



## GRAVES' DISEASE

# Early and effective control of Graves' disease is associated with improved survival regardless of treatment method

### BACKGROUND

Graves' disease is the most common cause of hyperthyroidism in the United States. It is an autoimmune disease where the immune system produces an antibody that attacks the thyroid and turns it on. Treatment options for Graves' disease include antithyroid medications (methimazole, PTU), radioactive iodine therapy and surgery. Some studies suggest that patients with Graves' disease have an increased risk of death, mainly due to cardiac disease. While all 3 of these options are routinely recommended, it is unclear if any of them affect the risk from of heart disease or improve survival in patients with Graves' disease.

The goal of the study was to look at the effect of treatment of Graves' disease on heart disease and to understand whether the choice of therapy affects the survival in a large group of patients.

### FULL JOURNAL TITLE

Okosieme OE et al 2019 Primary therapy of Graves' disease and cardiovascular morbidity and mortality: a linked-record cohort study. *Lancet Diabetes Endocrinol* 7:278–287. PMID: 30827829.

### SUMMARY OF THE STUDY

A total of 4189 patients diagnosed with Graves' disease between January 1, 1998, and December 31, 2013, were identified from a registry in South Wales, United Kingdom, and were included in this study. The treatment groups were: (i) antithyroid drug, (ii) radioactive iodine with resolved hyperthyroidism (RAI group A), and (iii)

radioactive iodine with unresolved hyperthyroidism (RAI group B). Control of hyperthyroidism was defined as the initiation of levothyroxine therapy, TSH concentration above the reference limit, or persistent normal TSH (>6 months), each without antithyroid drug use. The outcomes studies included death or heart disease (myocardial infarction, heart failure, stroke) one year after diagnosis.

Overall, patients had an increased all-cause mortality as compared with individuals without Grave' disease. Mortality and the number of adverse heart problems was lower in patients in RAI group A than in the patients in the antithyroid drug group, but not for those in RAI group B. Persistently low TSH concentrations at 1 year after treatment were associated with increased mortality independent of treatment method.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study confirms prior studies indicating an increased risk of death in patients with Graves' disease. In general, patients who received radioactive iodine therapy resulting in resolution of the hyperthyroidism had the best survival, while a persistent low TSH was associated with an increased risk of death regardless of the treatment option. This is an important study and highlights the need to effectively treat patients with Graves' disease to return thyroid blood levels to normal. It is important for the patients to discuss their diagnosis and treatment options with their doctor prior to starting therapy and during follow up to ensure treatment is successful.

—Vibhavasu Sharma, MD, FACE

### ATA THYROID BROCHURE LINKS

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

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

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

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





## GRAVES' DISEASE, continued

### ABBREVIATIONS & DEFINITIONS

**Autoimmune thyroid disease:** a group of disorders that are caused by antibodies that get confused and attack the thyroid. These antibodies can either turn on the thyroid (Graves' disease, hyperthyroidism) or turn it off (Hashimoto's thyroiditis, hypothyroidism).

**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.

**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.

**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.

**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.

