



HYPERTHYROIDISM

Can we predict relapse after antithyroid drugs are discontinued in patients with Graves' disease?

BACKGROUND

Patients with Graves' disease can be treated with antithyroid drugs (ATDs), radioactive iodine therapy, or thyroid surgery. ATDs are frequently used with the goal of the patient eventually going into remission. In this case, the drugs can usually be discontinued after 12-18 months of treatment. However, in approximately half of the patients, Graves' disease relapses after the initial ATD treatment, requiring a second ATD course or different treatments for control of the hyperthyroidism. In addition, although rare, ATDs can have serious side effects, such as inflammation of the liver or very low white blood cell counts (agranulocytosis) and infection. Several studies have reported risk factors that might predict relapse after the ATD discontinuation, such as a younger age, male gender, smoking, large goiter size, severe hyperthyroidism at diagnosis, and high TSH receptor antibodies. However, each of these factors appears to increase the risk of relapse only slightly. The goal of this analysis is to evaluate all previously reported risk factors and find a prediction rule for relapse after discontinuation of the initial ATD treatment in patients with Graves' disease. This could be used to individualize the treatment and choose the best initial treatment option for each patient.

THE FULL ARTICLE TITLE

Struja T et al Can we predict relapse in Graves' disease? Results from a systematic review and meta-analysis. *Eur J Endocrinol* 2017; 176:87-97. Epub October 25, 2016.

SUMMARY OF THE STUDY

This analysis included 31 studies of patients diagnosed with a first episode of Graves' disease who took ATDs for at least 12 months and had follow-up for at least 12 months after they stopped this treatment. Out of a total of 4346 patients, 2322 (53%) had a relapse, most relapses occurring between months 6 and 18 after stopping the ATD treatment.

Among the risk factors studied, smoking, thyroid gland size evaluated by exam and ultrasound, eye disease, antibody level, and T₄/T₃ levels, but not age and gender were significantly associated with relapse in at least one type of statistical analysis used. There was a progressive increase in the risk of relapse with greater goiter size and higher antibody and T₄/T₃ levels measured before treatment initiation. However, none of these factors had a major impact on the risk of relapse. The risk factors with major significance in one analysis, had only minor significance or lost significance in other analyses. No new risk factors were identified. Certain genetic tests (HLA types) were reported as significant risk factors in several individual studies but this analysis is not clinically useful.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This analysis showed that most of the previously reported factors predict relapse after the initial ATD treatment in patients with Graves' disease, however, the contribution of each individual factor does not seem to be significant. Additional well designed studies are needed to evaluate whether a combination of these factors or new factors could be a stronger predictor of relapse that could be used clinically. It might be advisable to use alternative treatment options rather than ATDs in new patients with Graves' disease who smoke, have a large goiter, eye disease, and high antibody levels because of a high relapse risk.

—Alina Gavriła, MD, MMSC

ATA THYROID BROCHURE LINKS

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

Hyperthyroidism (Overactive): <http://www.thyroid.org/hyperthyroidism/>



HYPERTHYROIDISM, continued

ABBREVIATIONS & DEFINITIONS

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.

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

Thyroid eye disease (TED): also known as Graves' ophthalmopathy. 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.

Antithyroid drugs (ATDs): medications that block the thyroid from making thyroid hormone. Methimazole, carbimazole and propylthiouracil (PTU) are used to treat hyperthyroidism, especially when it is caused by Graves' disease.

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 thyroid cancer and hyperthyroidism.

Thyroidectomy: surgery to remove the entire thyroid gland.

Agranulocytosis: a marked decrease in the neutrophil count, the most abundant type of white blood cells that causes a patient to be more likely to develop an infection. This is commonly associated with a fever and/or a sore throat.

Goiter: a thyroid gland that is enlarged for any reason is called a goiter.

TSH receptor antibody (TRAb): antibodies often present in the serum of patients with Graves' disease that are directed against the thyrotropin (TSH) receptor located on the thyroid cell. The antibodies activate the TSH receptor and stimulate the thyroid hormone production within the thyroid cells, thus resulting in hyperthyroidism.

Thyroxine (T₄): the major hormone produced by the thyroid gland. T₄ gets converted to the active hormone T₃ in various tissues in the body.

Triiodothyronine (T₃): the active thyroid hormone, usually produced from thyroxine.

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ATA: Searching for Answers to Thyroid Cancer

