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Helping physicians fatigued by TSH Screening and Subclinical Hypothyroidism

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

Bottom Line: There is no randomized controlled trial (RCT) of screening for thyroid function [ordering thyroid stimulating hormone (TSH) in non-pregnant healthy people]. Despite approximately 20 RCTs, there are no patient-oriented benefits (like preventing cardiovascular disease or reduced fatigue or weight) in treating subclinical hypothyroidism. Guidelines recommend against both.

Evidence:

- Screening for thyroid function: No RCTs or controlled observational studies assess screening for thyroid function or the use of TSH test for screening.[1,2]
- Treating subclinical hypothyroidism (TSH 4-10 but T3/T4 normal):
    - Clinical endpoints: Four systematic reviews (with 18-21 RCTs)[1-4] from the last 5 years report on 18-21 RCTs.[1-4] Treatment of subclinical hypothyroidism (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]
        - BMI/Weight.[1-4]
        - Newest RCT, 251 elderly patients (mean age 85), no benefit on any outcome (~1.5-year follow-up).[5]
    - Surrogate markers:
        - Blood Pressure (BP): Three systematic reviews found no difference,[1,2,4] while another found systolic BP reduced 2.5 mmHg (not diastolic).[6]
        - Lipids: Of four systematic reviews, two found no effect and two found treatment reduced total cholesterol or LDL 0.1-0.6 mmol/L (no change in HDL or triglycerides).[7,8]
        - There is no evidence these small, inconsistent changes matter clinically.

Context:

- Subclinical Hypothyroidism generally defined as TSH ~4-10mIU/L, with normal T3/T4 and no clear symptoms of hypothyroidism.
- TSH may vary up to 50% between tests[9] and daily fluctuations[10] in individuals can be 26%.
- Prevalence of subclinical hypothyroidism (in the developed world) is 4-10%, with 2-6% of these developing overt hypothyroidism. Subclinical hyperthyroidism prevalence is ~2% with 1-2% of these developing overt hyperthyroidism.[2,11]
    - 40% subclinical hypothyroidism revert to normal over ~2.5 years.[12]
    - Symptoms are often poor predictors. Example: one study found ~18% of euthyroid, ~22% subclinical hypothyroid, ~26% overt hypothyroid patients reported ≥4 symptoms of hypothyroidism.[13]
- Canadian Task Force on Preventive Health Care recommends against screening for thyroid function in asymptomatic non-pregnant patients or treating subclinical hypothyroidism.[14]

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Disclosures:

Authors do not have any conflicts of interest to declare.

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