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HYPERTHYROIDISM

Subclinical hyperthyroidism with a suppressed TSH is associated with increased dementia risk in older adults

BACKGROUND

Thyroid hormone has important effects on brain/cognitive functioning. Severe thyroid disease, either hyperthyroidism or hypothyroidism, is associated with cognitive deficits such as memory loss, difficulty concentrating and "brain fog". In the elderly, these deficits could be misdiagnosed as dementia. Importantly, once the thyroid disease is treated and normal thyroid function is restored, most of these cognitive problems improve or resolve. The association of milder (subclinical) forms of these thyroid conditions and cognitive deficits is less well understood. Subclinical thyroid disease occurs when the TSH level is abnormal but the thyroid hormone levels are normal. In subclinical hyperthyroidism, the TSH is low and in subclinical hypothyroidism the TSH is high.

It is estimated that 14% of US individuals older than 71 have dementia. Therefore, understanding and potentially modifying risk factors is of great public health interest. It is also unclear of the association between dementia and thyroid disease. The purpose of this study was to determine whether subclinical thyroid disease is associated with dementia.

THE FULL ARTICLE TITLE

Aubert CE et al. The association between subclinical thyroid dysfunction and dementia: the Health, Aging and Body Composition (Health ABC) study. Clin Endocrinol (Oxf). August 29, 2017 [Epub ahead of print].

SUMMARY OF THE STUDY

This study used patient data from the Health, Aging and Body Composition study. It started in 1997-1998 and the subjects were selected at random from individuals ages 70-79 years living in Memphis, TN or Pittsburg, PA. It included white and black participants. From an initial total of 3075 subjects, a final sample of 2558 participants were evaluated. This is because people who already had dementia, were planning to move out of the area, who had terminal cancer, or who were not independent in their daily activities were excluded. Also, basic data were needed, such as a Mini Mental State evaluation in the first year, measurements of TSH hormone amongst other. If those were not available, then that individual was also not included in the study.

During the monitoring time, certain data was collected, such as smoking history, alcohol use, exercise, diabetes , hypertension and the use of some medications. Thyroid hormone levels were measured at the 2 year visit and the mental status evaluation was performed every couple of years. Dementia was identified based on a specific decline in the Mini Mental State test, prescription of a dementia medication or diagnosis of dementia on a hospital admission. Thyroid function was assessed by measuring a TSH. If the TSH was abnormal, then a free T_4 was obtained. People who had a low TSH were divided in two groups with the milder group defined as a TSH between 0.1 and 0.45, and the fully suppressed group, with a TSH of <0.1.

After adjusting for relevant variables, study results showed that dementia risk was higher in those whose TSH was suppressed <0.1 than in people with normal TSH level. Dementia risk was not increased in the group with a slightly low TSH level (0.1-0.45) or in people with a mildly elevated TSH (subclinical hypothyroidism).

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The strength of this study is the use of a large group of community based subjects, the length of the follow up and the primary outcome (dementia). The limitations were that the number of people with subclinical hyperthyroidism was relatively small (3.2% of participants), and that there was only one TSH measurement at the start of the study. These results are relevant to patients because they show that there is a relationship between what is considered to be a milder form of thyroid disease, specifically subclinical hyperthyroidism, and dementia risk. Many times, physicians are reluctant to treat subclinical thyroid problems. This study suggests that it may be important to treat subclinical hyperthyroidism, especially in the elderly with dementia symptoms.

— Jessie Block-Galarza, MD

HYPERTHYROIDISM, continued

ATA THYROID BROCHURE LINKS

Older Patients and Thyroid Disease: https://www.thyroid.org/thyroid-disease-older-patient/

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

Hypothyroidism (Underactive): https://www.thyroid.org/hypothyroidism/

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

ABBREVIATIONS & DEFINITIONS

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.

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.

Dementia: a broad category of brain diseases that cause a long-term and often gradual decrease in the ability to think and remember that is great enough to affect a person's daily functioning