CLINICAL **THYROIDOLOGY** FOR THE **PUBLIC**

A publication of the American Thyroid Association

AMERICAN THYROID ASSOCIATION
FOUNDED 1923
www.thyroid.org

HYPOTHYROIDISM

Thyroxine reduces epicardial fat tissue mass in subclinical hypothyroidism

BACKGROUND

Epicardial fat tissue is a fat deposit surrounding the heart, which is in direct contact with the coronary arteries (responsible for the heart's blood supply). Increased thickness of the epicardial fat tissue may lead to heart disease. Some studies have shown that the thickness of epicardial fat tissue is increased in subclinical hypothyroidism. Similarly, other cardiac risk factors, including high cholesterol levels, are increased in patients with subclinical hypothyroidism. The aim of this study was to determine whether epicardial fat tissue thickness is increased in subclinical hypothyroidism and whether treatment with levothyroxine in these patients will reduce this thickness.

THE FULL ARTICLE TITLE

Sayin I et al. Thickening of the epicardial adipose tissue can be alleviated by thyroid hormone replacement therapy in patients with subclinical hypothyroidism. Kardiol Pol. April 26, 2016 [Epub ahead of print].

SUMMARY OF THE STUDY

The study included 44 patients with subclinical hypothyroidism and a control group with 42 healthy patients of the same age and sex. Subclinical hypothyroidism was defined as a persistent TSH > 10 mIU/L or increased TSH after 3 months from baseline (TSH > 5 mIU/L). The group of patients with subclinical hypothyroidism was then treated with levothyroxine at doses to achieve a normal TSH. An echocardiogram was performed to measure the thickness of the epicardial fat tissue at diagnosis and after treatment.

The study found that epicardial fat tissue thickness was significantly greater in patients with subclinical hypothyroidism as compared to controls. Also, treatment with thyroxine to normalize TSH was associated with a decrease in the epicardial fat tissue thickness in the majority of patients with subclinical hypothyroidism. The decrease of the epicardial fat tissue thickness correlated with the extent of the decrease in TSH.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study showed that increased epicardial fat tissue thickness may be seen in patients with subclinical hypothyroidism and may contribute to a possible increase in heart disease risk in these patients. Importantly, treatment with Levothyroxine results in a decrease in the thickness of the epicardial fat tissue. This suggests another reason to consider treating patients with subclinical hypothyroidism. However, the findings of this study should be cautiously interpreted, as measurement of epicardial fat tissue thickness is not currently used in clinical practice because it is not as sensitive of a test as standard tests for coronary artery disease.

— Maria Papaleontiou, MD

ATA THYROID BROCHURE LINKS

Hypothyroidism: http://www.thyroid.org/hypothyroidism/

ABBREVIATIONS & DEFINITIONS

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.

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.

AMERICAN THYROID ASSOCIATION
FOUNDED 1923
www.thyroid.org

HYPOTHYROIDISM, continued

Triiodothyronine (T_3): the active thyroid hormone, usually produced from thyroxine.

Levothyroxine (T_4): the major hormone produced by the thyroid gland and available in pill form as Synthroid™, Levoxyl™, Tyrosint™ and generic preparations.

Coronary artery disease: it develops when the major blood vessels that supply your heart with blood, oxygen and nutrients (coronary arteries) become damaged or diseased.