

A Comprehensive Review of Epidemiology, Risk Factors, Classification, Diagnosis, and Therapeutic Strategies of Thyroid Cancer

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Abstract

Thyroid cancer was the most common malignancy of the endocrine system worldwide in 2022. While its prognosis is generally favorable, with a 5-year survival rate of 98.4%, thyroid cancer remains a complex condition with various histological subtypes and evolving treatment strategies. The disease predominantly originates from follicular or parafollicular cells and includes differentiated, anaplastic, and medullary thyroid cancers. Genetic factors, environmental exposures like radiation, and autoimmune conditions are recognized as key risk factors. The diagnosis and management of thyroid cancer have been greatly enhanced through advanced imaging, fine needle aspiration biopsy, and molecular testing. However, challenges persist in

determining the optimal surgical and adjuvant therapies. The introduction of the updated 2022 WHO classification of thyroid neoplasms provides more precise categories for tumor types and incorporates molecular data for better diagnosis and treatment planning. This review discusses epidemiology, risk factors, diagnostic approaches, staging, and treatment strategies for thyroid cancer, with an emphasis on the role of genetics and the evolving therapeutic landscape.

Keywords: Thyroid cancer, TIRADS, genetic mutations, Fine Needle Aspiration Biopsy