



SUBCLINICAL HYPOTHYROIDISM

WHAT IS THE STUDY ABOUT?

Subclinical hyperthyroidism is the most prevalent thyroid dysfunction in older Italians living in Italy and is associated with cognitive impairment. This is a population-based study of persons living in Chianti (Tuscany, Italy).

THE FULL ARTICLE TITLE: Ceresini G, Lauretani F, Maggio M, Ceda GP, Morganti S, Usberti E, Chezzi C, Valcavi R, Bandinelli S, Guralnik JM, Cappola AR, Valenti G, Ferrucci L. Thyroid Function Abnormalities and Cognitive Impairment in Elderly People: Results of the Invecchiare in Chianti Study. *J Am Geriatr Soc* 2008. <http://www.ncbi.nlm.nih.gov/pubmed/19054181?dopt=Citation>

WHAT WAS THE AIM OF THE STUDY?

The study was done to investigate the relationship between thyroid dysfunction and cognition.

WHO WAS STUDIED?

The study comprised 1208 participants who were not being treated with drugs known to interfere with thyroid function. Three patients with dementia were excluded. The final study population for the study of thyroid dysfunction comprised 1171 subjects (652 women and 519 men).

HOW WAS THE STUDY DONE?

Blood samples collected in the morning after a 12-hour fast and plasma samples were analyzed for thyrotropin (TSH), free thyroxine (FT₄), and triiodothyronine (T₃). Global cognitive performance was assessed using the Mini-Mental Status Examination (MMSE).

WHAT WERE THE RESULTS OF THE STUDY?

Subclinical hypothyroidism and subclinical hyperthyroidism were more prevalent in older than in younger participants (subclinical hypothyroidism, 3.5% vs 0.4%, $P < .03$; subclinical hyperthyroidism, 7.8% vs 1.9%, $P < .002$). In euthyroid participants, TSH and FT₃ declined with age, while FT₄ increased. Older participants with subclinical hyperthyroidism had lower mean \pm SD MMSE scores than euthyroid subjects (22.61 \pm 6.88 vs. 24.72 \pm 4.52, $P < .03$). In adjusted analyses, participants with subclinical hyperthyroidism were significantly more likely to have cognitive dysfunction (hazard rate 52.26, $P = 0.003$). Subclinical hypothyroidism and subclinical hyperthyroidism were both more prevalent in older than in younger individuals.

HOW DOES THIS COMPARE WITH OTHER STUDIES?

The results of this study added complementary new information to studies done on this subject

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The main finding is that subclinical hyperthyroidism is the most prevalent thyroid dysfunction in older Italian persons and is associated with cognitive impairment. No studies have addressed treating elderly patients with subclinical hyperthyroidism to improve dementia. Whether treating the subclinical hyperthyroidism—or for that matter, subclinical hypothyroidism—would ameliorate cognitive dysfunction is unknown, but some studies suggest such treatment might not be efficacious.

ABBREVIATIONS & DEFINITIONS

TSH Thyroid stimulating hormone (thyrotropin) is a pituitary hormone that stimulates the release of thyroid hormone from the thyroid gland. TSH levels increase when the thyroid gland fails to make sufficient thyroid hormone.

T₃ is triiodothyronine which is the most powerful form of thyroid hormone, accounting for most of the immediate activity of thyroid hormone.

T₄ is levothyroxine, the second main form of thyroid hormone, much of which is transformed to T₃ by enzymes situated in various organs.

Euthyroid is normal thyroid function

Mini-Mental Status Examination (MMSE) is a brief, quantitative measure of cognitive status in adults. It can be used to screen for cognitive impairment, to estimate the severity of cognitive impairment at a given point in time, to follow the course of cognitive changes in an individual over time, and to document an individual's response to treatment. see this web link for further information: <http://www.minimental.com/>