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Archives in Cancer Research

2021
Vol.9 No.S3:e003

Advanced Diagnosis and Treatment of Thyroid Cancer

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Citation: Altundag K. Advanced Diagnosis and Treatment of Thyroid Cancer. Arch Can Res Vol.9 No. S3: e003.

Introduction

Thyroid cancer occurs in the cells of the thyroid is a butterfly-shaped gland located at the base of your neck, just below your Adam's apple. Your thyroid produces hormones that regulate your heart rate, blood pressure, body temperature and weight. Thyroid cancer might not cause any symptoms at first. But as it grows, it can cause pain and swelling in your neck. Several types of thyroid cancer exist. Some grow very slowly and others can be very aggressive. Most cases of thyroid cancer can be cured with treatment. Thyroid cancer rates seem to be increasing. Some doctors think this is because new technology is allowing them to find small thyroid cancers that may not have been found in the past.

Symptoms

Thyroid cancer typically doesn't cause any signs or symptoms early in the disease. As thyroid cancer grows, it may cause: A lump (nodule) that can be felt through the skin on your neck. Changes to your voice, including increasing hoarseness. Difficulty swallowing. Pain in your neck and throat. Swollen lymph nodes in your neck.

Causes

Thyroid cancer occurs when cells in your thyroid undergo genetic changes (mutations). The mutations allow the cells to grow and multiply rapidly. The cells also lose the ability to die, as normal cells would. The accumulating abnormal thyroid cells form a tumor. The abnormal cells can invade nearby tissue and can spread (metastasize) to other parts of the body.

Thyroid cancer is classified into types based on the kinds of cells found in the tumor. Your type is determined when a sample of tissue from your cancer is examined under a microscope. The type of thyroid cancer is considered in determining your treatment and prognosis. The most common form of thyroid cancer, papillary thyroid cancer arises from follicular cells, which produce and store thyroid hormones. Papillary thyroid cancer can occur at any age, but most often it affects people ages 30 to 50.

Follicular thyroid cancer also arises from the follicular cells of the thyroid. It usually affects people older than age 50. Hurthle cell cancer is a rare and potentially more aggressive type of follicular thyroid cancer. Anaplastic thyroid cancer is a rare type of thyroid cancer that begins in the follicular cells. It grows rapidly and is very difficult to treat. Anaplastic thyroid cancer typically occurs in adults age 60 and older. Medullary thyroid cancer begins in thyroid cells called C cells, which produce the hormone calcitonin. Elevated levels of calcitonin in the blood can indicate medullary thyroid cancer at a very early stage. (Figure 1)

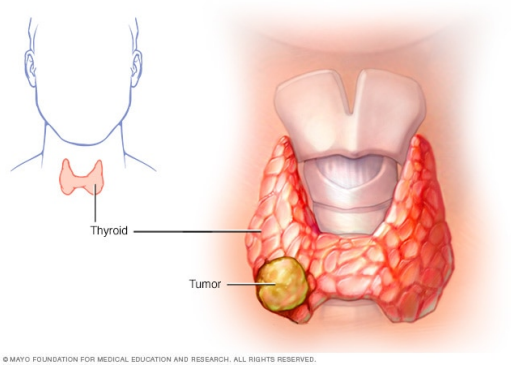

Figure 1: Symptoms and causes of Thyroid Cancer

Risk factors

Factors that may increase the risk of thyroid cancer include: Female sex Thyroid cancer occurs more often in women than in men. Exposure to high levels of radiation. Radiation therapy treatments to the head and neck increase the risk of thyroid cancer. Certain inherited genetic syndromes Genetic syndromes that increase the risk of thyroid cancer include familial medullary thyroid cancer, multiple endocrine neoplasia, Cowden's syndrome and familial adenomatous polyposis.

Complications

Despite treatment, thyroid cancer can return, even if you've had your thyroid removed. This could happen if microscopic cancer cells spread beyond the thyroid before it's removed.Thyroid cancer may recur in: Lymph nodes in the neck. Small pieces of thyroid tissue left behind during surgery. Other areas of the body, such as the lungs and bones

Prevention

Doctors aren't sure what causes most cases of thyroid cancer, so there's no way to prevent thyroid cancer in people who have an average risk of the disease.Adults and children with an inherited gene mutation that increases the risk of medullary thyroid cancer may consider thyroid surgery to prevent cancer (prophylactic thyroidectomy). A medication that blocks the

effects of radiation on the thyroid is sometimes provided to people living near nuclear power plants. The medication (potassium iodide) could be used in the unlikely event of a nuclear reactor accident.