

**GRAVES' DISEASE****The “GREAT” score, a clinical tool that predicts the success of antithyroid drug therapy for Graves' disease****BACKGROUND**

Graves' disease is an autoimmune condition that affects the thyroid and is the most common cause of hyperthyroidism. There are three main treatment options for Graves' disease: a) oral antithyroid drugs (ATDs) such as methimazole and propylthiouracil, b) radioactive iodine therapy, and c) surgical removal of the thyroid gland (thyroidectomy). ATDs are often prescribed because they are easy to administer and effectively treat the hyperthyroidism from Graves' disease. However, 50-75% of patients will experience a recurrence of their hyperthyroidism after stopping their ATD. When this happens patients may need to continue taking ATDs indefinitely, or they will need to pursue another treatment such as radioactive iodine therapy or surgery.

Many studies have tried to identify factors which can predict the success of ATD therapy to determine whether or not a given patient treated with ATDs will have a recurrence of their hyperthyroidism after stopping their medication. Those at high risk of having a recurrence could then choose another treatment option at the time of diagnosis. A recent study from the Netherlands established a prediction tool called the “Graves Recurrent Events After Therapy (GREAT)” score. The GREAT score uses 4 variables (age, goiter size, Free T<sub>4</sub> level and level of thyrotropin binding inhibitory immunoglobulin (TBII)) that can easily be assessed at the time a patient is diagnosed with Graves' disease to calculate a six point score which is then classified into three categories. Each category is associated with a higher risk of recurrence of Graves' disease after starting ATDs.

The present study seeks to validate the GREAT score and to predict the outcome of ATD treatment in large group of patients with Graves' disease.

**THE FULL ARTICLE TITLE**

Struja T et al, External validation of the GREAT score to predict relapse risk in Graves' disease: results from a

multicenter, retrospective study with 741 patients. *Eur J Endocrinol.* 2017;176:413-9.

**SUMMARY OF THE STUDY**

The authors reviewed the rate of relapse of Graves' disease in 741 patients (79.9% female; mean age 49 years) who attended one of four endocrinology clinics in Switzerland between 2004-2014. Only patients presenting with their first episode of Graves' disease, who did not have radioactive iodine treatment and who took ATDs for more than 12 months before stopping were included in the study. Calculation of the GREAT 6-point score is as follows: age (<40 or ≥40 years: 1 or 0 point, respectively), goiter (not visible to slightly visible or clearly visible: 0 or 2 points), FT<sub>4</sub> (<3.1 or ≥3.1 ng/dl: 0 or 1 point), and TBII (<6; 6–19.9; >19.9 U/L: 0, 1, or 2 points) resulting in the GREAT score classes of I (0–1 point), II (2–3 points), and III (4–6 points).

Of the 741 patients with Graves' disease, 371 (50.1%) experienced a relapse after stopping their ATDs. When the GREAT score was calculated for each patient they found a relapse rate of 33.8% for class I patients and 59.4% and 73.6% for Class II and III patients respectively. Thus a higher GREAT score predicted a higher risk of relapse after stopping ATDs

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

The current study supports using the GREAT score, which can be easily calculated at the time of diagnosis, to predict the success of ATD therapy to treat Graves' disease. Those classified in GREAT score class II and III have a higher chance of relapse following a 12-18 months course of treatment with ATDs. Consequently, they may decide to pursue other treatment options from the outset.

— Philip Segal, MD

**ATA THYROID BROCHURE LINKS**

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



**GRAVES' DISEASE**, continued

**ABBREVIATIONS & DEFINITIONS**

**Goiter:** a thyroid gland that is enlarged for any reason is called a goiter. A goiter can be seen when the thyroid is overactive, underactive or functioning normally. If there are nodules in the goiter it is called a nodular goiter; if there is more than one nodule it is called a multinodular goiter.

**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.

**Thyrotropin-binding inhibitory immunoglobulin (TBI):** A measure of the amount of antibodies directed against the TSH receptor on the surface of thyroid cells. These antibodies are detected primarily in patients with Graves' disease.

