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Hashimoto's thyroiditis

What is it?

- Refers to autoimmune destruction on the thyroid gland.

Who is affected?

Most patients are 40-65 years of age. Women affected by Hashimoto thyroiditis outnumber men by a ratio of about 10 to 1. About 5 % of Caucasian individuals are affected. The incidence appears to be increasing.

It can also affect children and teens.

Often a family history of thyroid disease is present, or a history or autoimmune disease in general.

About 10 % of women have positive thyroid antibodies but only about 2-5 % have actual thyroid disease.

What is the cause?

Genetics, environmental and immune factors play a role in this disease. We know that patients with certain genetic backgrounds (HLA DR3 and HLA DR5) are more likely to develop this condition. Polymorphisms in certain immune regulatory genes (CTLA4, etc) also increase the risks as well. Affected patients have lymphocytic infiltration in the thyroid gland as a result of loss of self-tolerance. CD8 T cells contribute to thyroid destruction. Antibodies are also formed - particularly anti thyroglobulin and anti- thyroid peroxidase.

A variety of environmental factors continue to be studied. Past infections may have a role. Vitamin D and selenium continue to be studied but the exact role is not clear. Moderated alcohol consumption seems to reduce the risk of a person developing Hashimoto thyroiditis and the same is true with smoking.

Hashimoto's thyroiditis

What are the symptoms?

Early on in the disease, patients may not have any symptoms at all. Overtime, symptoms may develop and a goiter may develop as well.

Patients can have symptoms of either "hyperthyroidism" or "hypothyroidism". Early on in the course of the disease, hyperthyroidism is not uncommon. The destruction of the thyroid gland leads to release of thyroid hormones into the blood in early stages. This gives symptoms such as fast heart rate, jittery feelings, and loose stools

The condition progresses slowly.

As the disease progresses, hypothyroidism is common. Hypothyroidism gives symptoms such as fatigue, brain fog, dry hair and skin, weight gain, constipation, irregular periods in women, infertility, hair loss, depression, low heart rate.

Not all patients with Hashimoto's have hypothyroidism.

Examination of patients with Hashimoto's disease may show an enlarged painless goiter in the neck.

How is it diagnosed/evaluated?

After a proper history and physical examination, blood tests for TSH, Free T4, anti-TPO and anti-TG will be ordered. Sometimes other thyroid hormones are ordered as well (free T3).

Hashimoto's disease is characterized by painless thyroid enlargement with elevated TSH and elevated TPO antibodies in the absence of a recent history of childbirth.

The presence of anti TPO antibodies is helpful in the diagnosis although some patients do have "antibody negative" Hashimoto's disease. One should also note that anti-TPO antibody levels are thought to be a general marker for autoimmune thyroid disease and not just Hashimoto's disease. The presence of the antibodies helps confirm an autoimmune process is going on in the thyroid gland. Anti-TPO can be positive in several thyroid conditions including Hashimoto's disease, postpartum thyroiditis, subacute viral thyroiditis and so called "silent thyroiditis" (also known as silent sporadic thyroiditis, painless sporadic thyroiditis, subacute lymphocytic thyroiditis). However, when anti TPO levels are quite high – the test is a more specific marker of Hashimoto's disease.

Hashimoto's thyroiditis

Patients with Hashimoto thyroiditis may have diffuse painless enlargement of the thyroid gland. Palpation of the gland is painless. Painful thyroid enlargement may be a feature of infectious thyroiditis, radiation thyroiditis, thyroid trauma, subacute thyroiditis or thyroid hemorrhage.

Patients with anti TPO antibodies are more likely to go on to develop hypothyroidism than those patients with Hashimoto's who do not have thyroid antibodies. Some estimate a rate of 4.3 % per year in those with the antibodies compared to 2.6 % per year in those without. TSH can be repeated yearly.

A thyroid ultrasound is not needed unless there are palpable nodules or pain.

What conditions can be associated with Hashimoto's?

There are associations with gluten intolerance, celiac disease, type 1 diabetes, Graves' disease, vitiligo, alopecia areata, lupus, multiple sclerosis and rheumatoid arthritis. Patients with Hashimoto thyroiditis may be at slightly increased risk of thyroid cancer (papillary thyroid cancer) and thyroid lymphoma.

How is it treated?

If a patient has evidence of hypothyroidism, treatment should be started. Treatment is with levothyroxine, or triiodothyronine or desiccated thyroid.

The goal of treatment is to keep TSH between 1 and 3.0 mIU/L.

Treatment is <u>not</u> needed for those with TSH levels 0.5 to 3 with elevated anti-TPO or anti-TG antibodies. These patients have inflammation in the thyroid but are still making appropriate thyroid hormone levels. They do not need more hormones as their hormones are normal. These patients just need to be followed as 3-5 % will become hypothyroid each year. Treatment is not needed just because someone has elevated thyroid antibodies. TSH levels should be repeated yearly.

There is debate still amongst practitioners as to whether patients with slightly elevated TSH (i.e. level 4 to 10) and normal free T4 and who are asymptomatic require thyroid hormones. Generally speaking, symptomatic patients with elevated TSH levels 4-10 may be started on medications to bring the TSH level to between 1 and 3.0. Subclinical hypothyroid patients (TSH 4-10 without many symptoms) are often carefully evaluated for the possibility of starting 25 microgram per day. In contrast, overtly hypothyroid patients are started on 50-100 micrograms (i.e. 1.6 micrograms per day) and this is adjusted further in 10-12 weeks.

There is no good evidence at present that treatment with selenium is consistently beneficial but studies are ongoing. The same is true with studies of vitamin D.