



THYROID AND THE HEART

Subclinical Thyroid Dysfunction: Relationship to death from all causes and from cardiovascular disease

WHAT IS THE STUDY ABOUT?

Subclinical thyroid disease occurs when the TSH is the only abnormality and the thyroid hormone levels are normal. Subclinical hypothyroidism occurs when an increased TSH level is the only abnormality and subclinical hyperthyroidism occurs when a decreased TSH level is the only abnormality. While subclinical hypothyroidism has been associated with increasing several cardiac risk factors, it is unclear whether these changes are associated with an increased risk for heart disease in this group. Several articles published in *Clinical Thyroidology for Patients* this year, including one in this issue ([Razvi et al, page 5](#)) have reported evidence both for and against such an association. This study takes the risk of cardiac disease one step further and looks at death rates in patients with subclinical thyroid disease. The aim of the study was to determine if the risk of death is higher in patients with either subclinical hypothyroidism or subclinical hyperthyroidism as compared to individuals with normal thyroid function.

THE FULL ARTICLE TITLE:

Sgarbi et al. Subclinical thyroid dysfunctions are independent risk factors for mortality in a 7.5 year followup: The Japanese-Brazilian thyroid study. *European Journal of Endocrinology*, 2010. Vol. 162, Issue 3, pp 569-577.

WHAT WAS THE AIM OF THE STUDY?

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WHO WAS STUDIED?

A total of 1110 Japanese-Brazilian subjects living near Sao Paulo, Brazil were studied as part of a larger investigation of the prevalence of many diseases in this population.

HOW WAS THE STUDY DONE?

The 1110 subjects aged 30 and above who had no known thyroid disease and were not taking thyroid medication were studied. A survey was completed in 1999-2000 by the participants as to the presence of a variety of medical conditions such as heart disease, high blood pressure and diabetes. Blood tests, including cholesterol and thyroid

tests, were performed in the participants. The survey and blood tests were repeated 7.5 years later.

WHAT WERE THE RESULTS OF THE STUDY?

At baseline, 913 individuals (82%) had normal thyroid tests, 99 (8.7%) had subclinical hypothyroidism and 69 (6.2%) had subclinical hyperthyroidism. The risk of death from all causes was 3 times higher in individuals with subclinical hyperthyroidism and 2.3 times higher in individuals with subclinical hypothyroidism as compared to the 913 subjects with normal thyroid tests. The risk of death from heart disease was 3.3 times higher in individuals with subclinical hyperthyroidism. There was no increased risk of death from heart disease in individuals with subclinical hypothyroidism.

HOW DOES THIS COMPARE WITH OTHER STUDIES?

There are several studies over the years that have reported evidence both for and against an association between subclinical thyroid disease and cardiac disease and mortality. Some studies suggest that treatment of subclinical hypothyroidism with thyroid hormone may improve cardiac risk factors but there is no information on a change in mortality with treatment. There is no information on the effects of treatment of subclinical hyperthyroidism on cardiac disease or mortality.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests individuals with subclinical thyroid disease have a higher risk of death than those with normal thyroid function. What is unknown is whether treatment of subclinical thyroid disease would have any effect on the increased risk of death. As such, while there is no consensus on the benefits of treating patients with subclinical thyroid disease, close monitoring would appear to be appropriate.

— Jerrold Stock, MD

ATA THYROID BROCHURE LINKS

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

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

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THYROID AND THE HEART, continued

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.

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.

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.