AUTOIMMUNE THYROID DISEASE

Immune Mediated Thyroid Disorders

In autoimmune thyroid disease (AIDT), the immune system mistakenly launches an immune response against the cellular components of the thyroid gland. Autoimmune thyroid disorders include Hashimoto’s thyroiditis, Graves’ disease, Hashitoxicosis, atrophic thyroid failure, and thyroid lymphoma. Hashimoto’s thyroiditis and Graves’ disease account for the majority of all cases of AITD.

In Hashimoto’s thyroiditis, the immune system produces thyroglobulin antibodies and immune system chemicals known as cytokines, which destroy thyroid follicular cells. Over time, this cell loss results in a loss of thyroid function.

In Graves’ disease, the immune system produces stimulating TSH receptor antibodies (also known as thyroid stimulating immunoglobulins or TSI) that stimulate thyroid cells, ordering them to grow, increase in size, and produce excess thyroid hormone. Thyroglobulin antibodies may also be seen in Graves’ disease although their titers are considerably lower than those seen in Hashimoto’s thyroiditis.

In both Hashimoto’s thyroiditis and Graves’ disease, the immune system can also produce thyroid peroxidase (TPO) antibodies, which are considered to be markers of inflammation.

Disease Course

It’s not unusual for individuals to have different autoimmune thyroid conditions at different times in one lifetime. And while Graves’ disease is a condition of autoimmune hyperthyroidism, nearly all patients experience an initial period of hypothyroidism before hyperthyroidism develops. Similarly, patients with Hashimoto’s thyroiditis, a condition of hypothyroidism, often develop transient periods of hyperthyroidism as destroyed thyroid cells spill their reservoirs of thyroid hormone into the bloodstream.

Transient conditions of Hashitoxicosis can occur in patients who move between Hashimoto’s thyroiditis and Graves’ disease. In Hashitoxicosis, patients with Hashimoto’s thyroiditis produce the stimulating TSH receptor antibodies that cause hyperthyroidism in Graves’ disease. If these patients begin to predominantly produce stimulating TSH receptor antibodies, they go on to develop Graves’ disease.

Patients who have a predominance of blocking TSH receptor antibodies develop atrophic thyroid failure, a condition of progressive hypothyroidism. Lymphoma occurs in patients whose immune systems produce an excessive amount of B lymphocytes within their thyroid glands.

Who is Affected?
Autoimmune thyroid diseases are by far the most common autoimmune disorders, their prevalence in Western countries exceeding 5% of the general population. Graves’ disease is reported to affect about 1.5 percent of the population, and Hashimoto’s thyroiditis affects nearly 3.5 percent of the population. Women are 8-10 times more likely than men to develop autoimmune thyroid disorders. And while people of all ages may be affected, AITD is most likely to occur between the ages of 20-40 years. The risk of developing Hashimoto’s thyroiditis tends to increase with age.

Causes

Autoimmune thyroid disorders are caused by a combination of genetic and environmental factors. That is, individuals with certain susceptibility genes develop autoimmune thyroid diseases when they’re exposed to certain environmental triggers. Known triggers include: low birth weight, iodine excess and deficiency, aspartame, selenium deficiency, pregnancy, lithium, oral contraceptive use, reproductive span, fetal microchimerism, stress, seasonal variation, allergy, smoking, radiation damage to the thyroid gland, and viral and bacterial infections.