



HYPERTHYROIDISM

Rapid control of hyperthyroidism from Graves' Disease with iodide

BACKGROUND

Graves' disease is the most common cause of hyperthyroidism. Antithyroid drugs such as methimazole or propylthiouracil are widely used to block the production of thyroid hormones in individuals with Graves' disease, slowing down the overactive thyroid and returning thyroid function to normal. These drugs take 5-10 days to start to improve symptoms and 4-6 weeks or longer to return thyroid hormones to the normal range. Remaining on antithyroid drugs for 6-18 months sometimes results in the Graves' disease going into remission and allows for medications to be stopped. Potassium iodide taken in large doses acutely blocks the release of the thyroid hormone from the thyroid and can decrease thyroid hormone levels rapidly. However, after a few weeks patients usually escape from the effects of potassium iodide and may become more resistant to the effects of the antithyroid drugs. This study was designed to determine if adding a smaller dose of potassium iodine to treatment with methimazole would improve the hyperthyroidism faster than methimazole alone.

THE FULL ARTICLE TITLE:

Takata K et al Benefit of short-term iodide supplementation to antithyroid drug treatment of thyrotoxicosis due to Graves' disease. *Clin Endocrinol (Oxf)* 2010;72:845-50.

SUMMARY OF THE STUDY

A total of 134 Japanese patients with Graves' disease completed the study. They were divided into four groups: (1) 30 mg of methimazole alone; (2) 30 mg of methimazole with 50 mg potassium iodide; (3) 15 mg of methimazole alone; and (4) 15 mg of methimazole with 50 mg potassium iodide. They measured levels of thyroxine (T_4), triiodothyronine (T_3) and TSH. When the T_4 entered the normal range, the potassium iodide

was stopped, while the methimazole was continued with the dose adjusted to keep the T_4 and TSH in the normal range. Methimazole was discontinued after the blood results were normal for 6 months.

The patients who received the potassium iodide in addition to either dose of methimazole achieved a more rapid normalization of their T_4 than did those patients who received only methimazole. The results were significantly different at 2 weeks of therapy but all groups were similar at 4 weeks of therapy. At one year, there was no significant difference between any of the groups in the percentage of patients who were in remission of the Graves' disease. The addition of potassium iodide to the methimazole did not cause worsening of the hyperthyroidism.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The authors concluded that the combined treatment of methimazole and potassium iodide improved the short-term control of hyperthyroidism. However, there was no difference between the groups after one month of combined therapy and there was a lack of a difference in the remission rates of hyperthyroidism at one year. At the present time, this should not become standard therapy for the majority of patients with Graves' disease who can be adequately managed with antithyroid drug therapy alone.

— Glenn Braunstein, MD

ATA THYROID BROCHURE LINKS

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

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

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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 meds (Methimazole, Propylthiouracil), radioactive iodine or surgery.

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.

Propylthiouracil (PTU): an antithyroid medication that blocks the thyroid from making thyroid hormone. Propylthiouracil is used to treat hyperthyroidism, especially in women during pregnancy.

Thyroxine (T₄): the major hormone secreted by the thyroid gland. Thyroxine is broken down to produce Triiodothyronine which causes most of the effects of the thyroid hormones.

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

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.