CLINICAL THYROIDOLOGY **FOR PATIENTS**

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HYPERTHYROIDISM

Prolonged therapy with antithyroid medication leads to a 50% remission rate for Graves' Disease in children

BACKGROUND

Graves' Disease is the most common cause of hyperthyroidism in children. Graves' Disease is caused by the patient's immune system producing an antibody that attacks and turns on the thyroid. One of the goals of treating patients with antithyroid medications is the hope that these drugs may cause the immune system to stop producing the antibody, resulting in the Graves' Disease going into remission. The recommended anthithyroid medication in the United States is Methimazole while in Europe Carbimazole is frequently used. Carboimazole is actually converted into Methimazole in the body. Unfortunately, an initial course of antithyroid medication for up to two years is effective in producing a remission in only ~30% of patients. The other two treatment option for Graves' Disease, destruction of the thyroid gland by radioactive iodine treatment and surgical removal of the gland, usually cause permanent hypothyroidism requiring lifelong thyroid hormone therapy. Since all of these therapies have good and bad points, the recommended treatment varies among pediatric endocrinologists and institutions. The goal of this study was to determine the effect prolonged treatment with Carbimazole on remission of Graves' Disease in children.

THE FULL ARTICLE TITLE

Léger J et al.. French Childhood Graves' Disease Study Group: Positive impact of long-term antithyroid drug treatment on the outcome of children with Graves' disease: national long-term cohort study. J Clin Endocrinol Metab. October 26, 2011 [Epub ahead of print].

SUMMARY OF THE STUDY

A total of 154 patients with Graves' Disease age 18 or younger were followed at multiple centers in France. The patients were initially treated with Carbimazole for 2 years before discontinuation of the drug. The patients were followed for at least 18 months to evaluate whether they remained in remission or relapsed. In case of relapse, they were given an option of another course of Carbimazole or definitive therapy with either radioactive iodine or surgery. This was repeated for up to 3 treatment cycles of Carbimaziole. The average age of the patients was ~12 years and they were followed for an average of 10.4 years. The remission rates after the discontinuation of Carbimazole increased progressively to 20%, 37%, 45%, and 49% after 4, 6, 8, and 10 years of follow-up, respectively. After 10 years of follow up, over 50% of patients were in remission while 11% of patients were still receiving Carbimazole and 36% opted for definitive therapy with either radioactive iodine or surgery. Only 3 patients developed a serious adverse reaction that required stopping the medication.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study showed that Graves' Disease remission rates increase with the duration of antithyroid drug treatment and may be up to 50%. The prolonged treatment with Carbimazole was well tolerated with only 3 adverse reactions. Continuous long-term treatment rather than several 2 year treatment cycles may have more beneficial effects on Graves' Disease remission and should be studied further.

— Alina Gavrila, MD

ATA THYROID BROCHURE LINKS

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

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

Radioactive Iodine Therapy: http://thyroid.org/patients/patient_brochures/radioactive.html

Thyroid Surgery: http://thyroid.org/patients/patient_brochures/surgery.html

continued on next page

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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 antithyroid 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.

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.

Immune system: a system of organs, tissues, and cells in our body that has the role to recognize potentially harmful foreign substances and organisms as well as abnormal body cells and produce antibodies to destroy these factors.

Antithyroid treatment: medications that block the thyroid from making thyroid hormone. Methimazole and Propylthiouracil (PTU) have been approved to treat hyperthyroidism in the United States especially when it is caused by Graves' disease. Carbimazole, which is converted to Methimazole in the body, is also used outside the US.

Radioactive iodine (RAI): I-131 is the destructive form used to destroy thyroid tissue in the treatment of an overactive thyroid.

Hypothyroidism: a condition where the thyroid gland is underactive and does not produce enough thyroid hormone. Treatment requires taking thyroid hormone pills.