



HYPERTHYROIDISM

Some patients do not undergo subsequent evaluation following an abnormally suppressed TSH suggestive of hyperthyroidism

BACKGROUND

The best screening test when a thyroid problem is suspected is measurement of thyroid stimulating hormone (TSH) levels. However, when an abnormal TSH is discovered, additional testing is usually required to complete the evaluation. This additional testing usually includes measurement of the thyroid hormones (T_4 and T_3), thyroid antibodies and possibly imaging studies to determine if the abnormal TSH identifies a thyroid problem that needs to be treated.

Overt hyperthyroidism, which occurs in about 1-2% of people, is a serious disorder that can be harmful to the heart by causing a rapid heart rate and possibly an abnormal heart rhythm that can lead to heart and brain damage. TSH levels are low/suppressed and the thyroid hormone levels (T_4 and T_3) are increased in patients with overt hyperthyroidism and these patients need to be treated. Subclinical hyperthyroidism occurs when TSH levels are low/suppressed but the thyroid hormone levels are normal. This is seen much more frequently and may not require treatment initially.

This study was done to see what kind of testing and treatment occurs after a patient is discovered to have a low TSH test.

THE FULL ARTICLE TITLE

Asban A et al 2018 Hyperthyroidism is underdiagnosed and undertreated in 3336 patients: an opportunity for improvement and intervention. *Ann Surg* 268:506–512. PMID: 30004926.

SUMMARY OF THE STUDY

This was a study where the researchers reviewed the medical record of over 3000 patients at the University of Alabama-Birmingham who had at least one very low/

suppressed level of TSH (<0.05 mU/L) at least one time. Patients with a known history of thyroid disease were not included in the study.

There were 3386 patients studied and the average age was 52 years old. Almost 80% were women and almost 60% were white. Most patients were healthy at the time of the abnormal TSH blood test. Over 21 months of review, only 1 out of 3 patients had a follow up test to determine how serious the overactive thyroid condition was and to understand why the thyroid was overactive.

The most common tests were blood tests to see if the immune system was the cause of the overactive thyroid (thyroid antibodies) and these were only checked half the time. The least common test was a radioactive iodine thyroid scan to determine why the thyroid is overactive. This was ordered in less than 1 out of 5 patients.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows that only 1 out of 3 patients with a low/suppressed TSH had the diagnosis hyperthyroidism written in the medical record and had any follow up testing performed. This study is important for patients in that it shows that even at a teaching hospital there is not necessarily best follow up of abnormal thyroid testing. This type of study does not allow us to understand all of the reasons why further testing may or may not have been performed, but it does indicate that patients should be aware of their own testing results and if there is an abnormality, make sure it is not something that needs to be further investigated.

— Josh Klopper, MD





HYPERTHYROIDISM, continued

ATA THYROID BROCHURE LINKS

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

Thyroid Function Tests: <https://www.thyroid.org/thyroid-function-tests/>

ABBREVIATIONS & DEFINITIONS

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 (T₄): the major hormone produced by the thyroid gland. T₄ gets converted to the active hormone T₃ in various tissues in the body.

Triiodothyronine (T₃): the active thyroid hormone, usually produced from thyroxine, available in pill form as Cytomel™.

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.

Subclinical Hyperthyroidism: a mild form of hyperthyroidism where the only abnormal hormone level is a decreased TSH.

Thyroid scan: this imaging test uses a small amount of a radioactive substance, usually radioactive iodine, to obtain a picture of the thyroid gland. A “cold” nodule means that the nodule is not functioning normally. A patient with a “cold” nodule should have a fine needle aspiration biopsy of the nodule. A “functioning”, or “hot”, nodule means that the nodule is taking up radioactive iodine to a degree that is either similar to or greater than the uptake of normal cells. The likelihood of cancer in these nodules is very low and a biopsy is often not needed.

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).

TPO antibodies: these are antibodies that attack the thyroid instead of bacteria and viruses, they are a marker for autoimmune thyroid disease, which is the main underlying cause for hypothyroidism and hyperthyroidism in the United States.

