Subclinical hypothyroidism and TSH screening

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Clinical question

Is there evidence for screening for thyroid function or treating subclinical hypothyroidism?

Bottom line

There are no RCTs of screening for thyroid function (ordering thyroid-stimulating hormone [TSH] testing in nonpregnant, healthy people). Despite approximately 20 RCTs, no patient-oriented benefits (like preventing cardiovascular disease or reduced fatigue or weight) have been identified from treating subclinical hypothyroidism. Guidelines recommend against both.

Evidence

Screening for thyroid function:

- No RCTs or controlled observational studies assess screening for thyroid function or TSH tests for screening.[1,2]

Treating subclinical hypothyroidism (TSH level of 4 to 10 mIU/L but normal triiodothyronine and thyroxine levels):

- Four systematic reviews from the past 5 years report on 18 to 21 RCTs.[1-4] Treatment of subclinical hypothyroidism (with levothyroxine, typically) versus placebo had no effect on mortality or new cardiovascular disease[2-4]; quality of life, depressive symptoms, fatigue, or thyroid-related symptoms scores[1-4]; cognitive function[1-4]; or body mass index or weight.[1-4]
- In the newest RCT (251 elderly patients, mean age 85 years), there was no benefit for any outcome (about 1.5 years' follow-up).[5]

Context

- Subclinical hypothyroidism is generally defined as TSH levels of about 4 to 10 mIU/L, with normal triiodothyronine and thyroxine levels and no clear symptoms of hypothyroidism.
- Levels of TSH might vary up to 50% between tests,[6] and daily fluctuations[7] in individuals can be 26%.
- Prevalence of subclinical hypothyroidism (in the developed world) is 4% to 10%, with 2% to 6% of these developing overt hypothyroidism. Subclinical hyperthyroidism prevalence is about 2%, with 1% to 2% of these developing overt hyperthyroidism.[2,8]
  - -Of those with subclinical hypothyroidism, 40% revert to normal TSH levels over about 2.5 years.[9]
  - -Symptoms are often poor predictors (eg, one study found about 18% of euthyroid, 22% of subclinical hypothyroid, and 26% of overt hypothyroid patients reported ≥4 symptoms of hypothyroidism).[10]
- The Canadian Task Force on Preventive Health Care recommends against screening in asymptomatic, nonpregnant patients or treating subclinical hypothyroidism.[11]

Implementation

Screening with TSH might be increasing, with 57% of 55-year-old women screened in one study.[12] However, screening thyroid tests resulted in less than 0.5% being treated for overt hypothyroidism.[13] The reason for screening asymptomatic patients with low-value tests like TSH is complicated but involves multiple factors including patient requests, physician practice patterns, and beliefs around screening. For patient requests, physicians should advise patients that the evidence available suggests screening TSH tests are very unlikely to be helpful (perhaps <1%), and if the result is only slightly abnormal (subclinical hypothyroidism), treating generally does not improve outcomes or symptoms. Additionally, prepopulated laboratory requisitions generally should not be used for screening asymptomatic patients, as screening will be individualized by person and visit.

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Competing interests
None declared

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