

GER-E-NEWS

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Diagnosis & Management of Hypothyroidism in Older Adults

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Background

Nonspecific, atypical and/or asymptomatic presentations of hypothyroidism is common in older adults

- The estimated prevalence of overt hypothyroidism in older adults ranges from 0.5% to 5%; tends to be more common in iodine-deficient countries
- The incidence of hypothyroidism increases with age due to a rising incidence of autoimmune thyroiditis (Hashimoto Disease)
- Symptoms in older adults can be:
 - Atypical
 - Have insidious onset
 - Often mimic other disease
 - Fatigue, weakness, constipation, dry skin, cold intolerance, and depression
- Only 10-20% of cases are recognized by physical exam

Thyroid Physiology

- In normal aging, a decrease in T4 secretion is balanced by a decrease in T4 clearance, resulting in an overall unchanged serum T4 concentration
- The decrease in T4 clearance leads to lower hormone replacement requirements with increasing age (average levothyroxine dose is 110 mcg)
- TSH concentrations naturally increase with age. Over 97% of patients > 80 years old will have TSH level between 6.3-7.5 mIU/L (whereas reference range used for most labs is between 0.27-4.20mIU/L)

Background Continued

Subclinical Hypothyroidism

- The incidence of subclinical hypothyroidism increases with age and is characterized by elevated TSH with a normal free T4
- Up to 15% of people > 65 years old are diagnosed with subclinical hypothyroidism, and it is more common in women
- Up to 70% of older adults diagnosed with subclinical hypothyroidism have a TSH within the age-specific normal reference range
- Treatment of subclinical hypothyroidism has no apparent benefit and some studies show increased mortality in older adults with higher endogenous free T4 levels

Evaluation

Healthy Patients

- Laboratory testing showing elevated TSH is sufficient to diagnose hypothyroidism, particularly in outpatient setting

Acutely Ill Patients

- TSH can be transiently elevated in acute illness. Thus, the diagnosis of hypothyroidism should be confirmed by persistently elevated TSH and decreased free T4 levels

There is no consensus on screening recommendations for asymptomatic older adults, but thyroid testing is warranted on any patient with a decline in clinical, cognitive, or functional status

Risks & Complications

Cognitive Impairment

- Hypothyroidism can cause impairment in memory, attention, concentration, language, executive function and visuospatial function. Severe hypothyroidism can mimic dementia

Myxedema Coma

- A severe and life-threatening consequence of longstanding primary hypothyroidism with mortality rate of 40%
- Symptoms include:
 - Stupor
 - Seizure
 - Respiratory depression
 - Coma
- Hallmark signs include:
 - Hypothermia
 - Bradycardia
 - Hyponatremia
 - Hypoglycemia

Cardiovascular Effects

- Cardiac complications of hypothyroidism stem from a reduction in stroke volume and heart rate, leading to symptoms such as exertional dyspnea, exercise intolerance, and edema



Management

- There are no clear guidelines for the treatment of hypothyroidism in older adults, but most specialists agree that patients should be treated if they have a TSH > 10 mIU/L, have clear signs/symptoms of thyroid failure, severe hyperlipidemia or family history of thyroid disease
- Hormone replacement with levothyroxine should be started at low doses such as 25-50mcg, and increased by 12.5-25mcg every 4-6 weeks until the TSH concentration reaches a normal age-specific range
- To avoid cardiac complications in patients with known cardiovascular disease it may be prudent to consider starting hormone replacement at the lowest possible dose (12.5mcg)
- The goal TSH should be higher in older individuals, around 4-7mIU/L
- Levothyroxine should be taken fasting (at least 30 minutes before breakfast) to avoid reduced absorption due to food or other medications (eg calcium, iron or soy)

The Bottom Line

- Hypothyroidism is prevalent in older adults and may be associated with significant morbidity if misdiagnosed or untreated
- Subclinical hypothyroidism is often misdiagnosed in older adults. To avoid this, an age-specific reference range of TSH should be used. Hormone replacement has no known benefits in subclinical hypothyroidism
- There are no clear guidelines for the treatment of hypothyroidism in older adults, but most specialists agree that patients should be treated if they have a TSH >10 mIU/L, have clear signs/symptoms of thyroid failure, or have a family history of thyroid disease
- In older adults hormone replacement with levothyroxine should be started at low doses such as 25-50mcg, and increased by 12.5-25mcg every 4-6 weeks until the TSH concentration reaches a normal age-specific range (around 4-7mIU/L)

References:

1. Geriatric Review Syllabus. 9th edition
2. Stott DJ, Rodondi N, Kearney PM, et al. Thyroid Hormone Therapy for Older Adults with Subclinical Hypothyroidism. *N Engl J Med* 2017; 376:2534-44.
3. Papaleontiou M, Haymart MR. Approach to and Treatment of Thyroid Disorders in the Elderly. *Med Clin North Am* 2012; 96(2):297-310.