AMERICAN THYROID ASSOCIATION
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AUTOIMMUNE THYROID DISEASE

When are positive thyroid antibodies clinically useful?

BACKGROUND

Autoimmune thyroid disease is caused by the body making antibodies that attack the thyroid and either turn it on (Graves' disease, hyperthyroidism) or turn it off (Hashimoto's thyroiditis, hypothyroidism). Some people with positive thyroid antibodies have normal thyroid function and develop either Graves' disease or Hashimoto's thyroiditis in the future while some never develop clinical thyroid dysfunction. Thyroid antibodies are frequently already present when a patient is first diagnosed with Graves' disease or Hashimoto's thyroiditis. Two such antibodies are frequently measured: thyroid peroxidase (TPO) antibodies and thyroglobulin antibodies. In an attempt to find out when the antibodies first begin to appear, the present study analyzed blood samples obtained years earlier from women now aged 23 to 50 in whom Graves' disease or Hashimoto's thyroiditis recently developed.

THE FULL ARTICLE TITLE:

Hutfless S et al. Significance of Prediagnostic Thyroid Antibodies in Women with Autoimmune Thyroid Disease. J Clin Endocrinol Metab 96:E1466-E1471, 2011.

SUMMARY OF THE STUDY

Between 1998 and 2007, 1684 female active-duty U.S. military personnel were seen in a military medicine facility and given a new diagnosis of Hashimoto's thyroiditis or Graves' disease. From this group, 87 randomly-selected patients with Hashimoto's thyroiditis, 87 with Graves' disease, and 348 age matched controls had blood samples assessed for thyroid antibodies in samples obtained at the time of diagnosis and three additional blood samples obtained up to 7 years before the diagnosis of the thyroid disease. TPO antibodies were found in 14% of those in the control group without thyroid disease. In Hashimoto's thyroiditis, TPO antibodies were found in 66% and thyroglobulin antibodies in 53% of patients in the early sample and the percent did not change at the time of diagnosis. In Graves' disease patients, TPO antibodies were present in 31% at the early point increasing to 57% at the time of diagnosis while thyroglobulin antibodies increased from 18% at the early time point to 47% at the time of diagnosis.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study demonstrates that thyroid antibodies frequently develop years before the clinical diagnosis of Graves' disease or Hashimoto's thyroiditis and may be an early marker to identify patients at risk of developing clinical symptoms of thyroid dysfunction.

— Frank Cranz, MD

ATA THYROID BROCHURE LINKS

Hypothyroidism: http://thyroid.org/patients/patient_brochures/hypothyroidism.html

Graves' disease: http://thyroid.org/patients/patient_brochures/graves.html

Hyperthyroidism: http://thyroid.org/patients/patient_brochures/hyperthyroidism.html

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AUTOIMMUNE THYROID DISEASE, continued

ABBREVIATIONS & DEFINITIONS

Autoimmune thyroid disease: a group of disorders that are caused by antibodies that get confused and attack the thyroid. These antibodies can either turn on the thyroid (Graves' disease, hyperthyroidism) or turn it off (Hashimoto's thyroiditis, hypothyroidism).

Hypothyroidism: a condition where the thyroid gland is underactive and doesn't produce enough thyroid hormone. Treatment requires taking thyroid hormone pills.

Hyperthyroidism: a condition where the thyroid gland is overactive and produces too much thyroid hormone. Hyperthyroidism may be treated with antithyroid meds (Methimazole, Propylthiouracil), radioactive iodine or surgery.

Graves' disease: the most common cause of hyperthyroidism in the United States. It is caused by antibodies that attack the thyroid and turn it on.

Hashimoto's thyroiditis: the most common cause of hypothyroidism in the United States. It is caused by antibodies that attack the thyroid and destroy the gland.

Thyroid peroxidase (TPO) antibodies: these are antibodies that attack the thyroid instead of bacteria and viruses, they are a marker for autoimmune thyroid disease, which is the main underlying cause for hypothyroidism and hyperthyroidism in the United States.

Thyroglobulin antibodies: these are antibodies that attack the thyroid instead of bacteria and viruses, they are a marker for autoimmune thyroid disease, which is the main underlying cause for hypothyroidism and hyperthyroidism in the United States.

Antibodies: proteins that are produced by the body's immune cells that attack and destroy bacteria and viruses that cause infections. Occasionally the antibodies get confused and attack the body's own tissues, causing autoimmune disease.