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Understanding Subclinical Hypothyroidism

Dr. Haider Zeboon Jassim[1], Dr. Mohammed Al-Jubory[1*]

[1]Consultant Family Physician PHCC Qatar

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***Corresponding author:** Dr. Mohammed Al-Jubory
Consultant Family Physician PHCC Qatar

Abstract **Original Research Article**

Subclinical hypothyroidism is a condition where thyroid hormone levels are slightly elevated above normal, but not high enough to cause noticeable symptoms. While it may not present overt symptoms, it can still significantly affect one's health if left untreated.

Keywords: Subclinical hypothyroidism, thyroid-stimulating hormone (TSH), autoimmune diseases.

INTRODUCTION

Subclinical hypothyroidism is a condition characterized by slightly elevated levels of thyroid-stimulating hormone (TSH) in the blood, with normal levels of thyroid hormones thyroxine (T4) and triiodothyronine (T3). Unlike overt hypothyroidism, where symptoms are more pronounced, individuals with subclinical hypothyroidism often do not exhibit noticeable signs of thyroid dysfunction.

This condition is relatively common, particularly among older adults and women. It can arise due to various factors, including autoimmune diseases like Hashimoto's thyroiditis, iodine deficiency, certain medications, and aging. While some individuals with subclinical hypothyroidism may not experience any symptoms, others may have subtle manifestations such as fatigue, mild weight gain, dry skin, and cold intolerance.

Diagnosis typically involves blood tests to measure TSH levels, with elevated TSH levels being indicative of subclinical hypothyroidism. The decision to treat this condition depends on several factors, including the presence of symptoms, risk factors for cardiovascular disease, and the degree of TSH elevation.

Management strategies may include regular monitoring of thyroid function, lifestyle modifications, and in some cases, thyroid hormone replacement therapy to normalize hormone levels and reduce the risk of complications. Proper diagnosis and management of subclinical hypothyroidism are essential to prevent potential health risks and optimize overall well-being.

In summary, subclinical hypothyroidism represents a subtle form of thyroid dysfunction that may not always manifest obvious symptoms but still warrants attention and appropriate management to ensure optimal health outcomes.

METHOD

The diagnosis of subclinical hypothyroidism typically involves the following method:

1. Clinical Assessment: A healthcare provider conducts a thorough medical history review and physical examination to assess for symptoms suggestive of thyroid dysfunction, such as fatigue, weight gain, dry skin, and cold intolerance.
2. Blood Tests: Blood tests are performed to measure levels of thyroid hormones and thyroid-stimulating hormone (TSH). In subclinical hypothyroidism, TSH levels are elevated, indicating that the thyroid gland is being stimulated to produce more hormones.
3. Thyroid Hormone Levels: Thyroid hormone levels, including thyroxine (T4) and triiodothyronine (T3), are also measured. In subclinical hypothyroidism, these hormone levels typically remain within the normal range.
4. Interpretation: The results are interpreted based on established reference ranges for TSH and thyroid hormones. Elevated TSH levels in conjunction with normal T4 and T3 levels confirm the diagnosis of subclinical hypothyroidism.
5. Underlying Causes: Further testing may be conducted to identify underlying causes of subclinical hypothyroidism, such as

autoimmune diseases like Hashimoto's thyroiditis or iodine deficiency.

6. Monitoring: Regular monitoring of thyroid function may be recommended to track changes in hormone levels over time and assess the need for treatment.
7. Treatment Decision: The decision to treat subclinical hypothyroidism depends on various factors, including the presence of symptoms, the degree of TSH elevation, and the presence of underlying health conditions. Treatment options may include thyroid hormone replacement therapy or lifestyle modifications.

By following this method, healthcare providers can accurately diagnose subclinical hypothyroidism and develop appropriate management strategies tailored to individual patient needs. Regular monitoring is essential to ensure optimal thyroid function and overall health.

Causes

Subclinical hypothyroidism can be caused by various factors, including:

1. Autoimmune Diseases: The most common cause is autoimmune thyroiditis, also known as Hashimoto's thyroiditis, where the body's immune system attacks the thyroid gland, leading to inflammation and impaired thyroid function.
2. Iodine Deficiency: Inadequate intake of iodine, an essential nutrient for thyroid hormone production, can contribute to subclinical hypothyroidism, especially in regions with low iodine levels in the diet.
3. Medications: Certain medications, such as lithium, amiodarone, and interferon-alpha, can interfere with thyroid hormone production and lead to subclinical hypothyroidism.
4. Aging: Thyroid function naturally declines as we age, and subclinical hypothyroidism becomes more prevalent in older adults.
5. Pituitary or Hypothalamic Dysfunction: Dysfunction of the pituitary gland or hypothalamus, which regulates thyroid hormone production, can lead to elevated TSH levels and subclinical hypothyroidism.
6. Thyroid Surgery or Radioactive Iodine Treatment: Previous thyroid surgery or radioactive iodine treatment for thyroid conditions can disrupt thyroid hormone production and lead to subclinical hypothyroidism.
7. Pregnancy: Subclinical hypothyroidism can occur during pregnancy due to increased thyroid hormone requirements and changes in thyroid function.
8. Other Health Conditions: Certain health conditions, such as obesity, diabetes, and chronic kidney disease, may also be associated with subclinical hypothyroidism.

Identifying the underlying cause of subclinical hypothyroidism is essential for determining the most appropriate treatment approach and managing any associated health risks.

Symptoms:

Subclinical hypothyroidism can be subtle and may not always be noticeable, but they can include:

1. Fatigue: Feeling tired or lethargic even after adequate rest.
2. Mild Weight Gain: Unexplained or gradual weight gain despite no changes in diet or exercise habits.
3. Dry Skin: Skin may feel dry, rough, or flaky.
4. Cold Intolerance: Feeling unusually sensitive to cold temperatures.
5. Constipation: Difficulty passing stools or experiencing infrequent bowel movements.
6. Muscle Weakness: Weakness or achiness in muscles, especially in the arms and legs.
7. Hair Changes: Thinning hair or hair loss, particularly from the scalp.
8. Depression or Mood Changes: Feeling down, sad, or experiencing mood changes.
9. Menstrual Irregularities: Changes in menstrual cycles, such as heavier or irregular periods.
10. Memory Problems or Cognitive Changes: Difficulty concentrating, memory lapses, or experiencing "brain fog."

It's important to note that not everyone with subclinical hypothyroidism will experience symptoms, and the severity of symptoms can vary widely among individuals. Additionally, these symptoms can overlap with those of other health conditions, so a thorough evaluation by a healthcare professional is necessary for accurate diagnosis and appropriate management.

Health Risks

Several risk factors may increase the likelihood of developing subclinical hypothyroidism. These include:

1. Age: This condition becomes more common with age, particularly in individuals over 60 years old.
2. Sex: Women are more likely than men to develop subclinical hypothyroidism, especially during pregnancy and menopause.
3. Family History: Having a family history of thyroid disorders, particularly autoimmune thyroid diseases like Hashimoto's thyroiditis, increases the risk of developing subclinical hypothyroidism.
4. Iodine Intake: Inadequate intake of iodine, an essential nutrient for thyroid hormone production, can increase the risk of subclinical hypothyroidism, especially in regions with low iodine levels in the diet.
5. History of Thyroid Disease or Treatment: Previous thyroid surgery, radioactive iodine

treatment, or a history of thyroid dysfunction can predispose individuals to subclinical hypothyroidism.

6. Certain Medications: Use of medications such as lithium, amiodarone, and interferon-alpha can interfere with thyroid function and increase the risk of subclinical hypothyroidism.
7. Presence of Autoimmune Diseases: other autoimmune diseases, such as type 1 diabetes or rheumatism increases the risk of developing autoimmune thyroiditis and subclinical hypothyroidism.
8. Obesity: Obesity is associated with an increased risk of subclinical hypothyroidism, possibly due to altered thyroid hormone metabolism and increased inflammation.
9. History of Radiation Exposure: Previous exposure to radiation, especially to the head, neck, or chest, increases the risk of thyroid disorders, including subclinical hypothyroidism.
10. Pregnancy: Women who are pregnant or have recently given birth are at higher risk of developing this condition due to hormonal changes and increased thyroid hormone requirements during pregnancy.

Understanding these risk factors can help identify individuals who may be at higher risk of developing subclinical hypothyroidism and allow for early detection and appropriate management. Regular thyroid function screening may be recommended for individuals with one or more of these risk factors.

Treatment:

The treatment approach for subclinical hypothyroidism depends on various factors, including the presence of symptoms, the degree of thyroid hormone abnormalities, underlying health conditions, and individual preferences. Treatment options may include:

1. Observation and Monitoring: In cases where subclinical hypothyroidism is mild and asymptomatic, healthcare providers may opt for a conservative approach of monitoring thyroid function periodically without immediate intervention.
2. Thyroid Hormone Replacement Therapy: If subclinical hypothyroidism is symptomatic, associated with significant TSH elevation (usually above 10 mIU/L), or if the individual has certain risk factors such as cardiovascular disease, treatment with thyroid hormone replacement therapy may be recommended. Levothyroxine, a synthetic form of the thyroid hormone T4, is commonly prescribed. The goal of treatment is to normalize TSH levels and alleviate symptoms.
3. Lifestyle Modifications: Adopting healthy lifestyle habits, such as maintaining a balanced diet, engaging in regular physical activity, managing stress, and getting adequate sleep, can help support thyroid function and overall well-being.
4. Addressing Underlying Causes: If subclinical hypothyroidism is secondary to an underlying condition such as iodine deficiency or autoimmune thyroiditis, addressing the root cause may help improve thyroid function. This may involve iodine supplementation, managing autoimmune diseases, or adjusting medications.
5. Regular Follow-Up: Regardless of the chosen treatment approach, regular follow-up appointments with a healthcare provider are essential to monitor thyroid function, adjust medication dosages if necessary, and assess for any changes in symptoms or health status.

It's important to note that the decision to initiate treatment for subclinical hypothyroidism should be made on a case-by-case basis, with a consideration to individual patient characteristics and preferences. Healthcare providers will work closely with patients to determine the most appropriate treatment plan tailored to their needs and health goals.

CONCLUSION

In conclusion, subclinical hypothyroidism represents a subtle form of thyroid dysfunction characterized by mildly elevated levels of thyroid-stimulating hormone (TSH) with normal levels of thyroid hormones thyroxine (T4) and triiodothyronine (T3).

While many individuals with this condition may not experience noticeable symptoms, it can still have implications for overall health and well-being.

The management of subclinical hypothyroidism involves a personalized approach that considers factors such as the presence of symptoms, the degree of TSH elevation, underlying health conditions, and individual preferences. Treatment options may include observation and monitoring, thyroid hormone replacement therapy, lifestyle modifications, and addressing underlying causes.

Regular follow-up with healthcare providers is crucial for monitoring thyroid function, adjusting treatment as needed, and assessing for any changes in symptoms or health status. By addressing subclinical hypothyroidism appropriately, individuals can optimize their thyroid function and reduce the risk of potential health complications.

Overall, early detection, proper diagnosis, and personalized management strategies are essential for effectively managing subclinical hypothyroidism and

promoting optimal health outcomes for affected individuals.

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