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DIVERSE CLINICAL PRESENTATIONS AND PATTERNS OF THYROID DISORDERS: A HOSPITAL-BASED CROSS-SECTIONAL STUDY

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ABSTRACT

Background: The objective is to evaluate the clinical spectrum, demographic profile, and distribution of thyroid disorders among patients. The study design is cross-sectional study. The research was conducted between October 2024 to October 2025 at People's University of Medical and Health sciences for women Nawabshah.

Materials and Methods: Eighty-two patients aged 16-70 years with clinical features that suggested thyroid dysfunction were enrolled. Patients with significant comorbidities, pregnancy, lactation, or medications that would confound the results were excluded. Thyroid function (fT3, fT4, TSH), autoimmune markers, thyroid ultrasound, and selective radionuclide scan were performed. Data analysis was conducted in SPSS 25.0.

Results: The mean age was 42.15 ± 14.23 years, with a significant female representation (86.6%). Overt hyperthyroidism was most diagnosed (n=59, 72.0%), followed by overt hypothyroidism (n=10, 12.2%), subclinical hypothyroidism (n=8, 9.8%), and subclinical hyperthyroidism (n=5, 6.1%). Hyperthyroid patients demonstrated high pulse rate (107.4 ± 11.8 bpm), weight loss (98.3%), heat intolerance (94.9%), palpitations (93.2%), tremors (96.6%), and anxiety (100%). Hypothyroid patients predominantly experienced weight gain (90%), cold intolerance (80%), constipation (80%), dry skin (80%), depression (90%), and reflex latencies (70%). This was slightly less than the 87.8% hair loss and 98.8% thyroid swelling observed in the groups.

Conclusion: Overt hyperthyroidism is the most common and has extreme classic features and is more common in women. The results underline the clinical importance of early clinical identification and biochemical confirmation aimed at timely management and the prevention of complications.

Keywords: Thyroid disorders, hyperthyroidism, hypothyroidism, clinical spectrum, tertiary care hospital.

INTRODUCTION

Thyroid disorders are common endocrine diseases that arise when the thyroid gland overproduces or underproduces hormone, or when it develops structural abnormalities. These disorders contain a broad spectrum of pathologies that affect metabolic, cardiovascular, neurological, and reproductive functions.[1] The thyroid is located in the anterior lower neck, inferior to the larynx [voice box] and on either side of the trachea [windpipe], with two lobes connected by a narrow isthmus.[2] Its primary function is to produce and release thyroid hormones (primarily thyroxine or T4 and triiodothyronine or T3), which regulate the basal metabolic rate, energy expenditure, protein synthesis, growth and

development, heart rate, body temperature, and almost every central organ system.[2,3] Any disruption in thyroid hormone production, release, or action results in varied clinical manifestations that can significantly impair quality of life if not diagnosed and managed promptly.[4]

The clinical spectrum of thyroid disorders is very broad, ranging from asymptomatic subclinical disorders to severe overt disorders affecting multiple systems. Most commonly, hypothyroidism occurs because of chronic autoimmune (Hashimoto's) thyroiditis that progressively destroys functional thyroid tissue or in iodine-deficient areas because of insufficient iodine intake that hinders hormone synthesis.[5] Patients usually present with fatigue, weight gain, cold intolerance, dry skin, hair loss, constipation, depression, bradycardia, delayed reflexes, and, in severe cases, myxedema coma.[1,5] Hyperthyroidism is caused most often by Graves' disease (autoimmune TSH-receptor stimulating antibodies), toxic multinodular goiter, toxic adenoma, or various forms of thyroiditis (subacute, painless, or postpartum) that release stored hormone. It usually presents with weight loss despite increased appetite, heat intolerance, palpitations, tremor, anxiety, diarrhea, menstrual irregularities, and, in Graves' disease, orbitopathy or pretibial myxedema.[1,5] Goiter and thyroid nodules may have normal, low, or high thyroid function. Subclinical variants, which are more commonly identified through screening, may progress insidiously and contribute to cardiovascular risks if not addressed, especially in areas with limited healthcare access.[6]

Globally, the prevalence of overt hypothyroidism can range from 0.3% to 3.7% in the United States and 0.2% to 5.3% in Europe; subclinical hypothyroidism, 4% to 15%; overt hyperthyroidism, 0.2% to 1.3% in iodine-sufficient regions; and subclinical hyperthyroidism, 0.7% to 3.9%.[1] In Pakistan, studies report hypothyroidism prevalence at around 4.1% and hyperthyroidism at 5.1%, with recent surveys among specific populations, such as university students, reporting up to 7.6%.[5-7] Factors such as iodine nutrition, genetics, environmental exposures, and autoimmunity contribute to these rates, with higher burdens observed in regions transitioning from iodine deficiency.[8] In Pakistan, persistent borderline iodine insufficiency in some areas, coupled with rising urbanization and diagnostic capabilities, may increase risks, particularly among women and older adults.[6]

Existing research in Pakistan has reported regional differences, including higher rates of goiter in the northern provinces and of autoimmune thyroiditis in cities. However, much of the data comes from older population surveys or small cohorts.[5,7] A study at a Peshawar tertiary hospital identified hyperthyroidism as the dominant presentation, but advances in testing and possibly viral triggers of autoimmunity highlight the need for updated knowledge in the northwestern regions.[5] This study aims to explore the varied clinical manifestations and distribution of thyroid disorders among patients to guide local diagnosis and management strategies.

MATERIALS AND METHODS

A total of 82 patients aged between 16 and 70 years with clinical signs suggestive of thyroid dysfunction were enrolled after obtaining written informed consent. The study was conducted in accordance with principles of the Declaration of Helsinki. Ethical approval for the study was obtained from the Institutional Review Board.

Patients who had a known history of ischemic heart disease, chronic kidney disease, chronic liver disease, or any acute illness within the past three months were excluded. Pregnant women, women who were breastfeeding, and people who were taking lithium or amiodarone or had received radioactive iodine therapy were also not allowed to participate. The WHO sample size calculator was used to determine a sample size of 82 at the 95% confidence level with a 5% margin of error and an estimated prevalence of thyroid disorders of 4.1%. The purpose and procedures of the study were well explained to all participants in advance.

A pre-designed proforma was used to collect data on demographic details, medical history, clinical symptoms, and thyroid-related complaints. Thyroid function tests (free Triiodothyronine (fT3), free Thyroxine (fT4), and Thyroid Hormone Stimulating Hormone (TSH)) were performed from blood samples using the electrochemiluminescence immunoassay (ECLIA) technique on the Cobas e411 analyzer (Roche Diagnostics). To ensure accurate results, the laboratory included daily internal quality checks and periodic external quality assurance.

Autoimmune markers, including anti-thyroid peroxidase antibodies (anti-TPO) and TSH-receptor antibodies (TRAb), were tested using the same ECLIA platform when clinically indicated to identify autoimmune thyroid conditions. Thyroid ultrasonography was performed in all patients to assess gland size, echotexture, and presence of nodules. Radionuclide thyroid scanning with technetium-99m pertechnetate was done selectively in cases of suspected toxic nodules or low-uptake thyrotoxicosis.

Data analysis was performed using IBM SPSS version 25.0. Categorical variables were expressed as frequencies and percentages, whereas continuous variables were presented as mean ± standard deviation or median where appropriate. Comparison of clinical and biochemical parameters between hypothyroid and hyperthyroid groups was carried out using suitable statistical tests.

RESULTS

The study included 82 patients with a mean age of 42. Most participants were female (n=71, 86.6%) and married (n=74, 90.2%). The majority were

literate (n=77, 93.9%) and unemployed or housewives (n=68, 82.9%). Only 14 patients (17.1%) were employed and 11 (13.4%) were male, indicating a clear female predominance in patients [Table 1].

Table 1: Baseline demographic and social profile of the study participants (n=82)

Variables	Values
Age (years)	42.15 ± 14.23
Gender	
Male	11 (13.4%)
Female	71 (86.6%)
Marital Status	
Married	74 (90.2%)
Unmarried	8 (9.8%)
Educational Status	
Illiterate	5 (6.1%)
Literate	77 (93.9%)
Occupation	
Employed	14 (17.1%)
Unemployed/Housewife	68 (82.9%)

Among the patients, overt hyperthyroidism was the most frequent diagnosis (n=59, 72.0%), followed by overt hypothyroidism (n=10, 12.2%), subclinical hypothyroidism (n=8, 9.8%), and subclinical hyperthyroidism (n=5, 6.1%).

Biochemically, patients with overt hyperthyroidism (n=59) exhibited markedly elevated T3 (278.4 ± 102.6 ng/ml) and T4 (27.6 ± 7.9 µIU/ml) with suppressed TSH (0.02 ± 0.01 µIU/ml), whereas overt hypothyroid patients (n=10) showed low T4 (7.42 ± 12.8 µIU/ml) and high TSH (41.2 ± 19.7 µIU/ml). Pulse rate was significantly higher in overt hyperthyroidism (n=59; 107.4 ± 11.8 bpm) than in hypothyroidism (n=10; 66.9 ± 8.1 bpm).

Classic hyperthyroid symptoms predominated in the overt hyperthyroid group (n=59): sweaty palms (n=58, 98.3%), tremor (n=57, 96.6%), palpitations (n=55, 93.2%), heat intolerance (n=56, 94.9%), weight loss (n=58, 98.3%), and anxiety (n=59, 100%). In contrast, overt hypothyroidism (n=10) was characterized by cold intolerance (n=8, 80.0%), weight gain (n=9, 90.0%), constipation (n=8, 80.0%), dry skin (n=8, 80.0%), delayed reflexes (n=7, 70.0%), and depression (n=9, 90.0%). Hair loss was common across all categories (n=72, 87.8%), and thyroid swelling was almost universal (n=81, 98.8%).

Table 2: Clinical signs, biochemical parameters, and symptom distribution across different categories of thyroid dysfunction in the study population (n=82)

Variables	Hypothyroidism (n=10)	Hyperthyroidism (n=59)	Subclinical Hypothyroidism (n=8)	Subclinical Hyperthyroidism (n=5)	Total (n=82)
Biochemical & Vital Signs					
Blood Pressure (mmHg)	123.4 ± 23.7	123.8 ± 14.2	115.6 ± 19.1	120.3 ± 8.4	122.6 ± 15.7
Pulse (bpm)	66.9 ± 8.1	107.4 ± 11.8	70.8 ± 10.2	106.2 ± 4.8	104.9 ± 42.3
Temperature (ºC)	97.9 ± 0.4	98.1 ± 0.3	98.0 ± 0.1	98.3 ± 0.5	98.1 ± 0.3
Weight (kg)	62.7 ± 10.9	46.4 ± 6.3	63.5 ± 9.4	44.2 ± 3.9	49.8 ± 10.4
Height (ft)	5.05 ± 0.41	5.22 ± 0.45	5.07 ± 0.33	5.14 ± 0.62	5.19 ± 0.44
BMI (kg/m²)	25.8 ± 4.2	24.4 ± 3.4	25.7 ± 4.0	17.1 ± 1.3	24.9 ± 4.5
T4 (µIU/ml)	7.42 ± 12.8	27.6 ± 7.9	9.1 ± 1.8	11.4 ± 1.6	22.5 ± 11.8
T3 (ng/ml)	88.2 ± 15.3	278.4 ± 102.6	141.3 ± 25.7	154.8 ± 18.4	235.6 ± 118.9
TSH (µIU/ml)	41.2 ± 19.7	0.02 ± 0.01	20.6 ± 5.9	0.04 ± 0.02	7.3 ± 22.1
Clinical Signs					
Palms					
Cold	9 (90.0)	1 (1.7)	7 (87.5)	0 (0)	17 (20.7)
Sweaty	1 (10.0)	58 (98.3)	1 (12.5)	5 (100)	65 (79.3)
Nails					
Changes	0 (0)	2 (3.4)	0 (0)	0 (0)	2 (2.4)
Normal	10 (100.0)	57 (96.6)	8 (100.0)	5 (100)	80 (97.6)
Reflexes					
Intact	3 (30.0)	48 (81.4)	2 (25.0)	1 (20.0)	54 (65.9)
Absent/Delayed	7 (70.0)	11 (18.6)	6 (75.0)	4 (80.0)	28 (34.1)
Tremor					
Present	1 (10.0)	57 (96.6)	0 (0)	5 (100)	63 (76.8)
Absent	9 (90.0)	2 (3.4)	8 (100.0)	0 (0)	19 (23.2)
Thyroid Consistency					
Soft	10 (100.0)	53 (89.8)	8 (100.0)	5 (100)	76 (92.7)
Firm	0 (0)	6 (10.2)	0 (0)	0 (0)	6 (7.3)
Lymph Nodes					
Palpable	1 (10.0)	1 (1.7)	0 (0)	0 (0)	2 (2.4)
Absent	9 (90.0)	58 (98.3)	8 (100.0)	5 (100)	80 (97.6)

Bruit					
Present	0 (0)	2 (3.4)	0 (0)	0 (0)	2 (2.4)
Absent	10 (100.0)	57 (96.6)	8 (100.0)	5 (100)	80 (97.6)
Goitre on Ultrasound					
Present	2 (20.0)	9 (15.3)	0 (0)	0 (0)	11 (13.4)
Normal	8 (80.0)	50 (84.7)	8 (100.0)	5 (100)	71 (86.6)
Thyroid Texture on Ultrasound					
Homogenous	8 (80.0)	37 (62.7)	8 (100.0)	2 (40.0)	55 (67.1)
Heterogeneous	2 (20.0)	22 (37.3)	0 (0)	3 (60.0)	27 (32.9)
Nodular Morphology					
Single	0 (0)	9 (15.3)	0 (0)	0 (0)	9 (11.0)
Multiple	1 (10.0)	5 (8.5)	0 (0)	3 (60.0)	9 (11.0)
Absent	9 (90.0)	45 (76.3)	8 (100.0)	2 (40.0)	64 (78.0)
Calcification on Ultrasound					
Yes	0 (0)	3 (5.1)	0 (0)	0 (0)	3 (3.7)
No	10 (100.0)	56 (94.9)	8 (100.0)	5 (100)	79 (96.3)
Vascularity on Ultrasound					
Increased	0 (0)	18 (30.5)	0 (0)	1 (20.0)	19 (23.2)
Decreased	10 (100.0)	41 (69.5)	8 (100.0)	4 (80.0)	63 (76.8)
Radionuclear Scan (Uptake)					
Increase	10 (100.0)	58 (98.3)	8 (100.0)	5 (100)	81 (98.8)
Decrease	0 (0)	1 (1.7)	0 (0)	0 (0)	1 (1.2)
Radionuclear Scan (Types of Nodules)					
Hot	0 (0)	3 (5.1)	0 (0)	0 (0)	3 (3.7)
Cold	0 (0)	3 (5.1)	0 (0)	0 (0)	3 (3.7)
Colloid					
Yes	0 (0)	4 (6.8)	0 (0)	0 (0)	4 (4.9)
No	10 (100.0)	55 (93.2)	8 (100.0)	5 (100)	78 (95.1)
Constitutional					
Weight Loss	1 (10.0)	58 (98.3)	0 (0)	5 (100)	64 (78.0)
Weight Gain	9 (90.0)	2 (3.4)	8 (100.0)	0 (0)	19 (23.2)
Heat Intolerance	1 (10.0)	56 (94.9)	0 (0)	5 (100)	62 (75.6)
Cold Intolerance	8 (80.0)	2 (3.4)	5 (62.5)	0 (0)	15 (18.3)
Restlessness	1 (10.0)	35 (59.3)	0 (0)	2 (40.0)	38 (46.3)
Tiredness	7 (70.0)	57 (96.6)	5 (62.5)	2 (40.0)	71 (86.6)
Appetite (increased)	5 (50.0)	25 (42.4)	4 (50.0)	0 (0)	34 (41.5)
Fatigue	8 (80.0)	48 (81.4)	6 (75.0)	3 (60.0)	65 (79.3)
Myalgias	9 (90.0)	44 (74.6)	2 (25.0)	1 (20.0)	56 (68.3)
Cardiovascular					
Palpitations	2 (20.0)	55 (93.2)	0 (0)	5 (100)	62 (75.6)
Respiratory					
Dyspnea	4 (40.0)	5 (8.5)	0 (0)	0 (0)	9 (11.0)
Gastrointestinal					
Diarrhea	0 (0)	20 (33.9)	0 (0)	3 (60.0)	23 (28.0)
Constipation	8 (80.0)	3 (5.1)	5 (62.5)	0 (0)	16 (19.5)
Neuromuscular					
Difficulty Raising From Chair	8 (80.0)	28 (47.5)	5 (62.5)	1 (20.0)	42 (51.2)
Difficulty Combing Hair	7 (70.0)	26 (44.1)	2 (25.0)	0 (0)	35 (42.7)
Extremity Shaking	1 (10.0)	55 (93.2)	0 (0)	5 (100)	61 (74.4)
Neuropsychiatric					
Sleep Disturbance	5 (50.0)	4 (6.8)	4 (50.0)	0 (0)	13 (15.9)
Poor Concentration	4 (40.0)	2 (3.4)	1 (12.5)	0 (0)	7 (8.5)
Depression	9 (90.0)	15 (25.4)	6 (75.0)	1 (20.0)	31 (37.8)
Memory Loss	1 (10.0)	0 (0)	1 (12.5)	0 (0)	2 (2.4)
Emotional Lability	1 (10.0)	32 (54.2)	0 (0)	0 (0)	33 (40.2)
Anxiety	2 (20.0)	59 (100.0)	2 (25.0)	5 (100)	68 (82.9)
Genitourinary					
Oligomenorrhoea	0 (0)	13 (22.0)	0 (0)	0 (0)	13 (15.9)
Menorrhagia	3 (30.0)	1 (1.7)	3 (37.5)	0 (0)	7 (8.5)
Skin					
Dry Skin	8 (80.0)	2 (3.4)	5 (62.5)	0 (0)	15 (18.3)
Discoloration	4 (40.0)	1 (1.7)	1 (12.5)	0 (0)	6 (7.3)
Sweating	0 (0)	33 (55.9)	0 (0)	3 (60.0)	36 (43.9)
Itchy Skin	7 (70.0)	13 (22.0)	5 (62.5)	1 (20.0)	26 (31.7)
Hair Loss	9 (90.0)	52 (88.1)	8 (100.0)	3 (60.0)	72 (87.8)
Head, Eyes, Ear, Nose & Throat					
Thyroid Swelling	10 (100.0)	59 (100.0)	7 (87.5)	5 (100)	81 (98.8)
Eye Lid Swelling	0 (0)	11 (18.6)	0 (0)	0 (0)	11 (13.4)
Double Vision	0 (0)	7 (11.9)	0 (0)	0 (0)	7 (8.5)

DISCUSSION

The present study examined clinical presentation and spectrum of thyroid disorders among patients. The cohort showed a mean age of 42.15 ± 14.23 years and a striking female predominance (86.6%), which closely mirrors global patterns where thyroid disorders affect women 5-10 times more frequently than men, largely due to autoimmune mechanisms and hormonal factors.[1] There is evidence that hyperthyroidism, particularly Graves' disease, is still higher among reproductive-aged women, although usually with milder phenotypes at presentation.[9] The gender ratio in our study is comparable to that of Aidoo et al., who reported 85.1% females with a mean age of 45 years,[10] and Naseem et al., who reported 74.4% females.[8] The age distribution is typical of epidemiologic patterns, which show that the highest incidence of both hypo- and hyperthyroidism occurs in middle-aged adults, especially in women.[11]

We demonstrated that overt hyperthyroid patients had markedly elevated free T3 and T4, with suppressed TSH. This suggests overproduction and release of thyroid hormones and is usually observed in Graves' disease or toxic nodular disorders.[11] This trend is consistent with recent studies showing that hyperthyroid patients tend to have T3 and T4 levels 2-3 times the reference range due to TSH-receptor stimulation or autonomous nodules.[12] Conversely, in overt hypothyroidism, T4 and TSH were elevated, as expected with primary thyroid failure and pituitary feedback, as were observed in Taylor et al., with mean TSH in overt hypothyroidism frequently greater than 40 microunit/ml in hospital groups with either Hashimoto or post-ablative disease.[11] Extreme changes were less evident in subclinical groups. Subclinical hypothyroidism involves a standard range of TSH and normal peripheral hormones. TSH was characterized as subclinical hyperthyroidism within the normal range, with a slight increase in T3/T4, as defined in the European Thyroid Association guidelines for endogenous subclinical hyperthyroidism, with TSH <0.1 µIU/mL and normal peripheral hormone levels.[13]

The greatest difference was observed in cardiovascular parameters, with pulse rate at 107.4 ± 11.8 bpm in overt hyperthyroidism and 66.9 ± 8.1 bpm in overt hypothyroidism, indicating a direct effect of thyroid hormone on sinus node excitability. This is consistent with the findings of Soetedjo et al., who reported that a resting heart rate above 100 bpm is common in more than 90% of untreated thyrotoxic patients worldwide.[14]

In our study, sweaty palms were nearly universal in overt and subclinical hyperthyroidism but rare in hypothyroidism, whereas cold palms were common in hypo groups. This is based on the studies of Lee and Pearce, who found excessive sweating and moist skin in more than 90% of untreated hyperthyroid cases, resulting from increased sympathetic activity.[12] In addition, 100% of hypo and 89.8-100% of hyper had a soft thyroid, with only 10.2% of overt hyperthyroidism having a firm thyroid. This corresponds with a study by Marakala et al. in Oman that documented predominantly soft/diffuse enlargement in thyrotoxicosis.[15] Ultrasound revealed heterogeneous texture in 37.3% of overt hyper vs. 20% of overt hypo, and vascularity in 30.5% of overt hyperthyroidism. This is similar to a study by Baek et al., which used microvascular US and found that a high vascularity index could distinguish between Graves' disease and destructive thyroiditis, but our rate was intermediate, suggesting a fluctuating disease state.[16]

Weight loss was high in hyperthyroid patients, and weight gain was predominantly reported in hypothyroid patients. This sharp contrast is consistent with a review by Lee and Pearce, who describe unintentional weight loss as a characteristic of thyrotoxicosis secondary to hypermetabolism, which is seen in most untreated patients of any etiology.[12] Likewise, Marakala et al. found similar weight variations in the same direction in the symptomatic cohorts, but the overall prevalence of hyperthyroidism was lower.[15] Heat and cold intolerance also underscore thermoregulatory disturbance, as Chaker et al. found that heat intolerance and sweating were common and frequent complaints in Graves' disease and toxic nodular goiter.[17] Furthermore, our prevalence of tiredness and fatigue overlaps with that reported by Zhao et al. for immune-related thyroid dysfunction, in which fatigue persisted in both hyper- and hypothyroid states due to systemic inflammation.[18]

Skin and hair changes were remarkably prevalent, with hair loss in 88.1-100% of all categories (overall 87.8%), higher than the typically quoted 40-60% in Western series, possibly reflecting delayed presentation or nutritional cofactors in regional populations.[12] Dry skin predominated in hypo groups, and excessive sweating characterized hyper states, consistent with two studies showing oligomenorrhea in 22% of overt hyperthyroid females, in contrast to menorrhagia in 30-37.5% of hypo.[11,17] These detailed symptom distributions highlight the importance of symptom-guided screening in areas of high prevalence, to enable earlier intervention with antithyroid drugs or levothyroxine, to prevent progression to complications such as heart failure or myxedema.

Similar patterns of healthcare avoidance have been observed in our local setting, where fear and misconceptions during the COVID-19 pandemic significantly reduced clinic attendance, suggesting that such behavioral barriers may also contribute to delayed presentation of thyroid disorders in symptomatic patients.[19]

This study was limited to a single tertiary care center, had a relatively small sample size, and used a cross-sectional design, which may have introduced bias toward more symptomatic patients and limited

generalizability to the broader community. The lack of long-term follow-up also precludes assessment of disease progression or treatment response.

CONCLUSION

This research demonstrates that overt hyperthyroidism is predominant in thyroid disorders, with a very high incidence of typical thyrotoxic symptoms, and with a very high female preponderance. Clinical manifestations are very typical and similar to those in other regions of the world. Nevertheless, the large percentage of hyperthyroidism and symptom severity indicates the ongoing delay in diagnosis within the population. These results demonstrate the need for further work on awareness and education, earlier screening, and better organization of thyroid disease management at the first level in the area to reduce the burden on specialist services and prevent long-term complications.

REFERENCES

1. Taylor PN, Albrecht D, Scholz A, Gutierrez-Buey G, Lazarus JH, Dayan CM, et al. Global epidemiology of hyperthyroidism and hypothyroidism. Nature Reviews Endocrinology. 2018;14(5):301-16
2. Salman AG, Mahdi IA-J, Mukhlef AK, abd alsattar Mohammad R, Zaghir MSH, muatez Wadaa'a N. Physiological aspects of thyroid disorders: Anatomy, hormones, diagnosis and management. Current Clinical and Medical Education. 2024;2(05):17-32
3. van Heemst D. The ageing thyroid: implications for longevity and patient care. Nature Reviews Endocrinology. 2024;20(1):5-15
4. Vanderpump MP. Epidemiology of thyroid disorders. The thyroid and its diseases: A comprehensive guide for the clinician: Springer; 2019. p. 75-85.
5. Ullah F, Ali SS, Tahir H. Clinical spectrum of thyroid disorders; An experience at a tertiary care hospital in Peshawar. Pakistan Journal of Medical Research. 2022;61(2):56-62
6. Iqbal A, Azhar S, Murtaza G, Bibi R, Samreen S, Iqbal MM, et al. Navigating Thyroid Dysfunction and Comorbidities Among University Students in Abbottabad, Pakistan–A Cross-Sectional Evaluation of Screening Tool for Thyroid Dysfunction. International Journal of General Medicine. 2023:4193-205
7. Javed R. Incidence of thyroid diseases in local population. Pakistan Journal of Medical & Health Sciences. 2023;17(01):17-
8. Naseem M, Ali S, Qadir S, Riaz A, Monawwer A, Tahir B, et al. Trends of pathological findings in patients with thyroid diseases: a single-center, retrospective study. Clinical Medicine Insights: Endocrinology and Diabetes. 2024;17:11795514241299709
9. Acosta GJ, Ospina NS, Brito JP. Epidemiologic changes in thyroid disease. Current Opinion in Endocrinology, Diabetes and Obesity. 2024;31(5):184-90
10. Aidoo ED, Ababio GK, Arko-Boham B, Tagoe EA, Aryee NA. Thyroid dysfunction among patients assessed by thyroid function tests at a tertiary care hospital: a retrospective study. The Pan African Medical Journal. 2024;49:7
11. Taylor PN, Medici MM, Hubalewska-Dydejczyk A, Boelaert K. Hypothyroidism. The Lancet. 2024;404(10460):1347-64.doi:10.1016/S0140-6736(24)01614-3
12. Lee SY, Pearce EN. Hyperthyroidism: a review. Jama. 2023;330(15):1472-83
13. Persani L, Rodien P, Moran C, Visser WE, Groeneweg S, Peeters R, et al. 2024 European Thyroid Association Guidelines on diagnosis and management of genetic disorders of thyroid hormone transport, metabolism and action. European Thyroid Journal. 2024;13(4)
14. Soetedjo NNM, Agustini D, Permana H. The impact of thyroid disorder on cardiovascular disease: Unraveling the connection and implications for patient care. IJC Heart & Vasculature. 2024;55:101536.doi:https://doi.org/10.1016/j.ijcha.2024.101536
15. Marakala V, Begum GS, Al Maqbali S, Al Risi ESA. Prevalence of thyroid disorders in a tertiary care hospital in Al Batinah North Governorate, Oman. Dialogues in Health. 2025:100246
16. Baek H-S, Jeong C, Ha J, Lim D-J. Microvascular Ultrasonography Vascularity Index as a rapid and simplified assessment tool for differentiating Graves' disease from destructive thyroiditis and managing thyrotoxicosis. Endocrinology and Metabolism. 2025;40(3):394-404
17. Chaker L, Cooper DS, Walsh JP, Peeters RP. Hyperthyroidism. The Lancet. 2024;403(10428):768-80.doi:10.1016/S0140-6736(23)02016-0
18. Zhao P, Li J, Yu L, Ma W, Zhao T. Clinical manifestations and risk factors of immune-related thyroid adverse events in patients treated with PD-1 inhibitors: a case-control study. Frontiers in Immunology. 2025;16:1581057
19. Majeed MM, Sidiqqui Z, Uzair M, Shahzad A, Rafique S, Durrani S. Fear and perception of people to visit dentists during COVID-19 pandemic and their suggestions. European Journal of General Dentistry. 2021;10(03):129-34.