

# **Hypothyroidism: Subclinical**

## **Background**

1. Definition: slightly elevated TSH (5-10 mU/L) with normal free T4 & T3; symptomatic or mild symptoms
2. Guidelines
  - American Assn of Clinical Endocrinologists' Medical Guidelines for Clinical Practice for the Evaluation and Treatment of Hyper- and Hypothyroidism
  - [www.aace.com/clin/guidelines](http://www.aace.com/clin/guidelines)

## **Pathophysiology**

1. Pathology: similar to hypothyroidism
  - Autoimmune
    - Hashimoto's thyroiditis
  - Iatrogenic
    - Thyroid ablation (surgical or medical)
    - Radiation of head & neck
  - Medications
    - Lithium, amiodarone, interferon
  - Inflammatory
    - Thyroiditis with mild hypothyroid phase
2. Incidence and prevalence
  - Worldwide prevalence: 1-10%
3. Risk factors
  - Female > 60 yo: up to 20% affected

## **Diagnostics**

1. History
  - No symptoms or
  - Mild, nonspecific (fatigue, depressed mood)
2. Physical exam
  - Usually normal
3. Diagnostic testing
  - TSH with T4
    - TSH is the preferred test for initial evaluation of primary hypothyroidism
  - If TSH > 10 mU/L
    - 1-20% will proceed to overt hypothyroidism
    - Strongly consider initiating treatment
  - If TSH 6-10 mU/L
    - Less likely to proceed to hypothyroidism
    - Check antiperoxidase antibody
    - If positive -> treat (5% per year will progress to hypothyroidism)
    - If negative and no symptoms (not pregnant) -> follow TSH levels annually

## Differential Diagnosis

1. Other causes of elevated TSH
  - Sick euthyroid syndrome
    - Recovery phase of nonthyroidal illness
    - May see in hospitalized pts
    - Re-check TSH after illness resolves
  - Assay variability
    - Repeat test to verify results
  - Infectious mononucleosis: heterophile antibodies
  - Medications: metoclopramide
  - TSH secreting pituitary adenoma
    - High TSH, high T4 & T3

## Therapeutics

1. Consider likelihood of progression to overt hypothyroidism in decision to treat
2. Consider risk and benefits
  - Benefits
    - Prevent overt hypothyroidism
    - Improved lipid profile
    - Reverse depressed mood, cognitive impairments
  - Risks
    - Lack of clear benefit for most pts
    - Over-treatment, iatrogenic hyperthyroidism
3. Levothyroxine dosing
  - Start low: 25-50 mcg/day for most pts
  - Typical maintenance dose: 50-75 mcg/day
    - Elderly or with CAD: 12.5-25 mcg/day

## Follow-Up

1. Return to office in 6-8 wk to check TSH / adjust meds
2. Check TSH annually once stable

## Special Populations

1. Elderly
  - More likely to progress to overt hypothyroidism in positive antibodies (20% per year)
  - Initiate treatment with 12.5-25 mcg/day; titrate up
2. Pregnant
  - Always treat subclinical hypothyroidism in pregnancy
  - If untreated, can affect cognitive function of child

## Prognosis

1. Normal functioning if treated

## Prevention / Screening

1. USPSTF: not enough evidence for or against screening with TSH
2. Other groups recommend screening women > 50 yo with TSH

### **Evidence-Based Inquiries**

1. Should we screen women for hypothyroidism?
2. Which lab tests are best when you suspect hypothyroidism?

### **References**

1. American Assn of Clinical Endocrinologists Medical Guidelines for CLinical Practice for the Evaluation and Treatment of Hyper- and Hypothyroidism. *Endocrine Practice*. 2002;8:457-67
2. Cooper D. Subclinical Hypothyroidism. *NEJM*. 2001;345:260-65
3. Fatourechi V. Subclinical Thyroid Disease. *Mayo Clin Proc*. 2001;76:413-17.

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