



## HYPERTHYROIDISM

### Treatment for hyperthyroidism increases the risk of obesity in some patients

#### BACKGROUND

Hyperthyroidism occurs when there is too much thyroid hormone in the blood. The most common cause of hyperthyroidism in the United States is Graves' disease. A common symptom of hyperthyroidism is weight loss without trying. Sometimes this can even happen despite increased appetite. Treatment of hyperthyroidism commonly results in weight gain, but the extent of weight gain is not well known. Patients may regain the weight they had lost or may overshoot and become obese. The aim of this study was to find out whether treatment of hyperthyroidism is associated with increased risk of developing obesity. Authors designed the study to assess the amount of weight gain and they also examined the effect of treatment method on weight gain risk.

#### THE FULL ARTICLE TITLE

Torlinska B et al 2019 Patients treated for hyperthyroidism are at increased risk of becoming obese: findings from a large prospective secondary care cohort. *Thyroid* 29:1380–1389. PMID: 31375059.

#### SUMMARY OF THE STUDY

Patient information was obtained from Thyroid Clinic Database at the University Hospitals Birmingham NHS Foundation Trust. Patients were treated for newly diagnosed hyperthyroidism using either anti-thyroid medications, radioactive iodine therapy (RAI) or a combination of the two methods between 2000 and 2014. None of the patients had thyroid surgery. Patients that were included in the study had at least 6 months of follow up after treatment, had a minimum of four recorded weight measurements and they had to have successful treatment of hyperthyroidism. Successful treatment was either having normal thyroid hormone levels or requiring thyroid hormone replacement. Comparison group was from the Health Survey for England participants. There were 1373 patients, 573 were treated with anti-thyroid medications and 800 were treated with RAI or

a combination. The comparison group without thyroid disease had 10,984 participants.

Before treatment patients with hyperthyroidism weighed less than the comparison group. After treatment men were 1.7 times and women were 1.3 times more likely to develop obesity. Weight gain occurred mostly in the first 6 months of treatment but continued until 24 months. A total of 65% of patients gained 5% of their weight and 38% gained 10% or more. Men gained on average 17.6 lbs and women gained about 12.1 lbs. Average weight gain was about 11.8 lbs for patients who were treated with medication, 12.3 lbs for those who had RAI treatment without developing hypothyroidism, and 15.6 lbs for those who had RAI treatment and developed hypothyroidism. Other risk factors for more weight gain were Graves' disease as the cause of the hyperthyroidism, an elevated TSH after treatment, or the requirement of thyroid hormone replacement. The amount of weight gain was associated with the severity of hyperthyroidism at time of diagnosis and patients who had reported weight loss prior to treatment had more weight gain.

#### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Treatment of hyperthyroidism with RAI or anti-thyroid medications is associated with an increased risk of gaining weight and even developing obesity. This risk is slightly higher with RAI therapy compared to medications. Patients who had surgery were not included in the study so we do not have a comparison. The risk of weight gain can be very scary, however, hyperthyroidism needs to be treated otherwise it can become very severe and even lead to deadly complications. The most important step to control weight gain from any cause is to increase the awareness of providers and the patients. Strategies to prevent weight gain should be a part of the initial treatment plan for hyperthyroidism.

— Ebru Sulanc, MD, FACE





## HYPERTHYROIDISM, continued

### ATA THYROID BROCHURE LINKS

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

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

Thyroid and Weight: <https://www.thyroid.org/thyroid-and-weight/>

### 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.

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

**Thyroid hormone therapy:** patients with hypothyroidism are most often treated with Levothyroxine in order to return their thyroid hormone levels to normal. Replacement therapy means the goal is a TSH in the normal range and is

the usual therapy. Suppressive therapy means that the goal is a TSH below the normal range and is used in thyroid cancer patients to prevent growth of any remaining cancer cells.

**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.

**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).