



THYROID HORMONE TREATMENT

Suppressive therapy with levothyroxine does not impair cognitive function

BACKGROUND

Hypothyroid patients need to take thyroid hormone replacement treatment with levothyroxine. The goal of therapy is to obtain a TSH in the normal range. Thyroid hormone suppressive treatment, where the goal is to produce a TSH below the normal range, has been prescribed to prevent thyroid cancer recurrence and sometimes to prevent the growth of thyroid nodules. High thyroid hormone doses taken for a prolonged period of time can lead to irregular heart rhythms and bone loss and osteoporosis. It is controversial whether high thyroid hormone doses can affect the health status in general and brain function in particular, especially the mood and cognitive function. The aim of this study is to compare the health status and the cognitive function of patients taking suppressive thyroid hormone treatment with patients receiving replacement thyroid hormone treatment as well as with healthy patients.

THE FULL ARTICLE TITLE:

Samuels MH The effects of levothyroxine replacement or suppressive therapy on health status, mood and cognition. *J Clin Endocrinol Metab* 2014 Jan 13;jc20133686 [Epub ahead of print].

SUMMARY OF THE STUDY

Three groups of women participated in this study. Group 1 included 24 women receiving suppressive thyroid hormone treatment with 16 thyroid cancer patients and 8 patients inadvertently treated with excessive thyroid hormone doses for hypothyroidism. Group 2 included 35 women taking adequate amount of thyroid hormone

for hypothyroidism. Group 3 included 20 healthy women with normal thyroid function. There was no difference in the tests of cognitive function among the three groups. Women taking suppressive or replacement thyroid hormone treatment had a slight decrease in their health status and mood compared to healthy women. The mood alterations did not impair the cognitive function of women on suppressive or replacement thyroid hormone treatment.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests suppressive thyroid hormone treatment does not appear to impair the cognitive function in women. These findings should be also confirmed in men. There does appear that patients taking suppressive or replacement TH treatment have a lower quality of life compared to patients with normal thyroid function and this should be further investigated.

— Alina Gavriila, MD, MMSC

ATA THYROID BROCHURE LINKS

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

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

Thyroid cancer: <http://www.thyroid.org/cancer-of-the-thyroid-gland>

Thyroid Nodules: <http://www.thyroid.org/what-are-thyroid-nodules>

ABBREVIATIONS & DEFINITIONS

Thyroid hormone treatment: 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 and sometimes in patients with thyroid nodules to prevent nodule growth.



THYROID HORMONE TREATMENT, continued

Levothyroxine (T_4): the major hormone produced by the thyroid gland and available in pill form as Synthroid™, Levoxyl™, Tyrosint™ and generic preparations. T_4 gets converted to the active hormone T_3 in various tissues in the body.

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.

Thyroid nodule: an abnormal growth of thyroid cells that forms a lump within the thyroid. While most thyroid nodules are non-cancerous (benign), approximately 5% are cancerous.

Osteoporosis: a decrease in bone mineral density in which the individual is at a significantly increased risk for fractures with little or no trauma or force. This occurs with a bone mineral density T score of >-2.5 . The areas at highest risk for osteoporotic fractures are the wrist, spine and hip.

Cognitive Function: a function of the brain that perceives, understands, processes, and remembers information.

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