

Short Communication

Autoimmune Thyroid Diseases: Hashimoto Thyroiditis

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Keywords: antithyroid peroxidase, Hashimoto thyroiditis, autoimmune disease, hyperthyroidism, Polyglandular Autoimmune Syndrome

Abstract :

Hashimoto thyroiditis, also known as chronic autoimmune thyroiditis and chronic lymphocytic thyroiditis, is an autoimmune disease in which thyroid cells are destroyed via cell and antibody-mediated immune processes. It is the most common cause of hypothyroidism in developed countries. In contrast, the most common cause of hypothyroidism worldwide is an inadequate dietary intake of iodine. The pathophysiology of Hashimoto thyroiditis involves the formation of antithyroid antibodies that attack the thyroid tissue, causing progressive fibrosis. The diagnosis can be challenging, and consequently, the condition is sometimes not diagnosed until late in the disease process.

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Introduction

Autoimmune thyroid diseases (AITD) are T-cell-mediated organ specific autoimmune disorders, deriving from an altered response of the immune system that leads to the immune attack to the thyroid. Hashimoto's thyroiditis (HT) and Graves' disease (GD) are the two principal AITD clinical presentations. Hypothyroidism and thyrotoxicosis are, respectively, the clinical hallmarks of HT and GD. Patients with autoimmune thyroiditis are treated daily with synthetic L-thyroxine (L-T₄) at the dose of 1.5–1.7 µg/kg. Various L-T₄ formulations are commercially available (tablet, liquid solution, or soft gel capsule). L-T₄ in tablets is generally prescribed to treat hypothyroidism, whereas the liquid formulation, or soft gel capsules, can be administered in hypothyroid

patients in case of malabsorption or in patients in therapy with drugs interfering with L-T₄ absorption. Furthermore, myoinositol has a crucial role in thyroid autoimmunity and function. Clinical studies reported a significant decline in TSH and antithyroid autoantibodies levels after treatment with myoinositol + selenium in patients with subclinical hypothyroidism and autoimmune thyroiditis.

Autoimmune thyroiditis (AT) and Graves' disease (GD) are the main autoimmune thyroid disorders (AITD), which are the most common autoimmune disorders are distinguished by the breakdown of tolerance of the immune system against the thyroid. GD and AT are clinically characterized by thyrotoxicosis and hypothyroidism, respectively, by infiltrative autoreactive lymphocytes in the gland and the presence of serum antithyroid autoantibodies.

Genetic susceptibility And Environmental Factors Genetic Susceptibility

Different observations are at the basis of the genetic susceptibility to AITD: (1) the familial clustering (25% of AITD in siblings of AITD subjects); (2) AITD sibling risk ratio of ~17; and (3) a strong prevalence of ATA in siblings of AITD patients.

Of particular interest, 7/11 known susceptibility genes are involved in the role of T cells, suggesting their importance in the immune-pathogenesis of, even if chronic AT can occur in the absence of serum. A case-control retrospective study enrolled 55 patients with serum negative chronic AT and 110 patients with chronic AT. Patients with serum negative chronic AT had significantly lower mean TSH levels, higher mean FT₄ levels, comparable FT₃ levels, and a significantly

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lower mean thyroid volume vs patients with chronic AT.

Environmental Factors

In iodine sufficient areas, hypothyroidism is due mainly to HT. A lower AITD prevalence is shown in iodine-deficient areas, whereas an exaggerated iodine intake is associated with a higher AITD prevalence.

Levothyroxine Tablets Malabsorption

L-T4 tablets are usually taken before breakfast. It has been shown that the assumption of L-T4 10 min before coffee in the morning reduces its absorption. A prospective, open-label, randomized, cross-over study compared the L-T4 administration during fasting with that during breakfast.

Novel Oral Levothyroxine Formulations

Refractory hypothyroidism and the need to increase the “normal dose” of L-T4 has led to the development of new L-T4 preparations, soft gel capsule and the liquid formulation.

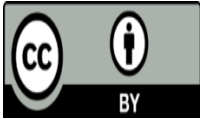
Conclusion

HT, the most frequent AITD, is the leading cause of hypothyroidism in the iodine-sufficient areas of the world. It is more common in women than in men (about 4–10 time), and it has an age-related frequency. The cause of HT is a combination of genetic susceptibility and environmental factors that causes the loss of immunological tolerance.

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