



## HYPERTHYROIDISM

### Severe Hyperthyroidism: Cause, Patient Features and Treatment Outcomes

#### WHAT IS THE STUDY ABOUT?

Hyperthyroidism occurs when too much thyroid hormone is released from the thyroid gland. Symptoms may include weight loss, nervousness, irritability, increased perspiration, a racing heart, hand tremors, anxiety, difficulty sleeping, increased bowel movements, fine brittle hair, and muscular weakness—especially in the upper arms and thighs. The most common cause is Graves' disease accounting for up to 80% of the cases in the United States and occurring in ~0.5% of the population. Other causes include: 1) toxic nodular or multinodular goiter, which occurs when there are one or more overactive nodules or lumps in the thyroid, 2) inflammation of the thyroid known as a thyroiditis, which causes the gland to leak thyroid hormone and 3) taking too much thyroid hormone in tablet form. While most cases are not life-threatening, more severe cases require more aggressive therapy. Treatment options for hyperthyroidism may include taking antithyroid medications, surgery to remove the thyroid or radioactive iodine therapy. This study identifies the clinical features and laboratory tests in severe cases of hyperthyroidism and examines whether specific treatments are more effective in improving the outcomes in these patients.

#### THE FULL ARTICLE TITLE:

Iglesias P, et al. Severe Hyperthyroidism: aetiology, clinical features and treatment outcomes. *Clin Endocrinology (Oxf)* 2009; August 4

#### WHAT WAS THE AIM OF THE STUDY?

The aim of this study is to identify the clinical features and laboratory tests in severe cases of hyperthyroidism and determine whether specific treatments are more effective in improving the outcomes in these patients.

#### WHO WAS STUDIED?

The study group was made up of 107 patients (81 women, 26 men) with hyperthyroidism treated in a city hospital in Madrid, Spain between Jan.1, 2006 and June 30, 2006.

#### HOW WAS STUDY DONE?

The patient's records were reviewed. The hyperthyroidism was classified as "mild", "moderate" or "severe" according to the blood levels of thyroxine (T<sub>4</sub>), the main hormone secreted by the thyroid gland.

#### WHAT WERE THE RESULTS OF THE STUDY?

Of the 107 patients, 49 were classified as having mild hyperthyroidism (46%), 37 were classified as having moderate hyperthyroidism (36%) and 21 were classified as having severe hyperthyroidism (20%). The severe hyperthyroidism group was younger than the other groups. Graves' disease was the cause of hyperthyroidism in 79 of the 107 patients (74%), and was more frequent in patients with severe hyperthyroidism (86%). The remainder of the severe hyperthyroidism group had thyroiditis as the cause of the hyperthyroidism. The most common symptoms in the severe hyperthyroidism group were weakness, nervousness, shortness of breath and weight loss. Heart irregularities (especially atrial fibrillation) and abnormal liver tests were also more common in patients with severe hyperthyroidism. There were no significant differences in the therapy given to the three study groups, including the use of antithyroid drugs, radioactive iodine or surgery, nor were there differences in the rates of hypothyroidism following therapy in the three groups.

#### HOW DOES THIS COMPARE WITH OTHER STUDIES?

There are few studies of this, outside of general reviews. This study classified the severity of the Graves' disease solely on thyroid hormone levels. Most experienced endocrinologists rely on the symptoms of hyperthyroidism to provide an assessment of the severity of disease. Omitting the clinical presentations of signs and symptoms seems to be an important omission in stratifying the severity of disease.

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## **HYPERTHYROIDISM, continued**

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

Graves' disease is the most common cause of severe hyperthyroidism. Patients have more clinical signs and symptoms of hyperthyroidism and more laboratory abnormalities as compared with milder forms of hyperthyroidism.

— Jerrold Stock, MD

### **ATA THYROID BROCHURE LINKS**

Graves disease: [http://thyroid.org/patients/patient\\_brochures/graves.html](http://thyroid.org/patients/patient_brochures/graves.html)

Hyperthyroidism: [http://thyroid.org/patients/patient\\_brochures/hyperthyroidism.html](http://thyroid.org/patients/patient_brochures/hyperthyroidism.html)

### **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.

**Graves' disease:** the most common cause of hyperthyroidism in the United States.

**Thyroxine (T<sub>4</sub>):** 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.

**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.

**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.