

The Clinical Benefit of Thyroid Hormone Therapy for Subclinical Hypothyroidism

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Background

- Hypothyroidism is a disease that affects about 1-2% of the population in the United States
- Hypothyroidism occurs when the level of thyroid hormone that is circulating in the blood is low.
- Subclinical hypothyroidism, which affects about 4-10% of the population, occurs when there is an elevated serum TSH, but the free T4 levels are normal.
- Patients with this condition are generally asymptomatic, although some display vague symptoms of hypothyroidism.
- There is controversy about whether or not to treat subclinical hypothyroidism
- Untreated subclinical hypothyroidism can lead to overt hypothyroidism in some patients.
- Research suggests untreated subclinical hypothyroidism is associated with an increased risk of cardiovascular disease such as coronary heart disease, heart failure, stroke and elevated lipids.
- There is evidence that subclinical hypothyroidism contributes to other medical issues, however the research is conflicting.

Case Report

- A 38-year-old female presented to the clinic for evaluation of fatigue, abnormally dry skin, brittle nails, and cold intolerance.
- Pertinent exam findings include: an elevated TSH level of 6.61 mU/L.
- The history and physical exam for this patient were consistent with hypothyroidism.
- The plan included initiating levothyroxine with a scheduled follow-up appointment in four to six weeks to recheck TSH levels and also draw a free thyroxine (T4) level.

Abstract

Hypothyroidism is a condition of the thyroid gland that involves inadequate production of the thyroid hormones, thyroxine (T4) and triiodothyronine (T3). These changes cause increases in the level of serum thyroid stimulating hormone (TSH). Subclinical hypothyroidism is more prevalent than overt hypothyroidism, involving elevated TSH levels with normal T4 levels. There is controversy whether subclinical hypothyroidism should be treated with synthetic thyroxine replacement, especially in patients who are asymptomatic. There is also debate surrounding the level of the TSH that should signal the initiation of treatment. This literature review will evaluate the current research available and discuss the potential risks of untreated subclinical hypothyroidism, benefits to treatment of subclinical hypothyroidism, and suggestions for treatment guidelines.

Literature Review

- The literature review of 10 studies found evidence to support treatment with thyroid hormone therapy for subclinical hypothyroidism in certain populations.
- The systematic reviews conducted found no statistically significant increased risk for fractures in patients with untreated subclinical hypothyroidism or improved BMI in patients taking thyroid hormone therapy versus patients did not receive thyroid hormone treatment.
- The research indicated there is an increased risk for fractures in patients taking levothyroxine who are 60 years of age and older, who have a TSH greater than 4 mU/L or less than 0.03 mU/L.
- TSH levels >10 mU/L were associated with a greater risk of cardiac events and mortality and those above 7 mU/L were associated with increased risk of fatal stroke.
- The research found the risk of coronary heart disease was lower in those treated with thyroid hormone replacement, especially those aged 65 or younger, when compared to those whose subclinical hypothyroidism was not treated.
- The evidence also showed increased risk of fatal stroke in patients with untreated subclinical hypothyroidism that were between the ages of 18 and 64 years.
- Multiple reviews indicated no significant difference in general quality of life, cognitive function or mood between those treated with levothyroxine and those taking the placebo medication.



Learning Points

- When considering treatment for subclinical hypothyroidism; carefully evaluate the patient's health status and current medical conditions to determine appropriateness.
- Consider treatment in most patients aged 65 years and younger with a TSH ≥ 7.0 mU/L.
- Consider treatment for all patients with TSH level at or above 10 mU/L.
- Treatment of elderly patients often requires lower starting doses with closer lab and clinical monitoring to reduce potential adverse effects.

References

- See attached reference list

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