



HYPERTHYROIDISM

Treatment of hyperthyroidism resulting in hypothyroidism decreases the risk of heart disease related hospitalization and death risk

BACKGROUND

Hyperthyroidism is a state when the thyroid is overactive and there is too much thyroid hormone in the body. The main cause of hyperthyroidism in the United States is Graves' disease. This is an autoimmune disease where the body makes an antibody that attacks and turns on the thyroid. There are 3 major options for treatment of hyperthyroidism: 1) antithyroid drugs, such as methimazole or PTU, that decrease the thyroid hormone production; 2) surgery to remove the overactive thyroid and 3) radioactive iodine that is taken up by the thyroid and destroys the gland. The most common result of surgery and radioactive iodine therapy is hypothyroidism. Hypothyroidism can also develop if the dose of antithyroid drug is too high.

Thyroid hormone has major effects on the heart. Hyperthyroidism can cause major problems and symptoms such as irregular heart rhythms and palpitations. Rarely, these problems can lead to death. Despite treatment, the negative effects related to hyperthyroidism may persist. This study examined the effect of radioactive iodine therapy and surgery on heart disease related problems, hospitalizations and mortality.

THE FULL ARTICLE TITLE

Essi et al 2018 Cardiovascular morbidity and mortality after treatment of hyperthyroidism with either radioactive iodine or thyroidectomy. *Thyroid* 28:1111–1120. Epub 2018 Jul 23.

SUMMARY OF THE STUDY

Two groups of patients who had been treated for hyperthyroidism in Finland from 1986 to 2007 were identified from a registry. Patients were treated either with surgery or with radioactive iodine therapy. A control group of Finnish residents was formed by randomly selecting 3 age and sex-matched subjects for each patient from a national population registry. A nationwide database system was used to identify causes of all heart related hospitalizations and death.

A total of 4334 patients were in the surgery group (615 men and 3719 women) and 1814 in the radioactive iodine therapy group (329 men and 1489 women). About half of the patients had Graves' disease, one third toxic nodular goiter and the cause was unspecified in the rest. Patients in the surgery group were younger than those who received radioactive iodine therapy. Hospitalization rates before treatment were higher in the hyperthyroidism patients as compared to control group. The most common reasons for hospitalization were high blood pressure and abnormal heart rhythms. The risk of hospitalization decreased after treatment of hyperthyroidism. When the radioactive iodine treatment resulted in hypothyroidism (requiring thyroid hormone treatment), hospitalization rates were similar in the surgery and radioactive iodine therapy groups. However, if radioactive iodine therapy did not result in hypothyroidism there was a greater risk of hospitalization, most often due to abnormal rhythms. Death due to heart disease was similar between hyperthyroid patients and the control group. Death risk was similar in patients treated with surgery and in patients who became hypothyroid after radioactive iodine therapy.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

In this study, patients with hyperthyroidism had increased risk of hospitalization for heart disease. The risk was decreased after surgery or radioactive iodine therapy when it resulted in hypothyroidism but remained higher in patients who did not develop hypothyroidism after treatment. Heart disease related death was also higher in patients treated with radioactive iodine therapy who did not develop hypothyroidism while it was similar between control group and patients treated with surgery or radioactive iodine therapy that resulted in hypothyroidism. The results suggest that the goal of treatment for hyperthyroidism should be to achieve hypothyroidism.

— Ebru Sulanc, MD, FACE





HYPERTHYROIDISM, continued

ATA THYROID BROCHURE LINKS

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

Radioactive Iodine: <https://www.thyroid.org/radioactive-iodine/>

Thyroid Surgery: <https://www.thyroid.org/thyroid-surgery/>

Thyroid Hormone Treatment: <https://www.thyroid.org/thyroid-hormone-treatment/>

ABBREVIATIONS & DEFINITIONS

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.

Hypothyroidism: a condition where the thyroid gland is underactive and doesn't produce enough thyroid hormone. Treatment requires taking thyroid hormone pills.

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.

Toxic nodular goiter: characterized by one or more nodules or lumps in the thyroid that may gradually grow and increase their activity so that the total output of thyroid hormone in the blood is greater than normal

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 with an overactive thyroid. I-123 is the non-destructive form that does not damage the thyroid and is used in scans to take pictures of the thyroid (Thyroid Scan) or to take pictures of the whole body to look for thyroid cancer (Whole Body Scan).

