

EPIDEMIOLOGICAL CHARACTERISTIC OF THE ACUTE REACTIVE ARTHRITIS AS A COMPLICATION OF THE STREPTOCOCCAL INFECTION DURING 2000-2010 IN THE DURRES REGION

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Abstract

Infectious arthritis is an inflammation of the joints, on the level of the articulation space, caused by various factors. The most common factor is the bacterial and viral infection, mainly with origin from the throat, and the streptococcal infections is encountered in 9% of cases. The most affected group from the infectious arthritis are both children and young people which are more likely to be affected by tonsillitis and pharyngitis.

Objective: 1. The illustration of arthritis reactive, post streptococcal (PRSA) as a complication of streptococcal infection. 2. Investigating the social and demographic structure of the affected population. 3. Identifying population groups at high risk for the development of the disease.

Material and methods: The study has been design as transversal one in where all the patients with PRSA and positive for streptococcus beta haemolytic group A were included on the study. The data source was the file of the inpatients on the pathology and infectious disease in the regional Hospital of Durres during the period 2000-2010. The data consists of age, sex, residence, profession, the hospitalisation length of stay and season of the PRSA occurrence.

Results: PRSA makes up for about 9% of acute SA. The disease affects predominantly males, in every season of the year, mostly children and young adults, in urban population and among workers.

Conclusion: PRSA appears several days after different streptococcal infections like angina, pharyngitis. Population density is an important environmental factor, as it augments infection's transmission. Its early diagnosis and treatment can prevent the arising of complications such as

rheumatic fever, the prevention of which depends upon the prompt and efficacious diagnosis and treatment of streptococcal infections.

Key words: infectious arthritis, post streptococcal, epidemiology.

Introductions

Infectious arthritis is an inflammation of the joints, on the level of the articulation space, caused by various factors. The most common factor is the bacterial and viral infection, mainly with origin from the throat, and the streptococcal infections are encountered in 9% of cases.

The pathogenic microbes can cause an arthritis in both way, firstly by direct inoculation and secondly by haematogenous spread of infection. In the second way, the synovial covering, very vasculated, is invaded by these pathogens, which through the blood and lymphatic system, are located on the joint and consequently they affect the onset of disease.

The most affected group from the infectious arthritis are both children and young people which are more likely to be affected by tonsillitis and pharyngitis. One of the post streptococcal infection is the acute rheumatic fever (ARF) defined as an infection caused mainly by streptococcus and characterised by clinical symptoms such as: migratory polyarthritis which affects typically the big joints of lower extremities and is often symmetric (1). ARF is diagnosed based on the Jones Criteria, including: pancarditis, migratory polyarthritis of the big joints, subcutaneous nodules, erythema marginatum and chorea minor (2).

To diagnose a patient with ARF, it is necessary to find at least two major or three minor signs, where are including arthralgia, fever and increasing of erythro sedimentation rate or fourfold increasing of ASO. Usually, this type of infections is onset after one month from the initial infections of tonsil pharyngitis. The situation is different in case of acute post streptococcal reactive arthritis (PSRA) which is appeared 7-10 days after tonsil pharyngitis, with arthralgia of all the joints, mostly on small joints, associated with pain and swelling of joints and the increasing of ESR and ASO (3,4). The treatment with antibiotics and non steroidal anti-inflammatory is efficacy in most of the case.

In this type of arthritis (PSRA), all the joints are affected equally. In the most of the case, the cause for the onset of the PSRA are the viral and microbial infections and thus the most affected group are patients who suffer more from the streptococcal tonsillitis, have a low immune system, have had a trauma or suffer from TB (5,6).

The streptococcal tonsillitis is the main cause on the onset of the disease. The presence of the pathogens, often the streptococcus and staphylococcus, expose the patients who suffered from tonsillitis in high risk for development of infectious arthritis. This happen due to the possibility of pathogen to locate in the joint and to inflame them (5,6).

If the disease is not treated properly or on time, it may happen that the infection located in the joint can move to heart through the blood and lymphatic system and as a consequence a range of severe complications are appeared and the patient conditions is aggravated.

Diagnosis

The simple infectious arthritis is completely recovered if they have been treated properly. Meanwhile, in the complicated case of ARF, a longer treatment is needed based on the type of the complications of the disease (7, 8). The infectious arthritis can occur during all seasons of the year and the climatic features of the seasons frequently affect the onset of the infectious arthritis.

Treatment

Usually, the treatment of infectious arthritis (AI) is consist of antibiotic with high doses and non-steroidal anti-inflammatory drug where the first

choice for the antibiotics is penicillin for 10 days and in case of anaphylaxis the antibiotics of choice are cephalosporin or macrolide. In case of ARF, the treatment is more extended and consists of the antibiotics against the initials infection and aspirin. It has been proved that aspirin is very effective in case of ARF treatment. In addition, the patient is advised to rest in bed and to avoid the cold air stream (9).

Prevention

As a multifactor disease, the prevention of infectious arthritis should include several general measures. Strengthening of the immune system, dressing according to the seasons and avoiding staying in the cold air stream are some of the general advised measures for the prevention from the tonsillitis and other bacterial infections. Another important measure is performing of antibiogram which will enable the identification of the pathogen and its eradication. The bacterial infections are the main cause of the infectious arthritis (9).

Aim of study

The aim of the study is to describe the epidemiological characteristics of PRSA as a complication of streptococcal infections from the clinical and social perspective in order to help the health professionist on their early prevention and detection.

Objective

1. To describe the epidemiological characteristic of the PRSA on Durres Regional Hospital during the period of 2000-2010.
2. To describe the trend of PRSA rate and the hospitalisation length of staying over the last decade.
3. To describe the biochemical characteristics of the PRSA on Durres Regional Hospital during the period of 2000-2010.

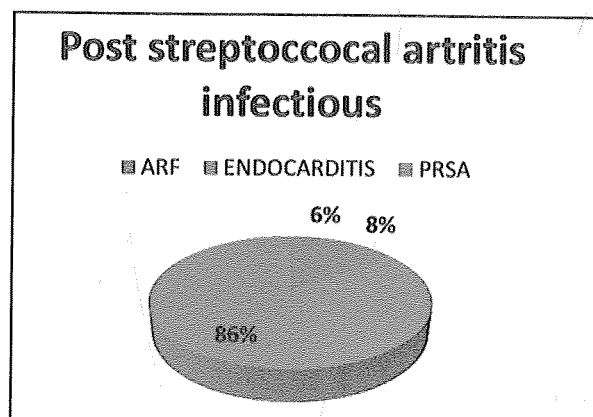
Materials and methods

The study has been design as transversal one in where all the patients with PRSA and positive for streptococcus beta haemolytic group A was included on the study. The data source was the file of the inpatients on the pathology and infectious disease in the regional Hospital of Durres during the period 2000-2010. The data consists of age, sex, residence, profession, the hospitalisation length of stay and season of the PRSA occurrence. In addition, the data on laboratory test such as blood test and

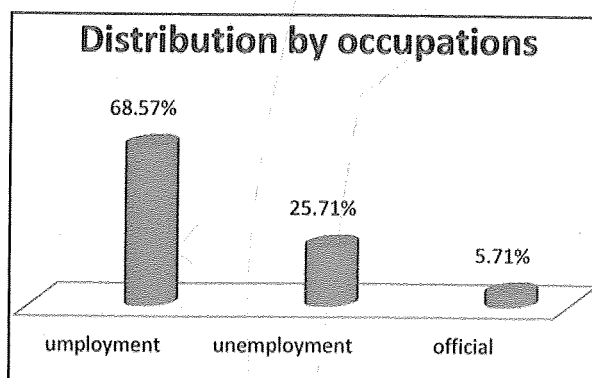
antistreptolisin titres (ASO) are collected. The data are analysis in the SPSS 16.

Results

In our study, we found 35 cases with post streptococcal infectious arthritis in the graph nr.1 presented all the cases with the post streptococcal arthritis infectious, 2 cases were diagnosed as acute rheumatism fever (ARF), 3 cases as post streptococcal endocarditic and 30 cases were diagnosed as post streptococcal reactiv arthritis (PRSA).



Graph nr.1 The cases of the post streptococcal infectious arthrititis



Graph nr.2

Table nr. 2

Occupations	number	%
employment	22	68.57%
unemployment	10	25.71%
official	3	5.71%
Total	35	100 %

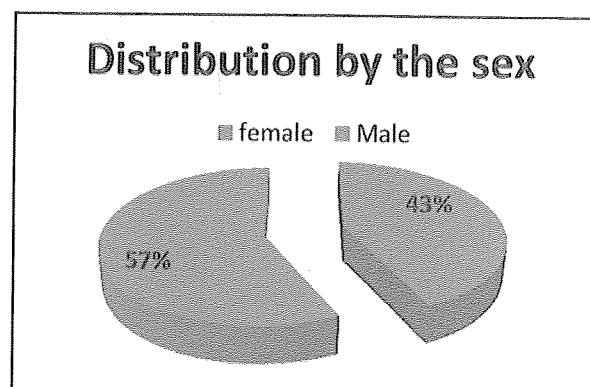
Graph nr.2, Table nr. 2 Distributions infections by occupations.

The patients were divided according to the status of employment and type of employment (employment, unemployment, official or worker). Unemployed patients were 22 cases (68.57%)

versus 10 cases (25.71%), unemployed; and among the officer 3 cases (5.71%). The youth and working age group, which are living and working in condition with many people, where the possibility of the pathogen circulation is higher, are more affected. This is related to the fact that the higher number of cases belong to the group of employed (22 cases) followed by the group of unemployed (10 cases) and official (3 cases) (6). Regarding the variable of age, the mean age is 30.2 ± 7.16 . The most prevalent age group is the 18-30 years with 40%.

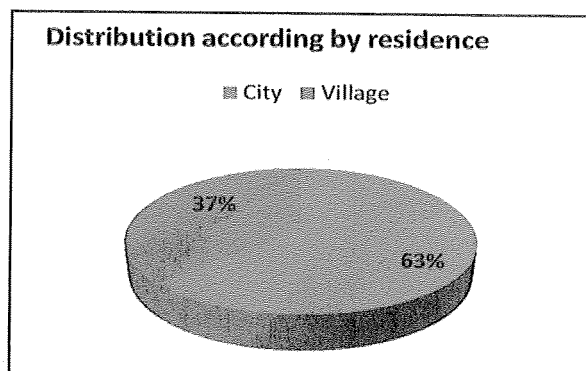
Table nr.3

Sex	Nr of cases	%
Female	15	42.86
Male	20	57.14
Total	30	100%



Graph nr.3

In the table nr. 3 and graph nr.3, it is presented distributions the PRSA regarding the sex. More frequent among male than female 57.14% versus 42.86% ; So our findings on the epidemiological picture show asimilarity with literature findings, i.e. gender plays an important role in the epidemiology of the infection (10,11). Even this result can be explained with a greater exposure of men to working environments, by various contacts with the infectious, more often attendance indoors where the incidence of infection is greater (10).

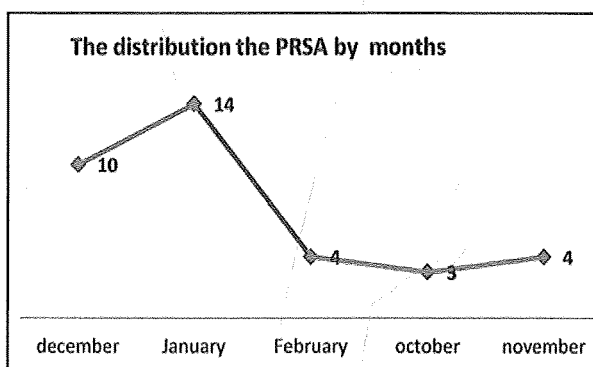


Graph nr.4

In the graph nr.4 show it is the PRSA is more frequent among the urban population compared to the rural populations which can be explained with the high risk of the urban population to work and live in the closed environment compared to the rural population. In closed and crowded location, the possibility of the infection circulation is higher and risk of infection is higher (10,12). The disease is more distributed in urban area 22 cases (63%) than rural area 13 cases (37%).

Table nr.5

Months	Nr of cases
December	10
January	14
February	4
October	3
November	4
Total	35



Graph nr.5

In the table nr.5 and graph 5, it is shown, that ARF is usually occurs during the cold months of winter and is more common during the winter than autumn, a time where the streptococcal infections are more frequently.

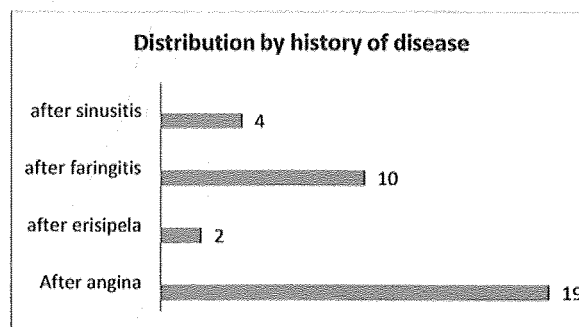
Variable	erythrocyte	leucocytes	ASO	Fibrinogen	Day st, hospital
Mean	3838572.86	17700	632.86	492.86	8.69
SD	214232.19	886.83	58.99	35.86	1.08

Table nr.6

In the table nr.6, presented all the patients, there is an increasing of value the biochemical test such as ASO, white blood cells (leucocytosis), and decreasing of level of erythrocyte manifested with light anaemia. In the study were obviously cleared that the length of staying in hospital has been reduced through the years, a trend which can be explained with the adequate using of the antibiotics (of a high sensibility and based on the results of antibiogram) (9). Day stay in hospital was 8.69.

Table nr.7

Anamnesis	Nr of cases	%
post angina	19	54.29
post erisipelas	2	5.71
post pharyngitis	10	28.57
post sinusitis	4	11.43
Total	35	100



Graph nr.6 and table nr.6, Distribution by anamnesis

Discussion

In our study, we found 35 cases as post streptococcal infectious arthritis, from which 2 cases are diagnosed as ARF, 3 cases as post streptococcal endocarditis and 30 cases as post streptococcal acute reactive arthritis (PSRA). In the group of ARF, the arthritis is defined as acute, polyarthritis one, usually symmetric and mainly affect the big joints of lower extremities (1,2).

ARF is diagnosed based on Jones Criteria which include: pancarditis, migratory polyarthritis of big joints, subcutaneous nodule, marginatum erythema and Chorea minor (2,3). The other indicators of the

infection were the increasing of anti-streptolysin titre ASO and erythro-sedimentation rate (3,4). All the cases diagnosed with endocarditis have developed vegetation of the mitral valves.

Among the patients diagnosed with post streptococcal acute arthritis, it was found tendosinovitis on 7 cases, arthralgia of dorsum and pedi sinister on 6 case and palmus tendonitis flexor on 5 case. PSRA affected both male and female equally and all the age, but the most affected group age is 21-40 a characteristic which is different from ARF in where the children have the high incidence

(10,14). The geographical distribution of cases indicated more the bias on data reporting process rather than the real situation. However, the disease is more frequent among patients of urban area and among the workers (10). This can be explained by the fact that infection can spread and develop easier among the collective (15). The study indicated that PSRA in 90% of the cases is appeared after tonsil pharyngitis and is onset in average after 10 days of the initial infection (6). In 85% of cases, the patients have been diagnosed as carrier of streptococcal beta haemolytic of group A in the antibiogram of throat sample and in three cases in haemocultures. The other patients have diagnosed with streptococcal of group B or C. The treatment of the patients has consisted of antibiotic, based on the antibiogram results, for 10 days (16). After the treatment, the cases of PSRA and the relapses are reduced. The treatment with antibiotic has been associated with non-steroidal anti-inflammatory drugs (9).

Conclusion

Post streptococcal reactive arthritis is appeared a few days after a streptococcal infection such as tonsillitis or pharyngitis (6,17). Streptococcal beta haemolytic of group A is the most frequent pathogen (3). The density of population is an important environment factor which enables the infections spreads. The sex does not affect the onset or distribution of the disease. The PSRA can happen during all the seasons, but usually it match the seasonal variations of the streptococcal infection (9).

The early detection and treatment enables prevention of the complication such as acute rheumatic fever (18). The prevention of AFR depends on significantly the early identification of the streptococcal infections and the efficient treatment of the initials infection.

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