



## HYPERTHYROIDISM

### Severe sight-threatening orbitopathy is a very rare event in the natural history of Graves' disease

#### BACKGROUND

Thyroid eye disease is a severe complication of autoimmune thyroid disease and is most commonly associated with Graves' disease, although it can be seen with Hashimoto's thyroiditis and in patients with normal thyroid function but positive thyroid antibodies. When associated with Graves' disease, it is often referred to as Graves' orbitopathy. The most common cause of hyperthyroidism, Graves' disease is an autoimmune disease characterized by antibodies that bind to the TSH receptor and stimulate the production of thyroid hormone in the thyroid gland. These antibodies can also bind to tissue that surrounds the eyes resulting in local swelling, bulging of the eyes and impaired function of the eye muscles. This condition can be disfiguring and affect the quality of life and in severe cases, it can affect the vision. The prevalence and development of Graves' orbitopathy has not been well studied. This study was designed to evaluate the occurrence and features of Graves' orbitopathy in newly diagnosed patients with Graves' disease who are started on antithyroid drugs and followed for 18 months.

#### THE FULL ARTICLE TITLE

Tanda ML et al Prevalence and natural history of Graves' orbitopathy in a large series of patients with newly diagnosed Graves' hyperthyroidism seen at a single center. *J Clin Endocrinol Metab* 2013;98:1443-9.

#### SUMMARY OF THE STUDY

The study included 346 patients newly diagnosed with Graves' hyperthyroidism and started on Methimazole in Italy over a 8-year period. The patients were mainly women ages 15 to 84 years and 35% were smokers. At diagnosis, 74% of patients had no evidence of orbitopathy, 20% had mild or inactive orbitopathy, 6% had moderate or severe orbitopathy and one patient had

vision-threatening orbitopathy. There was an association between moderate to severe Graves' orbitopathy and smoking, serum TSH receptor antibody levels and age (in women only). Of the 194 patients without initial Graves' orbitopathy, 87% remained free of orbitopathy, 10% developed mild orbitopathy and 3% developed moderate to severe active orbitopathy. Of the 43 patients with baseline mild Graves' orbitopathy, 58% were free of orbitopathy, 40% continued to have mild and inactive orbitopathy and one patient (2%) progressed to moderate to severe active orbitopathy. Serum TSH receptor antibodies decreased progressively on the Methimazole treatment in most patients, however, the decrease was less pronounced in patients with progression of Graves' orbitopathy.

#### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study confirms that most patients with Graves' disease have no signs of Graves' orbitopathy at diagnosis and will not develop orbitopathy later. When orbitopathy develops in these patients, it is usually mild. Most patients with mild Graves' orbitopathy at diagnosis will either have a remission or no progression of the orbitopathy over time. This is important to help reassure patients with Graves' disease. While smoking is associated with progression of Graves' orbitopathy, further studies are needed to clarify other prognostic factors.

Alina Gavrila, MD, MMSC

#### ATA THYROID BROCHURE LINKS

Hyperthyroidism: <http://www.thyroid.org/what-is-hyperthyroidism>

Graves' disease: <http://www.thyroid.org/what-is-graves-disease>

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## HYPERTHYROIDISM, continued

### ABBREVIATIONS & DEFINITIONS

**Hyperthyroidism:** a condition where the thyroid gland is overactive and produces too much thyroid hormone. Hyperthyroidism may be treated with anti-thyroid medications (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.

**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).

**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.

**TSH receptor:** a molecule (protein) located on the thyroid cell surface that binds TSH and stimulates the production of the thyroid hormones within the thyroid cell.

**TSH: thyroid stimulating hormone** — produced by the pituitary gland that regulates thyroid function; also the best screening test to determine if the thyroid is functioning normally.

**Thyroid eye disease (TED):** also known as Graves' orbitopathy. TED is most often seen in patients with Graves' disease but also can be seen with Hashimoto's thyroiditis. TED includes inflammation of the eyes, eye muscles and the surrounding tissues. Symptoms include dry eyes, red eyes, bulging of the eyes and double vision.

**Methimazole:** an antithyroid medication that blocks the thyroid from making thyroid hormone. Methimazole is used to treat hyperthyroidism, especially when it is caused by Graves' disease.

**Thyroidectomy:** surgery to remove the entire thyroid gland.

**Radioactive iodine (RAI):** this plays a valuable role in diagnosing and treating thyroid problems since it is taken up only by the thyroid gland. I-131 is the destructive form used to destroy thyroid tissue in the treatment of an overactive thyroid and thyroid cancer.