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Review Article

Assessment and management of thyroid disorders in primary care

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ABSTRACT

Thyroid disorders are clinical conditions that affect and are common to millions of individuals worldwide. Thyroid disorders can lead to symptoms and complications such, as tiredness, changes in weight, shifts in mood, heart related issues and difficulties with fertility. Healthcare practitioners who specialize in care have a role in identifying, treating and overseeing patients, with thyroid disorders. This review covers several aspects, such as the clinical complications, diagnostic approaches, and treatment choices for types of thyroid disorders. it's crucial to recognize multiple signs to identify thyroid dysfunction. Different management plans are introduced. Additionally, it explores the challenges and debates surrounding the management of these disorders, such as the screening strategies to adopt the potential use of new biomarkers for diagnosis purposes, the benefits of combination therapy, and how to manage cases with mild or borderline thyroid dysfunction. To sum up, this review offers insights for healthcare professionals to enhance the level of care for patients who have been diagnosed with thyroid disorders.

Keywords: Hyperthyroidism, Hypothyroidism, Primary care, Thyroid cancer, Thyroid nodules

INTRODUCTION

The thyroid gland, resembling a butterfly positioned at the front of the neck, produces two hormones, thyroxine (T3) and Tri-iodothyronine (T4). These hormones regulate metabolic processes within the body, such as growth, development, energy utilization, temperature control, and reproduction. Thyroid disorders are quite common among people, affecting around 10% of the population and up to 20% of women aged 60 or above.[1] These disorders can be categorized into two types: abnormal levels of thyroid hormones and structural disorders involving unusual growth or development of the thyroid gland or its tissues. Functional disorders include hypothyroidism (hormone levels), hyperthyroidism (hormone levels), and subclinical thyroid dysfunction

(normal hormone levels but abnormal thyroid stimulating hormone [TSH] levels).[2] On the other hand, structural disorders encompass thyroid nodules (malignant growths in the gland), goiter (enlarged gland), and thyroid cancer (malignant changes in thyroid cells). In healthcare settings, it is crucial for medical professionals to have the necessary skills as well as knowledge to evaluate and manage health conditions.[3,4] Among these conditions, hypothyroidism and hyperthyroidism are observed thyroid disorders. Hypothyroidism usually occurs when the thyroid gland doesn't produce hormones, usually due to thyroiditis or a lack of iodine. On the other hand, hyperthyroidism occurs when the thyroid gland becomes overly active, often associated with conditions like Graves disease. Thyroid disorders can impact patients' health and quality of life of patients so it's important to evaluate and manage them thoroughly. In care, the assessment of thyroid disorders starts with a clinical history and physical examination. According to a study published in Hindawi in 2023, it's crucial to recognize signs like fatigue, weight changes, and mood disturbances to identify thyroid dysfunction.[5] Regular screening for thyroid function by measuring thyrotropin (TSH) levels plays a role in detecting thyroid disorders on. The study also emphasizes the importance of considering patient characteristics when interpreting levels within the reference range. Additionally, measuring thyroxine (FT4) levels can help differentiate between primary and secondary thyroid disorders. Secondary thyroid dysfunction is often associated with hypothalamic problems.[6] It is characterized by low TSH levels that are not appropriate for situation. These guidelines are supported by American thyroid association guidelines, which emphasize measuring both TSH and FT4 levels when assessing thyroid issues in primary care settings. Additional tests, like thyroid autoantibodies and ultrasound imaging, can be used to enhance assessment process further. Testing for autoantibodies plays a role, in distinguishing between autoimmune thyroid disorders like Hashimotos thyroiditis and Graves disease. These conditions can have differences, from one another.[7,8] A recent study highlights the importance of thyroid testing in diagnosis of thyroid diseases. Additionally, utilizing thyroid ultrasound can aid in identifying abnormalities such as thyroid nodules and assist in determining the need for fine needle aspiration cytology.[9] By incorporating these tests into the process, we can improve accuracy of evaluating thyroid disorders. Once diagnosis is confirmed, primary care physicians often manage thyroid disorders through medication interventions. Hypothyroidism is usually managed by using artificial thyroid hormone replacement treatment, whereas hyperthyroidism may necessitate use of medications to reduce thyroxine levels, radioactive iodine therapy/in some cases, intervention. A comprehensive study delves into analysis regarding hormone replacement therapy for hypothyroidism using levothyroxine, focusing on dosing and patient education.[10] For hyperthyroidism, treatment options depend on the cause and patient preferences. Radioactive iodine therapy and surgery are considered for cases/ specific patient situations. These guidelines serve as resources for care practitioners when making informed decisions about managing hyperthyroidism. In the years, advancements have expanded range of options available for managing thyroid disorders in primary care. A remarkable progress has been made in field with emergence of treatments for hyperthyroidism, including utilization of tyrosine kinase inhibitors (TKIs).[11] In study, researchers delve into use of TKIs in treating Graves disease. This new treatment option brings about possibilities for patients who may not respond well to therapies. Another significant development is growing recognition of thyroid dysfunction and its potential impact on well-being. Research sheds light on correlation between hyperthyroidism and an increased likelihood of fibrillation. This discovery emphasizes the importance of identifying and appropriately addressing subclinical thyroid disorders in primary care settings to minimize long-term health risks. Therefore, this study examines how thyroid disorders are assessed and managed in primary care settings.

LITERATURE SEARCH

This review relies on the literature review. This was carried out on October 22, 2023. The databases used for searching the literature are Medline and PubMed. The search involved using medical subject headings and a combination of keywords according to the database specifications. The search terms included “thyroid disorders,” “primary care,” “assessment,” “management,” and “guidelines.” The search was limited to studies only related to humans and published in English. Studies older than 2008 were excluded.

DISCUSSION

Thyroid issues are prevalent worldwide. They can manifest in ways causing sometimes severe symptoms when someone has a thyroid disorder. Individuals may also encounter sensitivity to colds, difficulty with bowel movements, dry skin, and a slower heart rate. In instances, this could even result in the growth of a goiter, which adds complexity to overall clinical presentation.

Clinical manifestation

Thyroid disorders are a concern in primary care settings, which require an understanding of their clinical symptoms for timely diagnosis and effective treatment. Amongst the disorders, hypothyroidism and hyperthyroidism are commonly encountered by people, each with their distinct set of symptoms. When it comes to hypothyroidism, individuals usually go through signs like tiredness, gaining weight, feeling sensitive to temperatures, and having trouble with bowel movements. experiencing dry skin and changes in hair texture, mood swings, a slower heart rate (bradycardia), irregular menstrual cycles for women, and sometimes a swollen thyroid gland called goiter. The profound fatigue

associated with hypothyroidism can significantly impact activities and overall quality of life. Weight gain is sometimes observed when a person's appetite is normal or decreased, which can be frustrating and concerning for individuals.[12,13] People may notice symptoms like feeling intolerant to colds, having rough skin, and experiencing hair and hair loss. A slow heart rate (bradycardia) can lead to problems with exercise tolerance and dizziness, further impacting an individual well-being. Women might experience cycles with heavy bleeding or absence of menstruation (amenorrhea). In contrast, hyperthyroidism exhibits an array of symptoms. It is characterized by weight loss despite increased food intake, feelings of nervousness, trembling or shaking (tremors), intolerance to heat, rapid heartbeat (palpitations), diarrhea, muscle weakness, difficulty sleeping (insomnia), changes in patterns for women and in certain cases it could lead to thyroid eye disease. Unexplained weight loss is mainly associated with hyperthyroidism due to the metabolism associated with this condition.[14,15] This weight loss often leads to feelings of nervousness and anxiety, which can make patients easily agitated and restless. Fine motor skills may be affected by tremors that are particularly noticeable in the hands as a sign of hyperthyroidism. Hyperthyroidism can also cause heat sensitivity and excessive sweating, making people want to find places. The cardiovascular symptoms of hyperthyroidism include palpitations, a heart rate, and irregular heartbeats. It also affects the system, causing frequent bowel movements, loose stools, and diarrhea due to increased gastrointestinal motility.[16] Individuals with hyperthyroidism might experience muscle weakness and fatigue despite increased metabolism. Having difficulty sleeping, or insomnia can be quite challenging for individuals as it hampers their ability to having asleep or stay asleep throughout the night easily.[17] Female patients may experience irregularities in their cycle, including light or missed periods. Moreover, individuals with hyperthyroidism and those with Graves disease might develop thyroid eye disease This condition leads to bulging eyes (exophthalmos), eye irritation, and changes in vision. Primary care providers play a role in identifying these signs to ensure diagnosis and management of thyroid disorders. When clinical signs that suggest a thyroid disorder are identified, healthcare providers usually proceed with tests. In some situations, it might be required to conduct tests for thyroid autoantibodies in order to validate the presence of conditions such as Hashimoto's thyroiditis or Graves disease.[18] This initial evaluation helps guide the diagnosis process and informs management strategies. In situations of thyroid disorder, doctors may also suggest iodine therapy that targets a part of the thyroid gland or recommend surgery to remove the entire gland.

Management

Thyroid disorders encompass conditions that impact the thyroid gland. It is crucial to handle these disorders within primary care settings as they can significantly influence an individual's well-being and overall quality of life. In this conversation, we will delve into the management of thyroid disorders, focusing on hypothyroidism, hyperthyroidism, subclinical thyroid dysfunction, and thyroid nodules. We'll highlight the importance of providing care for each patient. The prescribed medication for hypothyroidism is levothyroxine, which is a form of the thyroid hormone known as thyroxine.[19] To effectively manage this condition, it is crucial to customize the dosage according to factors like age, weight, any other concurrent health issues they might have, and the root cause of their hypothyroidism. Professional organizations like the American Thyroid Association stress the importance of this approach. Typically, treatment starts with a dose of levothyroxine at 1.6 micrograms per kilogram of body weight. Subsequent adjustments are made based on laboratory results and resolution of symptoms. Regular monitoring plays a role in managing hypothyroidism clinically. Initially, patients may undergo thyroid function tests every 6 to 8 weeks to assess their levels of thyroid stimulating hormone until a stable dose is achieved.[20,21] It is often enough to have evaluations to keep the thyroid function within the target range This involves ensuring that TSH levels are within the reference range while FT4 and FT3 levels are maintained in the normal range. Regular testing ensures that the levels of thyroid hormones in patients are optimized according to their needs. It is crucial to educate patients about hypothyroidism management; as informed individuals are more likely to follow their treatment plans. Healthcare providers should emphasize the importance of medication adherence, usually taken in the morning on a stomach, to ensure optimal absorption. Moreover, it is important to provide patients with information regarding the impact of medications, like calcium, iron, and specific antacids on the absorption of levothyroxine. Furthermore, it is crucial to take into account any health conditions that can affect the absorption of thyroid medication, such as disorders, celiac disease, or other autoimmune conditions. Identifying and managing these coexisting conditions are essential for ensuring treatment. Hyperthyroidism refers to a thyroid gland. Requires a comprehensive approach to manage excessive thyroid hormone production and alleviate associated symptoms. The choice of treatment depends on factors like the cause of hyperthyroidism, patient preferences and individual circumstances. Anti-thyroid medications like methimazole and propylthiouracil are commonly used as the treatment for hyperthyroidism.[22,23] These medications work by inhibiting thyroid hormone production and normalizing thyroid function. However, managing hyperthyroidism through medication requires monitoring patients for side effects, including rare but severe complications like agranulocytosis. Adjustments to the dosage are frequently required in order to achieve and sustain a thyroid state. Regarding hyperthyroidism, radioactive iodine therapy can be considered a treatment for individuals with Graves disease. This method involves taking iodine, which specifically targets and eliminates thyroid tissue, thus

decreasing the production of thyroid hormones. Some individuals with hyperthyroidism who don't have responses to medication or choose not to take it may think about trying RAI therapy. Educating patients about side effects and the importance of following radiation safety measures is crucial. In cases of surgery, thyroidectomy may be recommended. This procedure involves the removal of part or all of the thyroid gland. It is often considered for patients with large goiters, pregnant individuals, or those who cannot undergo RAI therapy due to certain conditions. It is important to evaluate risks associated with thyroidectomy, such as possible damage to the parathyroid glands and recurrent laryngeal nerves. Decisions regarding management strategies for thyroid dysfunction depend on patient factors. The management approach for hypothyroidism remains a topic of debate. Treatment is typically recommended for patients who have TSH levels exceeding 10 mIU/L Additionally, individuals showing symptoms or likely developing hypothyroidism should also be considered for treatment. This includes women and individuals with thyroid antibodies. Decisions regarding treatment should be tailored to each individual, considering the advantages and disadvantages involved. Subclinical hyperthyroidism is managed based on factors, including the cause and levels of TSH. Age can have an impact on individuals who have TSH levels as it may increase their vulnerability to atrial fibrillation and osteoporosis. It's important to monitor or intervene in cases. Thyroid nodules are commonly found in practice. Most of them are benign. However, an evaluation is crucial to rule out malignancy and ensure clinical management. Thyroid ultrasound is a tool for assessing thyroid nodules. This non-invasive imaging technique provides information about characteristics like size, composition, echogenicity, calcifications, and vascularity. These features help guide management decisions. Fine needle aspiration (FNA) biopsy is a step in evaluating thyroid nodules as it allows for the collection of tissue samples for cytological examination. This aids in distinguishing between malignant nodules. The Bethesda system for reporting thyroid cytopathology provides criteria for classifying FNA results to guide management decisions. When diagnosing thyroid cancer, the treatment plan may vary depending on factors such, as the type of tumor its size and the stage it has progressed to. Surgical resection is the approach that may involve lobectomy or total thyroidectomy. Depending on the diagnosis and circumstances of the patient, additional treatments, like iodine (RAI) therapy or external beam radiation, might be recommended. The management of thyroid cancer is. Involves an approach involving multiple disciplines. Monitoring and following up with patients for clinical management of thyroid conditions is crucial. It's crucial to perform thyroid function tests to make sure that individuals with hypothyroidism and hyperthyroidism receive management. These tests help to keep hormone levels within the desired range. Adjustments to medication dosages may be necessary to maintain thyroid function. Regular follow-up appointments are crucial for monitoring progress and addressing any concerns or side effects. It is crucial, for people diagnosed with thyroid cancer to undergo monitoring to promptly identify any indications of the disease resurfacing. This usually involves neck and surgical bed assessments using thyroid ultrasounds, thyroglobulin testing, which measures a protein produced by the thyroid tissue, and sometimes whole-body scans to identify metastases if needed. The frequency and intensity of follow-up examinations depend on the diagnosis and associated risk factors.

CONCLUSION

Thyroid issues are quite common in endocrinology, affecting how organs and tissues in the bodywork and metabolism occur. Doctors who specialize in primary care handle thyroid disorders by customizing treatments based on each patient's needs. Several important factors, like the type, cause, and severity of the thyroid disorder condition, are considered for the patients' treatment schedule. The main goal is to achieve positive patient results while improving their quality of life.

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