



## GRAVES' DISEASE

### Predicting Graves' Disease recurrence

#### BACKGROUND

Graves' disease, the most common type of hyperthyroidism in the United States, is an autoimmune disease where the body produces an antibody that attacks and turns on the thyroid. Graves' disease occasionally can go into remission if the antibody decreases or goes away. Patients with Graves' disease can choose between a two general treatment methods: destruction of the thyroid by either surgical removal or radioactive iodine therapy or management with anti-thyroid drugs (ATDs). Treatment with ATDs is used to either prepare the patient for either surgery or radioactive iodine or to treat until a remission occurs. Although many patients choose ATD treatment at initial diagnosis, recurrence rates can be high (~50-70%) following discontinuation of the medication. This study sought to develop a model for predicting recurrence/remission of Graves' disease.

#### THE FULL ARTICLE TITLE

Vos XG et al. Predicting the Risk of Recurrence Before the Start of Antithyroid Drug Therapy in Patients with Graves' Hyperthyroidism. *J. Clin. Endocrinol. Metab.* 2016. 101 (4): 1381-1389.

#### SUMMARY OF THE STUDY

This study included patients with new onset Graves' disease in The Netherlands. Clinical assessment and genetic testing was performed on all patients before the start of therapy for Graves' disease. All patients were treated with a "block and replace" strategy which consisted of blocking thyroid function with the methimazole and correcting the ensuing hypothyroidism with thyroid hormone replacement to keep the free T4 in the normal range. The medications were discontinued after 1 year and the patients were followed for 2 years to evaluate for

recurrence of their Graves' disease. A total of 37% of the 178 patients had a recurrence. Graves' disease recurrence was associated with younger age, higher blood free T4 levels, larger thyroid gland and higher thyroid antibodies. Several gene types were also associated with higher recurrence rates. The investigators developed a scoring system using clinical factors that they termed "GREAT," which was short for the longer title "Graves' Recurrent Events After Therapy." This score combined with certain genetic factors was termed "GREAT+." They found that the patient's GREAT and GREAT+ scores could predict the likelihood of recurrent Graves' disease after treatment discontinuation. The higher the scores, the higher the rate of recurrence and the addition of genetic testing seemed to be most helpful in patients whose scores put them at medium risk.

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

Due to the high recurrence rates of Graves' disease following discontinuation of ATD therapy, it would be helpful to know which patients are at greatest risk of recurrence so they may perhaps be able to consider other more permanent treatment options initially, such as surgery or radioiodine. The use of a scoring system may be helpful in predicting this risk so as to provide additional information to the patient to aid in treatment decisions. Genetic testing may improve this prediction to allow more individualized treatments for patients with Graves' disease.

— Whitney Woodmansee, MD

#### ATA THYROID BROCHURE LINKS

Hyperthyroidism: <http://www.thyroid.org/hyperthyroidism/>

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

#### 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).

**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**, continued

**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.

**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.

**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.

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