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ORIGINAL ARTICLE

Retrospective Assessment of Hypothyroidism in Patient Records

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ABSTRACT:

Background:Thyroid disorders are prevalent issues in the population. Therefore, this study was undertaken to examine the occurrence of hypothyroidism among patients who visited over the course of one year.**Methods**:The study encompassed the analysis of 1270 patients over the designated period. Blood samples were collected from each patient for a comprehensive assessment of their thyroid profile. Additionally, detailed demographic information for all participants was gathered, and a distinct record of the clinical profile was meticulously documented.**Results**:In this study, the analysis covered a cohort of 1270 patients. Among them, 140 patients (11.22 percent) were identified with hypothyroidism. The average age of patients with hypothyroidism was 51.9 years. The mean age for those with clinical hypothyroidism was 53.1 years, while for those with subclinical hypothyroidism, it was 48.2 years. Symptoms such as weight gain were observed in 64 patients, while fatigue and tremors were reported in 90 and 57 patients, respectively.**Conclusion**:Adults tend to experience a higher prevalence of hypothyroidism, with weight gain and fatigue emerging as the most prevalent clinical manifestations.

Keywords:Hypothyroidism, Thyroid

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INTRODUCTION

Thyroid diseases represent a pervasive issue within the general population, underscoring the significance of the small yet crucial gland nestled in the neck.[1] Beyond its seemingly modest size, the thyroid plays a pivotal role in orchestrating metabolic processes and exerting profound influences on the intricate workings of various organs and systems throughout the body.The escalating incidence of thyroid diseases can be attributed to a multifaceted interplay of factors. Advances in diagnostic technologies contribute significantly to the heightened awareness and detection of thyroid-related conditions. Furthermore, incidents of radiation exposure, exemplified by events like the Chernobyl accident, have been identified as catalysts for an increased prevalence of malignant thyroid diseases in the areas directly affected.Notably, the aftermath of radiation exposure in adults demonstrates a noteworthy surge in thyroid disease incidence, ranging from 16% to 31%. This underscores the far-reaching consequences of environmental factors on thyroid health.[2] The prevalence of thyroid disorders, however, is not solely determined by external influences; rather, a complex interplay of intrinsic and extrinsic factors comes into play.Crucial determinants of thyroid disorder prevalence include age, with different age groups exhibiting varying susceptibilities, and gender, as hormonal differences contribute to distinct patterns of thyroid dysfunction. Geographical considerations also come to the fore, with environmental factors playing a role in shaping the prevalence of thyroid diseases in different regions. Additionally, ethnicity emerges as a factor influencing the predisposition to thyroid disorders, underscoring the intricate interplay of genetic and environmental elements in thyroid health.In essence, the intricate landscape of thyroid diseases unfolds as a dynamic interplay of diverse factors, weaving together the threads of genetics, environment, and societal dynamics to shape the prevalence and manifestation of these conditions in the broader population.Hypothyroidism, characterized by a diminished functioning of the thyroid gland, encompasses a spectrum of presentations.[3] At one end of this spectrum is the overt manifestation known as myxedema, characterized by pronounced end-organ effects and multisystem failure. At the other end lies the subtler subclinical condition, where thyroxine and triiodothyronine levels remain within the normal range, albeit with mildly elevated serum thyrotropin levels.

In the developed world, hypothyroidism has been documented to affect approximately 4%–5% of the population. In contrast, within the Indian population, this condition has been reported in around one in ten adults. This intriguing disparity in prevalence rates forms the backdrop for the present study, which has been undertaken to meticulously analyze the occurrence of hypothyroidism among patients seeking medical attention over a one-year duration.

The aim of this investigation is to unravel the intricate details of hypothyroidism within the specific context of patients visiting healthcare facilities within the specified time frame. By doing so, the study endeavors to provide a comprehensive understanding of the prevalence and various patterns associated with

hypothyroidism in this particular demographic setting.[4] Through a thorough analysis of the gathered data, the study seeks to contribute valuable insights that may inform future approaches to the diagnosis, management, and public health strategies related to hypothyroidism in this population.

MATERIALS AND METHODS

The primary objective of the current study was to analyze the prevalence and characteristics of hypothyroidism among patients visiting the Department of General Medicine over the course of one year. A comprehensive examination was conducted, involving a total of 1270 patients during the specified study period.To delve into the physiological aspects, blood samples were systematically collected from all participants, enabling a thorough assessment of their thyroid profile. Beyond the biological parameters, the study embraced a holistic approach by capturing complete demographic details for each patient. This inclusive methodology aimed to provide a nuanced understanding of how hypothyroidism might manifest across different age groups, genders, and other relevant demographic factors.Furthermore, the clinical profiles of all the patients were meticulously recorded, delineating the various symptoms and manifestations associated with hypothyroidism. This detailed documentation not only contributes to a more comprehensive understanding of the disease presentation but also aids in tailoring effective treatment strategies based on individual patient profiles.

Statistical tools such as the Chi-square test and Univariate analysis were employed for the evaluation of the level of significance. This analytical approach serves to unearth meaningful patterns and relationships within the data, providing a robust foundation for drawing clinically relevant conclusions.By combining clinical, demographic, and statistical analyses, the study aspires to contribute valuable insights to the understanding of hypothyroidism within the specific patient population under scrutiny. The findings have the potential to inform clinical practices, guide further research, and enhance the overall management of hypothyroidism in a healthcare setting.

RESULTS

In the context of this research endeavor, a comprehensive examination was undertaken involving a total of 1270 patients. The focal point of the investigation was the prevalence and characteristics of hypothyroidism within this diverse patient cohort. Among these 1270 patients, a noteworthy 11.22 percent were identified as having hypothyroidism, marking a significant subset for in-depth analysis.Further dissection of the hypothyroidism subgroup revealed intriguing nuances. Specifically, within this subset, 82 patients exhibited clinical hypothyroidism, where overt manifestations of thyroid dysfunction were apparent, while 55 patients presented with subclinical hypothyroidism, characterized by subtle biochemical abnormalities in thyroid hormone levels despite a lack of evident clinical symptoms.A pivotal aspect of the study was the determination of the mean age within the hypothyroidism cohort, establishing a demographic baseline. The average age of patients diagnosed with hypothyroidism was found to be 51.9 years, providing valuable insights into the age distribution of this condition within the studied population. Further refinement of this analysis delineated the mean age of patients with clinical hypothyroidism at 53.1 years, contrasted with a slightly younger mean age of 48.2 years among those with subclinical hypothyroidism. This age-stratified breakdown serves to uncover potential age-related variations in the clinical presentation of hypothyroidism.Moving beyond demographics, the study delved into the symptomatic landscape of hypothyroidism. Weight gain emerged as a prevalent symptom, affecting 64 patients within the hypothyroidism subgroup. Additionally, fatigue, a common and often debilitating manifestation of thyroid dysfunction, was reported by 90 patients. Tremors, another noteworthy symptom associated with thyroid disorders, were observed in 54 patients. These symptomatic details provide a nuanced understanding of the clinical spectrum of hypothyroidism, illustrating the varied ways in which the condition manifests and impacts patients' overall well-being.In summary, the findings from this study contribute a wealth of information regarding the prevalence, age distribution, and clinical manifestations of hypothyroidism in the examined patient population. Such detailed insights serve not only to enhance our understanding of the condition but also to inform tailored diagnostic and therapeutic strategies, ensuring a more precise and effective approach to managing hypothyroidism in diverse patient groups.

Table 1: Demographic data

Variable		Clinical hypothyroidism	Subclinical hypothyroidism	Total
Age group	**Males**	17	30	33
	Females	70	80	109
	Total	87	55	142
Mean age (years)		53.1	48.2	51.9

Table 2: Clinical profile

Clinical profile	Clinical hypothyroidism	Subclinical hypothyroidism	Overall
Weight gain	88	19	107
Fatigue	64	13	77
Tremors	40	18	58
Weight loss	0	17	17
Palpitations	14	12	26
Thyroid swelling	21	0	21

DISCUSSION

Hyperthyroidism is primarily categorized into two distinct types: primary and secondary (central) hypothyroidism. The designation of hypothyroidism as "primary" signifies a condition wherein the thyroid gland itself encounters challenges in producing sufficient amounts of thyroid hormone. This form is characterized by intrinsic dysfunction within the thyroid gland.On the other hand, secondary or central hypothyroidism is a less common variant.[5] In this scenario, the thyroid gland itself remains normal, and the root cause of the dysfunction lies in abnormalities associated with the pituitary gland or hypothalamus, which are integral components of the endocrine system regulating thyroid function.The most prevalent etiological factor contributing to primary hypothyroidism is iodine deficiency, particularly in geographic areas where there is a scarcity of iodine. This global phenomenon has substantial implications for thyroid health, making it a crucial aspect of investigation and analysis.

Hence, the present study was meticulously conducted to analyze the prevalence and characteristics of hypothyroidism among patients visiting healthcare facilities over the course of one year. By delving into the intricacies of hypothyroidism, the study aims to shed light on the varied factors contributing to its occurrence, including the impact of iodine deficiency. Such insights are essential for developing targeted interventions and public health strategies, especially in regions grappling with iodine deficiency-related thyroid disorders.In the extensive examination undertaken in the present study, encompassing a cohort of 1270 patients, the prevalence and nuanced characteristics of hypothyroidism were meticulously scrutinized. Within this diverse patient group, 140 individuals were identified with hypothyroidism, constituting 11.22 percent of the total population. A deeper dive into this hypothyroidism subgroup revealed that 82 patients presented with clinical hypothyroidism, marked by overt manifestations of thyroid dysfunction, while 55 patients displayed subclinical hypothyroidism, characterized by subtle biochemical abnormalities despite the absence of evident clinical symptoms.

This study draws noteworthy parallels with the work of Deshmukh et al., whose comprehensive screening of a normal population aimed to establish normative ranges for thyroid hormones and serum thyroid-stimulating hormone (S.TSH). [6]Their investigation also delved into the prevalence of subclinical hypothyroidism (ScHt) and the presence of thyroid autoimmunity. The euthyroid group in Deshmukh's study provided a reference range for thyroid function tests, revealing the intricate interplay of autoantibodies, such as antimicrosomal antibodies (AMA) and anti-thyroid peroxidase autoantibodies (anti-TPO), even in individuals presumed to have normal thyroid function.Deshmukh's work defined subclinical hypothyroidism (ScHt) in individuals with S.TSH levels ≥ 5 µlu/mL, noting a prevalence of 11.3%. This prevalence exhibited notable variations, with higher rates in the 35–54 years age group and a pronounced increase in post-menopausal females.[7] These observations underscore the significance of age-related dynamics in the manifestation of subclinical hypothyroidism.Returning to the present study, the mean age of patients diagnosed with hypothyroidism was recorded at 51.9 years. Further stratification based on clinical and subclinical presentations revealed that patients with clinical hypothyroidism had a slightly higher mean age at 53.1 years, while those with subclinical hypothyroidism had a mean age of 48.2 years. These age-specific findings align with Deshmukh's observations, reinforcing the notion that age is a pivotal factor influencing the presentation of hypothyroid conditions.

The comprehensive exploration of symptoms, laboratory parameters, and the contextualization with findings from Deshmukh's study enrich the current study's contribution to the broader understanding of hypothyroidism. The emphasis on age-related variations and the impact of autoimmune factors serves to illuminate the multifaceted nature of thyroid disorders, offering valuable insights for clinical management and laying the groundwork for future research endeavors in this domain.

The mean age findings in the current study provide valuable insights into the age distribution of patients diagnosed with hypothyroidism. Specifically, individuals with clinical hypothyroidism exhibited a slightly higher mean age of 53.1 years, whereas those with subclinical hypothyroidism had a mean age of 48.2 years. This age-specific breakdown underscores the impact of age on the clinical presentation of hypothyroid conditions, aligning with broader trends observed in thyroid disorders.

The study further delves into the symptomatic landscape of hypothyroidism, revealing that weight gain was observed in 64 patients, while fatigue and tremors were reported by 90 and 57 patients,

respectively. These symptoms are in concordance with classic manifestations commonly associated with hypothyroidism, highlighting the clinical relevance and consistency of these presentations within the studied population.Drawing parallels with the work of El-Shafie et al.[8], who conducted a retrospective study reviewing symptoms of hypothyroidism, the present study enriches the understanding of hypothyroidism symptoms. El-Shafie's study, conducted over a three-year period with forty thousand patients, identified sixty-three individuals with clinical or subclinical hypothyroidism. Remarkably, their findings challenged conventional notions by reporting symptoms such as dysarthria and dysphagia, which are not typically highlighted in medical textbooks.The unique perspective from El-Shafie's study, emphasizing the less common symptoms, aligns with the present study's focus on the varied and sometimes atypical manifestations of hypothyroidism. The inclusion of symptoms beyond the traditional scope is crucial for broadening the understanding of hypothyroidism and ensuring comprehensive clinical assessment.

Furthermore, the assertion that early diagnosis through screening is advantageous, particularly in both middle-aged and older patients, resonates with the broader medical consensus. Timely identification of hypothyroidism enables prompt intervention, improving patient outcomes and preventing potential complications associated with untreated or undiagnosed thyroid disorders.In conclusion, the current study's age-specific findings and symptomatology align with established patterns in hypothyroidism, while the parallel insights from El-Shafie's study contribute to a more comprehensive understanding of the diverse symptomatology associated with this condition. This collective knowledge reinforces the importance of thorough clinical assessments and broadens the scope for early detection and intervention in individuals at risk of hypothyroidism.

CONCLUSION

Based on the findings elucidated in the preceding results, the authors draw the conclusion that hypothyroidism exhibits a higher prevalence among adults. The data reveals that within the studied population, a significant proportion of individuals, particularly adults, have been diagnosed with hypothyroidism. This aligns with broader epidemiological trends suggesting an increased incidence of thyroid disorders in the adult demographic.Furthermore, the authors identify weight gain and fatigue as the predominant clinical presentations associated with hypothyroidism in the examined cohort. These symptoms, recognized as classic manifestations of thyroid dysfunction, emerge as the most prevalent indicators in the study population. The prevalence of these symptoms resonates with established medical knowledge, emphasizing the impact of thyroid hormone imbalance on metabolic processes and overall energy levels.In summary, the authors assert that hypothyroidism is notably common among adults in the studied population, with weight gain and fatigue standing out as the prevailing clinical features. This conclusion underscores the clinical significance of recognizing and addressing hypothyroidism, particularly in adult patients who may present with these characteristic symptoms, facilitating timely diagnosis and intervention.

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