes included advanced age, ischemic type of RVO, delayed initiation of therapy, and severe initial macular damage. The findings align with previous research emphasizing the importance of early and aggressive treatment in improving visual prognosis.

Conclusion: Intravitreal anti-VEGF injections represent the most effective treatment option for CRVO-related macular edema, offering significant visual and anatomical benefits. Early diagnosis and timely intervention are essential to maximize treatment success and improve long-term visual outcomes in affected patients.

Keywords: anti-VEGF therapz, retinal vein occlusion, vision loss

Alcoholic Cardiomyopathy

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Introduction: Alcohol, also known as "ethanol" or "ethyl alcohol", is one of the most widely used substances with toxic, psychoactive and addictive properties. Various forms of alcoholic beverages have now become an integral part of the social landscape in almost all parts of the world.

Method and Results: Alcohol and its metabolites are cardiotoxic. Alcohol-induced myocardial depression is initially reversible, however, prolonged use leads to irreversible dysfunction. Alcoholic cardiomyopathy (ACM) does not have a predetermined exposure time. Daily alcohol consumption of 80 g or more per day for more than 5 years significantly increases the risk, however not all chronic users will develop ACM. ACM is characterized by ventricular dilation associated with impaired cardiac function and represents one of the main causes of non-ischemic dilated cardiomyopathy. ACM is characterized by increased left ventricular mass and dilation and heart failure (systolic and diastolic). The incidence of ACM in patients with alcohol use disorders ranges between 21% and 32%, but the exact prevalence is unknown. Experimental studies have shown impaired cardiac contractile function, disruption of cardiac excitation, induction of oxidative damage, and lipid peroxidation by acetaldehyde. As a result of the loss of cardiac myocytes by apoptosis, ineffective repair mechanisms lead to progressive cardiac fibrosis in genetically predisposed individuals. Clinical signs AMI presents with nonspecific features such as dyspnea and orthopnea due to heart failure. These symptoms usually appear in the late stages after the development of ventricular dilatation, hypertrophy, and dysfunction.

Conclusion: The mainstay of treatment is complete abstinence from alcohol. Pharmacological therapy should include therapy based on treatment protocols for idiopathic dilated cardiomyopathy with reduced ejection fraction. This includes a combination of beta-blockers, ACE inhibitors, diuretics, ARNI (if FE≤40%).

Keywords: alcohol, cardiomyopathy, cardiotoxic

Bacteremia in Pediatric Age, Epidemiology, Etiological Factors, Characteristics and Progression

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Objective of the study: To highlight the epidemiological data of bacteremia and sepsis in pediatric age over the last five years (January 2016 – December 2020).

Material and method: This is a retrospective cohort and exploratory descriptive study that evaluates and describes characteristics related to age, gender, seasonality, place of residence, hospital stay duration, presence of comorbidities, culture positivity, progression, and significance of correlations among them. The sample included in the study comprises 445 hospitalized children over a 5-year period, with bacteremia and sepsis, in two pediatric services at UHCMT, the Infectious Disease Service and the Intensive Care Service. Data were taken from the registries of both services as well as patient files archived at the Statistics Sector of UHCMT, and were organized and presented in tables and graphs using Microsoft Office Excel 2010. The following techniques were used in the study: Crosstab and Chi-Square test, Mean, Standard Deviation, Minimum, Maximum, Frequency, Percentage, T-test, ANOVA test, Pearson correlation coefficient.

Results: The incidence of bacteremia and sepsis in hospitalized children for the pediatric population in Albania has been decreasing. The highest incidence was noted in 2016, with the highest percentage of hospitalized cases with bacteremia and sepsis. The majority of hospitalized cases were in the Infectious Pediatric Service. The highest number of cases belongs to the Tirana district with 69.44%. The most frequent diagnosis is bacteremia with 39.33% of cases. The months with the highest number of hospitalizations with bacteremia and sepsis are February, June, and November. The most frequently hospitalized age group was 1–4 years. The average age of hospitalized children is 2.9 years. Males dominate with 54.61% of cases. The minimum hospital stay is 1 day and the maximum is 47 days, with an average stay of 8.59 days. The type of pathogen, younger age, and presence of comorbidities increase the duration of hospital stay. Positive cultures were found in 14.83% of the studied sample. Among the 445 total cases studied, there were also cases of death, belonging to the Intensive Care Service (5.84%).

Conclusion: Bacteremia and Sepsis remain a daily challenge in the work of the general pediatrician. The identification of epidemiological and demographic data such as age, gender, place of residence, seasonality, or culture positivity is an added help in timely diagnosis and treatment of these infections, thus reducing their spread and avoiding complications.

Key words: bacteremia, sepsis, epidemiology, demography, positive culture.

Epidemiological Data of Acute Poisonings in Pediatric Age in 2023

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Introduction: Acute poisonings in pediatric age are frequent among the cases presented to the emergency department and in the General Pediatrics ward.

Objective of the study: To present the frequency, etiology, and management of acute poisonings in pediatric age in order to take appropriate measures and timely interventions to prevent the adverse effects of toxic substances.

Method: This is a retrospective study that analyzes the epidemiology of acute poisonings in children aged 0–14 years hospitalized in the General Pediatrics service during 2023.

Results: During 2023, 110 cases of acute poisoning were hospitalized in the General Pediatrics service. 80 cases or 66.6% were boys, and 30 cases or 24.4% were girls. The boy-to-girl ratio was 1:2.6. The majority of cases, 50 (41.6%), were aged 2–5 years; 36 cases (30%) were under 2 years old; 7 cases (5.83%) were aged 5–8 years; and 17 cases (14.16%) were over 8 years old. Most cases, 95 (79.16%), were accidental, while 15 cases (12.5%) were suicide attempts. Medications were the most common cause in 75 cases (62.5%), followed by organophosphates in 25 cases (20.83%), household cleaning products in 5 cases (4.16%), pesticides in 3 cases (2.72%), fuels in 1 case (0.9%), and alcohol in 1 case (0.9%). The highest incidence occurred in the summer with 39 presentations (32.5%), and the lowest in winter with 15 cases (12.5%).

Conclusion: Acute poisonings in pediatric age, both accidental and as suicide attempts, are frequent. Medications and organophosphates are the most common causes of acute poisonings. Preventive measures should be taken by educating parents on medication storage and on implementing practices that improve communication between parents and children in preadolescence and adolescence.

Keywords: poisonings, medications, etiology

Acute and Chronic Effects of Nicotine on the Retina: Understanding the Mechanisms of Cellular and Vascular Damage

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Introduction: Nicotine, the main alkaloid of tobacco, negatively affects retinal health through cellular and vascular changes. Acute exposure causes temporary vasoconstriction, oxidative stress, and an immediate inflammatory response, affecting the oxygen and nutrient supply to the retina (Wang et al., 2021).

Method: On the other hand, prolonged exposure causes progressive damage, such as thinning of retinal layers, decreased vascular density, and increased inflammation. These changes may lead to the development of degenerative diseases, such as age-related macular degeneration and vision loss (Patil et al., 2020; Wang et al., 2021).

Results: While some effects of short-term exposure may be reversible, long-term damage is often irreversible (Nita & Grzybowski, 2016). This paper aims to: 1. explain the molecular mechanisms responsible for the toxic effects of nicotine on the retina, and 2. provide a scientific data basis that can assist public health policymakers in promoting a smoke-free environment.

Conclusion: Further studies are needed to better understand the correlation between nicotine exposure and its effect on the retina. Public health efforts should focus on reducing nicotine exposure, especially considering the rise in the use of electronic cigarettes.

Keywords: nicotine, retina, macular degeneration, inflammation, oxidative stress, acute, chronic

Trends in Ischemic Heart Disease New Cases in Albania: A Comparison of Age Groups in 2018 and 2022 Post-COVID

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Introduction: Cardiovascular diseases (CVD) remain the leading cause of morbidity and mortality globally. In Albania, they are among the most common pathologies diagnosed and the primary cause of death. Since 2017, the healthcare system has reported all new cases of ischemic heart disease (IHD), allowing for the assessment of IHD risk and the statistical analysis

Aim: This study aims to assess the change in age distribution in new cases of IHD in 2022 compared to 2018 in Albania, and to identify differences between age groups during these periods.

Materials and Methods: Data were collected from the National IHD Registry, which includes all new reported cases from public and private healthcare services. Statistical analysis was conducted using the Student's "t" test to compare age between the two samples from different time periods.

Results: A total of 11,307 new cases were evaluated, with 29.6% females and 70.4% males. A statistically significant relationship was observed between age and the increase in new cases ($p < 0.001$) and CI 95% [-1.4 -2.37] with SD 11.2 and 52.04 in 2018 and 2022, respectively. The highest increase was observed in the age groups 66-75 and 36-45 years, with an increase of 1.3 and 1.2 times, respectively. It is important to note that the number of IHD cases has increased in younger age groups in the post-COVID-19 period.

Conclusions: The data on new cases of IHD provide an important overview of the situation and can contribute to the improvement of healthcare policies for the prevention of CVD.

Key words: Ischemic heart disease (IHD), age distribution, statistical analysis.

Biomolecules with Regenerative Potential for Periodontal Tissues – Growth Factors, Melatonin, and Hyaluronic Acid

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Introduction: The regeneration of periodontal tissues takes on particular importance given the high prevalence of periodontopathies in the adult population and, consequently, the need to prevent early tooth loss. Although the periodontium inherently possesses high regenerative capabilities, the regenerative process is complex and challenging in clinical practice. Current clinical applications include the use of autologous and allogeneic grafts aimed at regenerating periodontal tissues but with biological and economic costs for the patient.

Objective: To recognize and identify the potential use of biomolecules with regenerative potential for periodontal tissues.

Method and Results: In our presentation, based on literature review, we evaluate the regenerative potential of biomolecules such as growth factors, melatonin, and hyaluronic acid. The evaluation criteria include osteogenic potential in the healing process of periodontal bone and soft tissues, as well as their method of application, either local or systemic.

Conclusions: The use of these biomolecules may significantly improve the regeneration of periodontal tissues and reduce the treatment costs for patients.

Keywords: growth factors, melatonin, hyaluronic acid, periodontal regeneration, biomolecules

Periodontitis and Vitamin D Supplementation in Clinical Trials, A Literature Review

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Introduction: Periodontitis is a chronic inflammation of the gums initiated by microbial microorganisms which lead to the destruction of supporting tissues up to the loss of teeth. It remains a major concern for global health. Statistics show that around 3.69 billion people are affected by oral diseases, including advanced periodontitis which affects around 743 million individuals worldwide. Vitamin D plays a vital role in maintaining oral health. It is involved through various mechanisms in calcium absorption and in various immune functions. In the absence of vitamin D, various oral pathologies are observed, including periodontitis, dental caries, oral infections, and even oral cancers.

Materials and Method: A comprehensive search of articles was conducted in the PUBMED and MEDLINE databases regarding vitamin D and periodontal disease. The search terms were (vitamin D supplementation) AND (periodontal disease) AND (clinical cases). 43 articles were selected as the most relevant. The aspects evaluated were: a) the effect of vitamin D supplementation on periodontal health, and b) the relationship of 25(OH)D and $1,25(OH)_2D_3$ with the aggravation of periodontal disease, its progression, and tooth loss.

Results: Clinical trials conducted in various studies do not reach the same conclusion. One reason is related to the fact that the patients were not vitamin D deficient at the time of the study. Other studies conclude that vitamin D supplementation has multiple benefits for humans by reducing systemic inflammation and consequently periodontal parameters as well.

Conclusion: More clinical evidence is needed to evaluate the intake of vitamin D (placebo-controlled) together with mechanical therapy, especially in populations with vitamin D deficiency and higher risk of periodontal diseases. To draw clearer conclusions, controls are also needed on the doses of vitamin D intake which in most cases have been minimal and with no evident effect on oral periodontitis.

Keywords: periodontal disease, vitamin D supplementation, oral health, systemic inflammation

Implications of the Reproductive System During Human Toxoplasmosis

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Introduction: Toxoplasmosis is an infection caused by the parasite *Toxoplasma gondii*, which can have significant effects on the reproductive system, especially in pregnant women and immunocompromised individuals. Infection during pregnancy may cause transplacental transmission, resulting in congenital toxoplasmosis.

Method: The aim of this presentation is to provide an overview of clinical experience and literature data regarding the implications of human toxoplasmosis on the reproductive system. For the purpose of this study, a search of publications in PubMed, Google Scholar, and Medline will be conducted.

Results: Studies suggest a link between chronic toxoplasmosis infection and reduced fertility in both women and men. Some studies indicate that toxoplasma infection may affect the menstrual cycle and cause ovulation disorders. Risks for the fetus include spontaneous abortion, premature birth, microcephaly, hydrocephalus, neurological damage, and retinitis. Infection during the first trimester is more dangerous but less common, whereas transmission in the third trimester is more frequent, but symptoms tend to be milder.

Conclusion: Toxoplasmosis may have serious consequences for reproductive health, particularly in pregnant women and couples trying to conceive, requiring a careful diagnostic and preventive approach.

Keywords: Toxoplasmosis, reproductive system, congenital infection, fertility, pregnancy complications, transplacental transmission

Fusobacterium Nucleatum and Chemoresistance in Colorectal Cancer: A Meta-Analytical Review

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Introduction: Fusobacterium nucleatum (F. nucleatum) is an anaerobic bacterium, and its burden is reported to correlate with diminished chemotherapy efficacy in colorectal cancer (CRC).

Methods: We systematically searched and evaluated the existing literature on the role of F. nucleatum in contributing to chemoresistance among CRC patients. A comprehensive search of major biomedical databases such as PubMed, Scopus, and Web of Science was conducted up to December 2024. Our selection criteria included studies that (i) assessed F. nucleatum abundance in CRC tumors, (ii) involved patients undergoing chemotherapy, and (iii) reported clinical endpoints including response rates, recurrence-free survival (RFS), or overall survival. 2,280 CRC patients from seven studies met the inclusion criteria.

Results: Across these studies, elevated F. nucleatum levels were consistently associated with poorer therapeutic responses and reduced RFS. Mechanistic investigations proposed multiple pathways by which F. nucleatum promotes chemoresistance: (1) activation of autophagy via the TLR4/MYD88 signaling axis, which lowers apoptotic activity; (2) modulation of microRNA expression—particularly the downregulation of miR-18a and miR-4802 that target autophagy-related genes; and (3) induction of inflammatory responses that foster a tumor-promoting microenvironment.

Conclusions: Our results suggest that F. nucleatum has both a potential prognostic and a promising therapeutic target role, and it may enhance risk stratification and treatment personalization.

Keywords: Fusobacterium nucleatum, colorectal cancer, chemotherapy, chemoresistance, inflammation, biomarkers, anatomical pathology, personalized therapy

Personalized Galenic Preparations in the Pharmaceutical Treatment of Androgenic Alopecia: The Combination of Minoxidil, Finasteride, and Spironolactone

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Introduction: Alopecia, especially androgenic alopecia, is a progressive disorder affecting both men and women, causing gradual hair loss due to the impact of androgenic hormones on hair follicles. Pharmacological treatment is based on the use of Minoxidil, Finasteride, and Spironolactone, which act by different mechanisms to slow hair loss and stimulate their regeneration. Combined galenic formulations may be a good treatment alternative, as through them it is aimed to improve clinical efficacy and reduce side effects from systemic medication.

Methodology: This study examines the pharmaceutical approach to treating alopecia through topical galenic formulations by combining Minoxidil 2-5%, Finasteride 0.1-0.5%, and Spironolactone 2-5% in different pharmaceutical forms such as solution, gel, foam for topical application. The drug's efficacy will depend on the absorption of the pharmaceutical form, which depends on the solvent, molecular weight, lipophilicity, as well as the condition of the scalp. The analysis focuses on the advantages of personalizing the pharmaceutical form depending on the case, gender, and on determining pharmaceutical forms with maximal absorption and higher tolerance (less irritating) for the scalp.

Results and Discussion: The use of combined galenic preparations shows many advantages in the management of alopecia. Minoxidil increases microcirculation and stimulates the anagen phase of hair growth. Finasteride inhibits the type II 5-alpha reductase enzyme, which regulates DHT production in the scalp. Spironolactone has an antiandrogenic effect, especially in female patients. The combination of these active principles in a single, personalized galenic formulation offers higher clinical efficacy for patients who have not benefited from monotherapy and reduces side effects from systemic therapy. Minoxidil + Finasteride is an effective combination in men and in specific cases of female patients with high DHT. Minoxidil + Spironolactone is an effective combination in females and in male patients who show side effects from using Finasteride.

Conclusion: Combined galenic preparations present a promising strategy and a missing alternative in our pharmaceutical market for the treatment of alopecia, thus allowing therapy individualization and reduction of systemic side effects. Further research is needed to standardize these formulations and determine optimal dosages to achieve maximal results.

Keywords: Alopecia, Androgenic Alopecia, Minoxidil, Finasteride, Spironolactone, Galenic Formulations, Pharmacological Treatment, Pharmaceutical Approach

Epidemiological Situation of COVID-19 in Albania during the Period March – December 2020

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Introduction: The SARS-CoV-2 pandemic, which emerged in Wuhan, China at the end of 2019, had a significant global impact, including in Albania. This study aims to present the epidemiological profile of COVID-19 in Albania during the period March to December 2020, focusing on the dynamics of disease transmission, testing strategies, treatment approaches, and preventive measures implemented. COVID-19 is an acute respiratory illness caused by the novel coronavirus SARS-CoV-2, declared a global pandemic by the World Health Organization in March 2020. In Albania, the first confirmed case was reported on March 9, 2020, and since then, the country has faced considerable challenges in terms of diagnostics, treatment, and virus containment efforts.

Methods: Data were collected from official sources, including the Institute of Public Health (IPH), the Ministry of Health and Social Protection (MoHSP), and the World Health Organization (WHO). This study is based on data collected from the following sources: daily epidemiological reports published by the IPH; official data from the MoHSP; and RT-PCR testing protocols validated by the European Centre for Disease Prevention and Control (ECDC) and WHO. Key epidemiological indicators were analyzed, including the number of confirmed cases, total tests conducted, positivity rate, mortality rate, and hospital admissions. RT-PCR testing was the standard diagnostic method used to detect viral RNA, and data analysis was performed on a monthly basis and focused on patterns of transmission across the population.

Results: The results indicate a progressive increase in confirmed cases, with a marked surge during the months of October to December. By the end of December 2020, Albania had recorded over 55,000 confirmed cases of COVID-19 and more than 1,100 related deaths. RT-PCR remained the cornerstone of diagnostic testing throughout the period, while a significant increase in cases was observed during the autumn months, with peak transmission in November and December. Initial containment measures, including lockdowns and bans on public gatherings, were effective in managing the first wave, whereas during the second wave, shortages of human resources and logistical infrastructure were evident.

Conclusions: The findings suggest that early response efforts and strict public health interventions were effective in the initial phase, although sustained strengthening of the surveillance system and multisectoral coordination are essential for managing future public health emergencies. Albania responded swiftly during the early phase of the pandemic with strict containment measures, and diagnostic testing and active case tracing were fundamental components of the national response. While vaccination represents a critical tool for future control, it must complement, not replace, core preventive strategies such as testing, isolation, and public health education.

Keywords: COVID-19, SARS-CoV-2, Albania, epidemiology, RT-PCR, testing, preventive measures, incidence.

Artificial Intelligence in the Early Detection of Diabetic Retinopathy: A Game-Changer in Ophthalmic Screening

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Introduction: Diabetic retinopathy (DR) is a leading cause of preventable blindness worldwide, affecting over 500 million individuals. Despite its preventability, timely screening remains a significant challenge due to limited access to specialized care, especially in underserved regions. The increasing global prevalence of diabetes necessitates scalable, accurate, and accessible diagnostic solutions.

Aim: This review explores the transformative role of artificial intelligence (AI), particularly deep learning algorithms, in the early detection of DR. It examines recent advancements, evaluates the performance of AI models, and discusses their potential to revolutionize ophthalmic screening practices.

Methods: A comprehensive analysis of literature and clinical data from the past five years was conducted, focusing on AI models utilized in retinal image analysis. Key performance indicators such as sensitivity, specificity, and real-world applicability were assessed to determine the effectiveness of these AI systems in diverse healthcare settings.

Results: AI systems such as IDx-DR and Google's DeepMind have achieved diagnostic accuracies comparable to human experts. Their integration in primary care and remote settings enhances early detection.

Conclusion: AI-powered screening represents a significant advancement in the fight against DR-related blindness, offering a scalable solution to a global health challenge. While AI can substantially aid in diagnosis, human oversight remains crucial to ensure ethical practices and patient safety. Continued research and development are essential to refine these technologies and expand their accessibility, particularly in low-resource settings.

Keywords: Diabetic retinopathy, artificial intelligence, deep learning, early detection, ophthalmic screening, FDA approval, telemedicine, portable diagnostics.