



## HYPOTHYROIDISM

### Treatment decisions in patients with subclinical hypothyroidism

#### BACKGROUND

Patients with a slightly increased thyroid stimulating hormone (TSH) level but normal free T<sub>4</sub> levels are diagnosed as having subclinical hypothyroidism. Treatment of these patients with thyroid hormone is controversial. The American Thyroid Association recommends considering treatment if there are symptoms suggestive of hypothyroidism, positive thyroid antibodies, or evidence of heart disease or associated risk factors for these diseases. There is a concern that many patients who do not meet these criteria are being placed on long-term thyroid hormone replacement therapy. This is an issue since prior studies have shown that 14-22% of patients on thyroid hormone replacement therapy are overtreated. Too much circulating thyroid hormone can increase the risk of abnormal heart rhythms such as atrial fibrillation and can promote bone loss, contributing to osteoporosis.

In the United Kingdom, primary care physicians take care of most patients receiving thyroid hormone therapy for hypothyroidism. A computerized thyroid disease register assists physicians in keeping track of all the patients with hypothyroidism receiving thyroid hormone therapy and to ensure that physicians obtain thyroid-function tests on these patients every 12 months. The current study assessed how instituting these practice targets influenced thyroid hormone therapy prescribing behavior and whether this policy may have had unintended consequences.

#### THE FULL ARTICLE TITLE

Taylor PN et al. Falling threshold for treatment of borderline elevated thyrotropin levels--balancing benefits and risks: evidence from a large community-based study. *JAMA Intern Med*, October 7, 2013 [Epub ahead of print].

#### SUMMARY OF THE STUDY

The authors evaluated data from a United Kingdom database of 52,000 patients receiving an initial prescription for thyroid hormone replacement therapy. They found that from 2001 to 2009 the average TSH for which a new patient received thyroid hormone therapy fell from 8.7 mU/L to 7.9 mU/L. Approximately 83% of the patients started on thyroid hormone replacement therapy had a normal free T<sub>4</sub> prior to starting therapy. After 6-12 months of treatment, 6.3% of patients were rendered hyperthyroid from their medication. After 54-60 months of treatment, 10.2% were hyperthyroid.

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

This study shows that the fraction of patients in the United Kingdom with subclinical hypothyroidism treated with thyroid hormone therapy increased progressively between 2001 and 2009. This suggests that more patients with marginal indicators of hypothyroidism are being started on thyroid hormone replacement and that these patients are at significant risk of being made hyperthyroid as a result of their treatment. Practitioners need to be aware of this trend and should exhibit appropriate caution prior to starting a patient on long-term thyroid hormone replacement. Once initiating thyroid hormone therapy, closer monitoring appears to be needed to avoid overtreatment.

— Frank Crantz, MD

#### ATA BROCHURE LINKS

Hypothyroidism: <http://www.thyroid.org/what-is-hypothyroidism>

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

Thyroid Function Tests: <http://www.thyroid.org/blood-test-for-thyroid>

#### ABBREVIATIONS & DEFINITIONS

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

**Subclinical Hypothyroidism:** a mild form of hypothyroidism where the only abnormal hormone level is an increased TSH. There is controversy as to whether this should be treated or not.



## **HYPOTHYROIDISM, continued**

**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.

**Thyroxine ( $T_4$ )**: the major hormone produced by the thyroid gland.  $T_4$  gets converted to the active hormone  $T_3$  in various tissues in the body.

**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.