



SUBCLINICAL THYROID DISEASE

Subclinical thyroid disease increases the incidence of heart failure in older persons

BACKGROUND

Subclinical thyroid disease is defined by an abnormal TSH in the setting of normal levels of the thyroid hormones. Symptoms in patients with either subclinical hyperthyroidism or subclinical hypothyroidism are generally mild. In contrast, overt thyroid disease is defined by abnormal levels of both the TSH and thyroid hormones and many more symptoms. It is well known that thyroid hormone can affect the heart function and circulation. Prior studies have showed significant heart problems in patients with overt hyperthyroidism and hypothyroidism. However, controversial results have been reported in patients with subclinical thyroid dysfunction. The goal of this study is to evaluate the association between subclinical hyperthyroidism and hypothyroidism and the development of heart problems in a large study of older patients with cardiovascular risk factors or preexisting cardiovascular disease.

THE FULL ARTICLE TITLE

Nanchen D et al on behalf of the PROSPER Group. Subclinical thyroid dysfunction and the risk of heart failure in older persons at high cardiovascular risk. *J Clin Endocrinol Metab.* January 11, 2012 [Epub ahead of print].

SUMMARY OF THE STUDY

This study measured thyroid levels in 5316 patients who had a history of preexisting cardiovascular disease or cardiovascular risk factors (smoking, hypertension or diabetes). Patients with overt hyperthyroidism or hypothyroidism were not included in this study. An expert committee analyzed the cardiovascular events developed during a 3.2 year follow-up period in this patient population. The mean age of the study population was 75

years with 5046 patients (95%) having normal thyroid levels, 199 patients (3.7%) having subclinical hypothyroidism and 71 patients (1.3%) having subclinical hyperthyroidism. The hospitalization rate for heart failure was higher in patients with subclinical hyperthyroidism as compared with those patients with normal thyroid levels. The rate of heart failure was also significantly higher in patients with subclinical hypothyroidism as compared with patients with normal thyroid levels. There was no difference in the development of other heart problems in any of the groups.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Older patients with preexisting cardiovascular disease or cardiovascular risk factors and subclinical thyroid disease have a higher rate of heart failure and hospitalization for heart failure when compared to patients with normal thyroid levels. This study suggests that older patients with subclinical hyperthyroidism and subclinical hypothyroidism should be treated to normalize their TSH levels in order to prevent the development of heart failure.

—Alina Gavrilă, MD

ATA THYROID BROCHURE LINKS

Hypothyroidism: http://thyroid.org/patients/patient_brochures/hypothyroidism.html

Hyperthyroidism: http://thyroid.org/patients/patient_brochures/hyperthyroidism.html

Thyroid Function Tests: http://thyroid.org/patients/patient_brochures/function_tests.html

Thyroid Hormone Treatment: http://thyroid.org/patients/patient_brochures/hormonetreatment.html

ABBREVIATIONS & DEFINITIONS

Hyperthyroidism: a condition where the thyroid gland is overactive and produces too much thyroid hormone. Hyperthyroidism may be treated with antithyroid medications (Methimazole, Propylthiouracil), radioactive iodine or surgery.

Subclinical Hyperthyroidism: a mild form of hyperthyroidism where the only abnormal hormone level is a decreased TSH. Elderly and symptomatic patients are usually treated, while younger and asymptomatic patients can be monitored without treatment.

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SUBCLINICAL THYROID DISEASE, continued

Overt Hyperthyroidism: clear hyperthyroidism characterized by a decreased TSH and an increased T_4 level. All patients with overt hyperthyroidism are usually treated.

Hypothyroidism: a condition where the thyroid gland is underactive and does not 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.

Overt Hypothyroidism: clear hypothyroidism characterized by an increased TSH and a decreased T_4 level. All patients with overt hypothyroidism are usually treated with thyroid hormone pills.

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 secreted by the thyroid gland. Thyroxine is broken down to produce triiodothyronine T_3 which causes most of the effects of the thyroid hormones.