



## HYPERTHYROIDISM

# How much does prolonged incomplete treatment of hyperthyroidism contribute to the long-term risk of heart events?

### BACKGROUND

Hyperthyroidism, or an overactive thyroid, is a common disorder with an estimated lifetime risk of 2-5% in the general population. It occurs predominantly in women. The causes of persistent hyperthyroidism include Graves' disease, solitary toxic nodule and toxic multinodular goiter.

The thyroid has direct effects on the heart. A common symptom of hyperthyroidism is heart racing, or palpitations, and irregular heart rhythms (atrial fibrillation) can occur. Very rarely, these irregular heart rhythms can cause death. There are many studies that have shown that hyperthyroidism is associated with increased death due to all causes, even in patients who have milder forms not associated with symptoms. However, most studies are not large enough to understand the effect of hyperthyroidism on individual heart problems events such as heart attacks as well as on different types of strokes. This study aimed to examine the association between hyperthyroidism, acute heart events and death.

### THE FULL ARTICLE TITLE:

Dekkers OM et al. Acute cardiovascular events and all-cause mortality in patients with hyperthyroidism: population-based cohort study. *Eur J Endocrinol*. October 3, 2016 [Epub ahead of print].

### SUMMARY OF THE STUDY

This study was done in Denmark, using data from 7.1 million records from the period of 1980-2012. Data was obtained from the Danish Civil Registration System and the Danish National Patient Registry. These databases have recorded all hospital discharge diagnoses and surgical procedures nationwide since 1977 and all hospital and outpatient specialty clinic and emergency room visits since 1995.

All patients with an initial diagnosis of hyperthyroidism were eligible to be included in the study. However, patients who had the diagnosis of thyroid storm (an extreme form of hyperthyroidism that has an increased risk of death) and patients who had a pregnancy within 12 months before the hyperthyroidism diagnosis were excluded. The population

used as a comparison was obtained from the same database, each hyperthyroid patient matched with 10 non-hyperthyroid persons who were alive on the date of the hyperthyroidism diagnosis. Each subject in the two groups were followed until death, emigration, first diagnosis of a heart event or the end of 2012.

In total, 85,856 patients had a diagnosis of hyperthyroidism. The majority was female (82%) and 27% were younger than 50. A total of 33,941 patients with hyperthyroidism died during follow up. The mortality rate was higher during the first year after diagnosis, with a peak in the first 3 months. Although the risk for death decreased during time, it remained elevated even in the 3-30 year period.

The study also showed that the risk for specific acute heart events was similarly increased, in particular for atrial fibrillation and arterial clots (risk was increased 6-fold in the first 3 months). The risk decreased with time as did mortality, but did not return to normal for atrial fibrillation and arterial clots during long term follow up. Relative risks for death and heart events were higher in younger patients than in patients older than 70.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows a clear increased risk of death and acute heart events in patients with hyperthyroidism. However, this study did not present data according to the specific diagnosis and this could be important because the risk likely depends on the severity of hyperthyroidism and Graves' disease is associated with more severe hyperthyroidism than other causes. This information should be taken into account when considering and discussing the need for treatment of hyperthyroidism, even in patients who present without symptoms.

— Jessie Block-Galarza, MD

### ATA THYROID BROCHURE LINKS

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

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

**HYPERTHYROIDISM**, continued**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. It is caused by antibodies that attack the thyroid and turn it on.

**Toxic nodule/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.

## Thyroid Awareness Monthly Campaigns

The ATA will be highlighting a distinct thyroid disorder each month and a portion of the sales for Bravelets™ will be donated to the ATA. The month of April is **Hashimotos Disease Awareness Month** and a bracelet is available through the **ATA Marketplace** to support thyroid cancer awareness and education related to thyroid disease.

