



## HYPOTHYROIDISM

### Is it worthwhile to screen for thyroid disease?

#### BACKGROUND

Screening the general population for thyroid disease is controversial. Based on NHANES III data (a survey of health parameters in the United States), about 5% of the U.S. population has subclinical thyroid dysfunction and 1.2% has overt thyroid dysfunction. The majority of thyroid dysfunction is hypothyroidism. The current study was commissioned by the U.S. Preventive Services Task Force (USPSTF) in order to determine whether screening the population for thyroid disease would have clinical benefit. The study was a follow-up to one published 10 years ago by USPSTF, which concluded that there was no benefit to screening for thyroid dysfunction. The current study focused on answering four questions: (1) Does screening for thyroid dysfunction reduce morbidity and mortality? (2) What are the harms of screening? (3) Does treating screen-detected overt or subclinical thyroid dysfunction improve: (a) mortality and morbidity? or (b) intermediate outcomes? and (4) What are the harms of treating thyroid dysfunction detected by screening?

#### THE FULL ARTICLE TITLE

Rugge JB et al. Screening and treatment of thyroid dysfunction: an evidence review for the U.S. Preventive Services Task Force. *Ann Intern Med* 2015;162:35-45.

#### SUMMARY OF THE STUDY

The major databases for published clinic studies (Medline and Cochrane databases) were reviewed for relevant articles from 2002 to mid-2014 on subclinical hypothyroidism and hyperthyroidism. Studies were included if they compared screening versus no screening or compared treatment versus no treatment. Cardiac outcomes, fractures, changes in bone mineral density, quality of life, and cognitive function were examined.

One study of treatment of subclinical hypothyroidism showed a reduction of cardiac events and all-cause mortality in those who were treated with levothyroxine versus those who had no treatment. Review of

several studies of cholesterol showed that treatment of subclinical hypothyroidism with levothyroxine lowered total cholesterol and LDL levels significantly. There was no evidence of harm due to therapy for subclinical hypothyroidism.

In general, there was no significant improvement in quality of life due to treatment of subclinical hypothyroidism versus no treatment. Based on two studies of cognitive function with treatment versus no treatment of subclinical hypothyroidism, the review concluded that there was no benefit of therapy.

The first two questions concerning reduction of morbidity and mortality and harms of screening could not be addressed in a satisfactory manner because no study compared those screened versus those not screened.

#### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

It is clear that screening for thyroid disease will identify individuals with TSH levels above or below the normal range, with most of these individuals having normal thyroid hormone levels other than the TSH. What is unclear is a definite benefit to identifying and treating these individuals. There does appear to be a benefit of treating hypothyroidism in reducing cardiac risk factors (elevated cholesterol) and possibly cardiac events. However, this benefit is not strong enough on its' own to recommend screening. Not enough data is available to determine effects on quality of life or mortality or morbidity. At this point, rather than recommending against screening, the authors conclude that "more research is needed to determine the clinical benefits associated with thyroid screening."

— Alan. P. Farwell, MD

#### ATA THYROID BROCHURE LINKS

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



## **HYPOTHYROIDISM, continued**

### **ABBREVIATIONS & DEFINITIONS**

**NHANES:** The National Health and Nutrition Examination Survey (NHANES) is a program of studies designed to assess the health and nutritional status of adults and children in the United States. The survey is unique in that it combines interviews and physical examinations.

**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. There is controversy as to whether this should be treated or not.

**Overt Hypothyroidism:** clear hypothyroidism an increased TSH and a decreased T<sub>4</sub> level. All patients with overt hypothyroidism are usually treated with thyroid hormone pills.

**Levothyroxine (T<sub>4</sub>):** the major hormone produced by the thyroid gland and available in pill form as Synthroid™, Levoxyl™, Tyrosint™ and generic preparations.

**Cognitive function:** this refers to brain functions such as memory, ability to concentrate and understand concepts.



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