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HISTOPATHOLOGICAL FINDINGS OF THYROID NEOPLASMS AND THEIR CORRELATION WITH SERUM TSH, T_3, T_4 LEVEL IN PATIENTS AT TERTIARY CARE HOSPITAL LUMHS JAMSHORO, PAKISTAN

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ABSTRACT

The current study was conducted to determine the association between Histopathological types of thyroid neoplasms and the effect of hormonal level of TSH, T3 and T4 in patients having thyroid neoplasms. The 151 patient were observed in Tertiary care hospital LUMHS Jamshoro & Hyderabad Sindh, Pakistan. Blood sample were collected in Red Top Plain Tube for the hormonal analysis of Thyroid Profile on Automatic analyzer, after surgical procedure Histopathological results were observed. The Data was divided into 7 groups the mean age were observed as 33.67 ± 10.727 years The majority of people affected were found to be between the ages of 30 and 40. It was discovered during observation that there were approximately 134 (88.7%) females, which was a higher ratio than the 17 (11.3%) males. The mean of T3 was observed as 1.49 with S.td 0.619 range from 0 to 4. And the mean of T4 was 8.176 with Std 3.512 ranges from 0.77 to 20.44. While mean of TSH obtained 3.291 with Std 8.874 and the range from 0.001 to 100.0 were obtained. After observation the findings indicate a weakly positive relationship between T3 and age. This study, however, was not significant (r=0.66) (p=420). Additionally, the results indicate a modest negative connection between T4 and age. The results of this investigation were not significant (r=.073) (p=371). The study's findings indicate a negative connection between TSH and age, which was not statistically significant (r=-.092) or p=.263). Laboratory diagnosis and Histopathological results did not significantly correlate (p=.155)

Keywords: *Histopathology; Thyroid Neoplasms; Thyroid Stimulating Hormone; Tertiary Care Hospital; Jamshoro; Hyderabad.*

INTRODUCTION

Thyroid neoplasms are diseases of the thyroid that are increasing in frequency. Globally, the rate of thyroid cancer is around 1% higher than that of other cancers (0.6% in males, 1.6% in females), and this rate is increasing yearly (Tam et al., 2018). Despite making up less than 1% of all malignancies, it is the most prevalent endocrine tumor and causes six fatalities per million each year. Its natural history and incidence vary geographically (Nagataki and Nystrom 2002). Studies have concluded that fluctuations in hormonal levels are associated with thyroid neoplasms and tumors. Endocrine disorders worldwide are observed at high rates, with prevalence rapidly increasing in Asia (Shrestha et al., 2011). In Nepal, the mortality rate due to endocrine diseases is approximately 0.2%, with iodine deficiency as a major cause of thyroid neoplasms (Ganie et al., 2007). In Pakistan, thyroid cancers presently occur between 11.3% and 14.3% of the time, with the papillary form being the most common. Previous studies show a connection between the risk of thyroid cancer and changes in thyroid hormones (Moeller and Fuhrer 2003).

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Differentiated thyroid carcinomas, including follicular and papillary thyroid carcinomas, account for almost 92% of thyroid cancers (Aschebrook-Kilfoy et al., 2011). These tumors often appear similar to goiter, multinodular goiters, or hard nodules (Su et al., 2020). Thyroid swelling should raise suspicion for malignancy if there is a rapidly growing, hard, fixed nodule, hoarseness, difficulty swallowing, or lymph node swelling, especially in individuals aged 25 or older than 60 years (Kim et al., 2013).

Research on the relationship between TSH levels and thyroid cancer risk is ongoing since some studies have indicated that elevated TSH levels may raise the risk of thyroid cancer. (Kamran et al. 2020). However, other studies have been inconclusive, showing no clear link between elevated TSH levels and the development of thyroid carcinoma (He et al., 2016; Zafon et al., 2012). It is essential to explore the correlation between thyroid neoplasms, utilizing the Bethesda classification system to classify the various stages of thyroid neoplasm, including both benign and malignant tumors. Assessing the relationship between thyroid hormone levels and the histopathological types of thyroid neoplasms is the aim of this investigation.

MATERIALS AND METHODS

Experimental Plan and Study Area:

One hundred fifty one indoor patients having neck swelling were observed at Tertiary care hospital, from (surgical wards) LUMHS Jamshoro & Hyderabad, data was collected and blood samples were aspirated about 3.0 ml using 5cc disposable syringe and draw in red top (plain tube) container for hormonal analysis on regularly. All collected blood samples were proceed from the process of centrifugation on 40000 RPM for 5 to 10 minutes to separate serum to detect effects of TSH, T3, and T4 hormones. All samples results of TSH, T3, and T4 levels analyzed on modular (Anility 6000) abbot laboratories ltd automatic analyzer which use chemiluminescent micropartical immunoassay (CMIA) method to detect level of T3, T4 and TSH of thyroid neoplasm patients [25] The Histopathological diagnosis of thyroid neoplasms performed by Tissue processing include steps like specimen fixation, gross examination, tissue processing, embedding, trimming/cutting after incubation will be followed by H&E staining method for microscopic morphological diagnosis basic Histopathological examination of thyroid neoplasms (John. D. et al., 2013).

RECEIVING

Following the surgical process, the surgeon's advice regarding the biopsy will be received. It is ensured that the specimen is properly labeled with the patient's name, age, hospital registration number, and the type of thyroid tissue to be checked. Additionally, the demand form will be filled out appropriately. At each stage of receiving, the specimen and history bar codes will be compared to the Histopathoform and assigned a biopsy number.

FIXATION

In addition, the specimens undergo a thorough examination, which includes an appropriate fixative nature check. The prepared fixative should be 15–20 times the specimen's volume. Add fixative and check to see if there isn't enough of it. To assess the outcome of thyroid cancer, the entire capsule must be marked with ink during a total thyroidectomy or lobectomy in order to detect invasion of the suspected thyroid cancer. Make a cut to ensure that the specimen is properly fixed if it is large. The tissue from the thyroid biopsy will be preserved in 10% buffered formalin**.**

FIXATIVE TIME:

At room temperature – 12 hours. John. D et al., 2013.

GROSS ANALYSIS I

t is important to physically inspect the received tissue and note its color, consistency, size, and shape. This technique is carried out by a highly skilled histopathologist and technician. In the event that medullary carcinoma is suspected, it is crucial to mark the thyroid capsule with dye (ink) for tumor invasion. Following serial sectioning, an aberrant tissue segment was chosen, encased in a biopsy without a caste label, and the next stage of tissue processing was initiated.

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TISSUE PROCESSING:
Tissue processing aims to provide the tissue a consistent consistency for easy cutting by dehydrating, clarifying, and penetrating the embedding media.

PROCESS:
An automatic tissue processor (THERMO SHANDON Citadel 2000) is used for processing. Lysosome function caused the natural process of removed body parts to autolyze, but for diagnostic purposes, we must preserve tissue and intracellular organelles with 10% buffered formalin and remove water (dehydration), which is done with the aid of the tissue processing method, which uses four different types of chemicals in 12 chambers of an automatic tissue processor that processes for 12 hours. As these maintained as in first chamber 10% buffered formalin maintained for one Hour, in second ,third, fourth, fifth, six and in seventh chamber Alcohol manage in ascending series like 70% ,80% ,90% 100% ,100%,100% while in eight chamber 50%alcohol+50% Xylene maintained and after that 100% Xylene maintained in ningth and tenth chamber while in eleven and twelfth chamber paraffin wax mange with temperature adjustment and these all are automatic time mange each for one hour. John. D. et al., 2013).

EMBEDING:
The purpose OF EMBEDDING IS the tissue is embedded in paraffin block using a conventional base mold.

PROCESS:
Following tissue processing, the Automatic Embedding Machine (TEHERMO SHANDON) is used to embed the tissues in metallic molds using paraffin wax. Pour melted wax into the mold of the proper size. Using a warm pair of forceps, place the tissue at the base of the mold, facing down at the sliced surface. To level the sliced surface, place the mold on a cool location and gently press the tissue. Place the tape on the mold's surface so that the paraffin dips into the cassette's base. Remove the mold and solidify the block on the cooling plate.

MICROTOMY / CUTTING:
Cutting is done to create a paraffin section on a regular glass slide that is 2 to 5 µ thick.

PROCESS
An apparatus known as an automatic microtome (THERMO SHANDON HM340E) is used to perform the trimming and cutting. In reality, trimming is the process of removing excess paraffin wax from the tissue's surface, which can be done on 20–30 micron. The cutting process creates tissue sections that range from 2 to 5 µIn the cassette chuck, secure the paraffin block. Make the knife visible. Trim the tissue facing the tissue. Make the necessary thickness adjustments. Cut best section. Place the acquired part in worm water that is between 43 and 46 degrees Celsius. Place the portion on a frosted glass slide with a label, then dry it at 60 degrees Celsius. John. D. et al.,:2013).

DEWEX / INCUBATION:
The PURPOSE OF INCUBATION OF SLIDES IS to clear tissue and interstitial spaces of excess paraffin wax.

PROCESS:
Slides containing paraffin wax-filled tissue should be incubated at 75°C for 20 to 25 minutes. To improve the tissue's ability to adhere to the slide and to eliminate excess paraffin wax. John. D. et al.,:2013).

HEMATOXILIN AND EIOSIN STAINING PURPOSE:
The PURPOSE OF H & E STAINING IS THAT THE since the majority of cells are transparent and colorless, histological sections must be dyed in some way in order to reveal the cells. Typically, staining involves the use of a dye that gives some cell components a vibrant color and a counterstain that gives the other cell components a contrasting color.

PRINCIPLE
In this procedure, cationic or anionic dye solutions should be utilized. Due to the fact that cationic solutions are drawn to basophilic materials or substances while

anionic dyes resemble attaching to acidophilic materials.
When combined with a mordant (metal alum), hematoxilin, which is basically oxidized hematein, forms a potent cationic dye solution that stains basophilic nuclei in H&E staining. However, because eosin solution is anionic, it is drawn to cytoplasmic acidophilic components.

REAGENTS:
Alcohol, xylene, hematoxilin, eosin, 1% acid water, and 1% ammonia water.

PROCESS:
First, paraffin wax is removed from thyroid tissue sections, which are then run in absolute xylene three times (Xylene I, Xylene II, and Xylene III) for five minutes. Put the slides in 50% ALCOHOL and 50% XYLENE to dehydrate them. It's crucial to rehydrate the tissues in order to stain the cellular content. To do this, place the tissues on rehydration slides that contain absolute alcohol, 100% alcohol, 90% alcohol, 80% alcohol, and 70% alcohol, and then dip them two or three times in distilled water. Dip the rake in hematoxilin to expose the slides. Give the thyroid tissue's cell nucleus five minutes to die. To get rid of superfluous die from the slides, dip them in distilled water two or three times more. Absolute alcohol is utilized three times for Alcohol I, Alcohol II, and Alcohol III because dehydration is now crucial for subsequent processes. Staining the cytoplasm The slides are dipped in eosin for 10 to 15 seconds using an eosin die, and three different amounts of alcohol are used: 100% alcohol, 100% alcohol, and 100% alcohol. Xylene I, Xylene II, and Xylene III are used three times to eliminate the alcohol in order to clean the tissue. John. D. et al.,: 2013).

MOUNTING:
This step involves covering the tissue on Hematoxilin and Eosin stain slides with a 24 x 50 mm cover slip and using mounting media (DPX mount or Canada balsam) to preserve the tissue for an extended period of time and facilitate microscopy for the diagnosis of various thyroid neoplasms. To dry the slides before microscopy, they were placed on a slides warmer for five to ten minutes.

MICROSCOPICAL ANALYSIS:
In the final phase, a pathologist used a microscope to analyze H&E-stained slides in order to assess their morphology and make a histopathological diagnosis of thyroid neoplasms.

Statically Analysis:
Microsoft Excel and SPSS V.22 will be used for data analysis, and descriptive-analytic tests will be performed for categorical variables. Frequencies and percentages will be used to express qualitative data, including histopathological kinds, benign and malignant neoplasms, and serum concentrations of TSH, T3, and T4. The mean and standard deviation (X ± SD) will be used to express quantitative data, such as age and gender. To determine whether thyroid hormone levels and thyroid neoplasms are connected, the chi-square test will also be employed. A P-value of 0.05 or less will be regarded as significant.

RESULTS
The 151 patient having thyroid neoplasm were observed and it was found that females were mostly affected like 134 (88.7%) ratio while in a compare to male about 17(11.3%) were involved in thyroid neoplasms.
This condition primarily affected people between the ages of 31 and 40, with the lowest age group being 0–10 years old.
Approximately 87 (57.62%) of the thyroid neoplasm patients lived in rural areas, whereas 64 (42.38%) did so.
The findings show that just 2% of patients had an adequate amount of iodine in their diet, whereas 98.0% of affected patients had inadequate iodine consumption in their regular daily diet.
According to the findings, patients with thyroid neoplasms had an average Triodothyronine (T3) level of 1.49 with a standard deviation of 0.619, ranging from 0 to 4. According to the results, patients with thyroid neoplasms had an average Tetraiodothyronine (T4) level of 8.176 with a standard deviation of 3.512, ranging from 0.77 to 20.44. The findings indicate that

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among patients with thyroid disorders, the mean level of thyroid stimulating hormone (TSH) was 3.291 with a standard deviation of 8.874, ranging from 0.001 to 100.0. The findings indicate a weakly positive relationship between age and t3. T3 level correlations with age in patients with thyroid cancer.

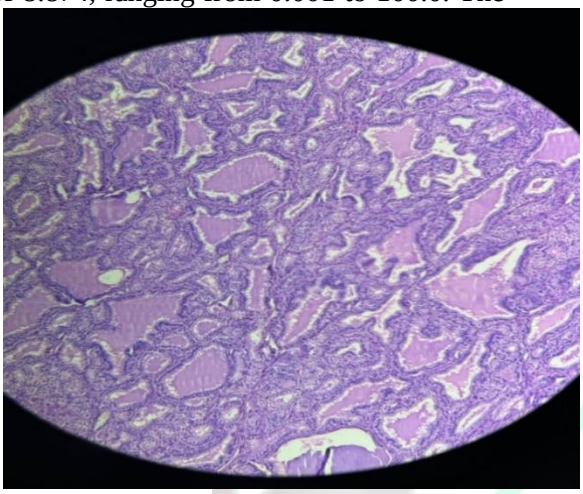

Figure 1:Follicular Adenoma

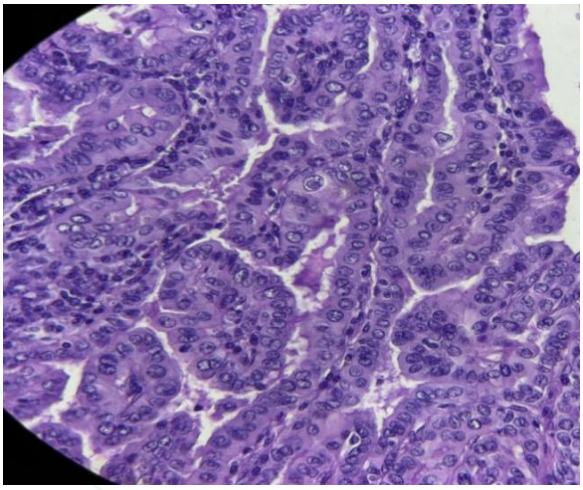

Figure 2:Papillary Carcinoma of Thyroid

Table 1: Shows correlation of Histopathological Results and Laboratory Diagnosis

Histopathological Results * Laboratory Diagnosis Cross tabulation						
Count						
		Diagnosis			Total	p.value
		Hyperthyroidism	Hypothyroidism	Euthyroidism		
Histopathological Results	Benign Thyroid Lesion	14	18	77	109	.155
	Hashimoto Thyroiditis	1	4	3	8	
	Benign Nodular Hyperplasia With Lymphocytic Thyroiditis	3	0	13	16	
	Papillary Carcinoma Of Thyroid	3	4	8	15	
	Follicular Carcinoma	0	1	2	3	
Total		21	27	103	151	

Histopathological results and laboratory diagnosis showed an insignificant connection (p=.155), with 77 out of 103 cases diagnosed with euthyroidism, 18 out of 27 hypothyroidism, and 14 out of 21 hyperthyroidism.

T3 and age have a weakly positive connection, according to the BIVAR scatter plot. Nevertheless, this study was not significant (p=.420; r=.066). Age and t4 have a weakly negative connection. This study, however, was not significant (r=-.073) (p=.371). According to the data, the

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average Tetraiodothyronine (T4) level was 8.176 with standard deviation. Thyroid neoplasm patients with a deviation of 3.512 range from 0.77 to 20.44.

T4 and age have a weakly negative connection, according to the scatter plot (BIVAR). This study, however, was not significant (r=-.073) (p=.371). The data also indicate a negative relationship between TSH and age. This study, however, was not significant (r=-.092) (p=.263).

Results obtained were the mean of Thyroid Stimulating Hormone (TSH) level Was 3.291 with std. Deviation of 8.874 in the patients of thyroid disorder ranges from 0.001 to 100.0

TSH and age have a negative connection, according to the BIVAR scatter plot. This study, however, was not significant (r=-.092) (p=.263).

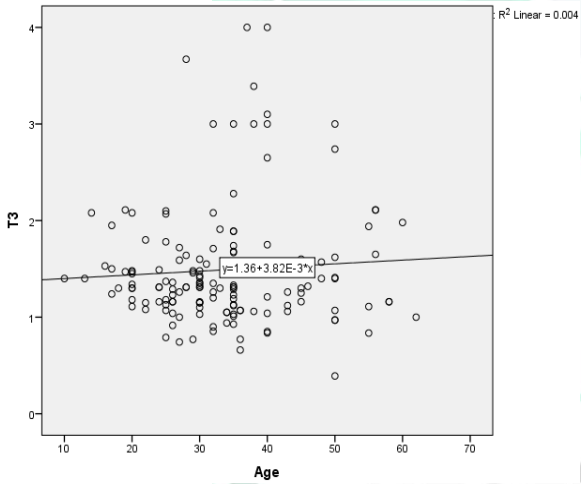

Figure 3:Scatter Plot (BIVAR) shows weak positive correlation of T3 with Age

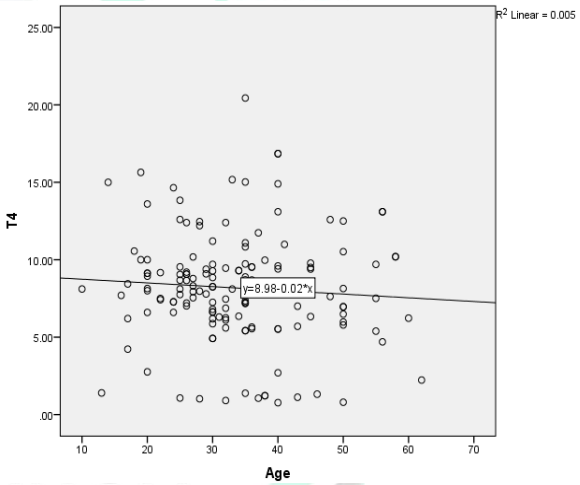

Figure 4:Scatter Plot (BIVAR) Age with T4

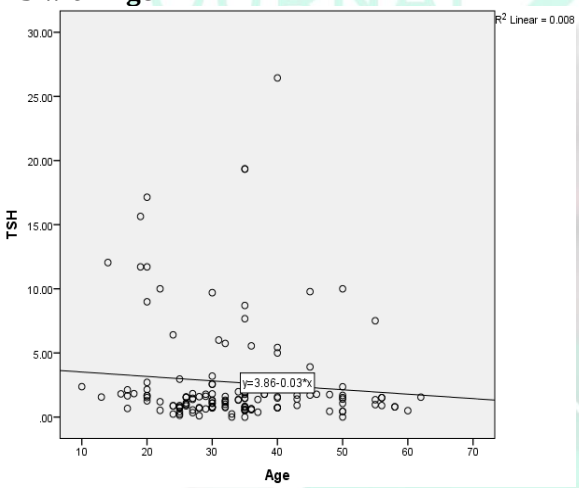

Figure 5:Scatter Plot (BIVAR) Age with TSH

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The findings show that the greater ratio was nearly 103 (68.21%) for euthyroidism, 27 (17.88%) for hypothyroidism, and 21 (13.91%) for hyperthyroidism.

The laboratory diagnosis and the histopathological data showed a negligible association (p =.155). 77 of the 103 patients had a euthyroid diagnosis, 18 of the 27 had a hypothyroid diagnosis, and 14 of the 21 had a hyperthyroid diagnosis.

Table 3: Shows Gender wise correlation of thyroid neoplasm with laboratory diagnosis

		Laboratory Diagnosis			Total
		Hyperthyroidism	Hypothyroidism	Euthyroidism	
Gender	Male	4	4	9	17
	Female	17	23	94	134
Total		21	27	103	151

Due to the fact that 77 out of 103 cases were diagnosed with euthyroidism, 18 out of 27 had hypothyroidism, and 14 out of 21 had hyperthyroidism, the correlation between histopathological results and laboratory diagnosis was found to be insignificant (p=.155).

DISCUSSION

The aim of this study was to determine the histopathological relationship between thyroid neoplasms and thyroid hormones. In order to assess the relationship between thyroid hormone levels (TSH, T3, and T4) and various thyroid neoplasms, a number of parameters were examined, including age, gender, residential status, education criteria, iodine intake, biochemical analysis, and the frequency distribution of thyroid neoplasms in various age groups and genders. The statistics and correlation with various age groups with hyperthyroidism, hypothyroidism, and euthyroidism are described in this paper. Additionally, the statistics comparing hyperthyroidism, hypothyroidism, and euthyroidism were compared. To achieve the primary goals and understand the study's aims, the frequencies and mean values were statistically determined. Finding the causes of various thyroid neoplasms, the impact of thyroid hormones, and their relationship to thyroid dysfunctions are the main goals of this study. In order to categorize thyroid neoplasms according to their histopathological types and to ascertain or assess the relationship between thyroid hormones and histopathological types of thyroid neoplasms, it is crucial to ascertain the serum concentration of TSH, T3, and T4 hormones from blood samples of thyroid neoplasm patients. In order to determine the scientific correlation between these pathological situations, the chosen individuals who had swelling in the front of their necks as a result of thyroid lesions were included in this study. the mean and standard deviation of the statistics for different age groups.

According to the results, 151 patients were seen complaining of thyroid neoplasms in the surgical wards of LUMHS Jamshoro/Hyderabad, Sindh, Pakistan, a tertiary care facility. Of the 151 patients with thyroid neoplasm, a greater ratio of 134 (88.7%) were found in females compared to roughly 17 (11.3%) in males.

Our findings closely resembles Sisk, J.'s 2002 study on thyroid disease in women, which indicated that thyroid neoplasms are more common in women. (Sisk, J. 2002).

According to the study of (Shahnaz Attaullah et al., 2013) conducted by the University of Peshawar in Pakistan, likewise revealed a greater proportion of women than men. The same data was also discovered by our research, and their findings on patient demographics revealed a significantly larger percentage of thyroid illness prevalence in comparison to males—75.8% against 24.2% in females.

Patients with thyroid neoplasms were divided into seven age groups for this investigation. The following groups (A, B, C, D, E, F, and G) range in age from 0–10, 11–20, 21–30, 31–40, 41–50, 51–60, and 61–70, respectively. This explain why distinct thyroid lesions in different age groups have varying clinical conditions. According to the study's findings, the D group had a larger ratio of thyroid neoplasms in patients aged 31 to 40, the A group had the fewest patients aged 0 to 10, and the G group had the fewest patients aged 61 to 70.

About Similar findings were made by Shahnaz Attaullah et al. (2013) at the University of Peshawar, who observed that group D, which is composed of people aged 31 to 40, had the majority of cases (30.8%) with thyroid pathological issues. While (0.3%) was discovered in the 0–10 age group, the 31–40 age group showed a high prevalence of various thyroid neoplasms, which may be related to thyroid hormones and other socioeconomic factors.

Based on the frequency distribution of thyroid neoplasm in various age groups, the findings of Shahnaz Attaullah et al. (2013) and Pandey, R. et al. (2013) clearly resemble the results of this study. However, it's important to note that the findings of this study and the one above contradict each other (Tayal, D 2009).

According to this study, 151 patients complained of thyroid neoplasms, and it was found and statistically analyzed that the mean age and standard deviation of those with thyroid neoplasms show that the mean age was 33.67 years with a standard deviation of 10.727. Most afflicted patients are between the ages of 33 and 35.

Of the 151 cases out of 141, the majority were benign thyroid neoplasms; 109 (%) were benign thyroid lesions; 8 (%) were Hashimoto thyroiditis; 15 (%) were benign nodular hyperplasia with lymphocytic thyroiditis, which was also regarded as benign; 7 (%) were thyroid papillary carcinomas; and only 2 (%) were follicular.

The scientific research of (Kanu Neemawat et al., In 2019, he reported that goiter might also cause swelling of the thyroid gland or neck in Jaipur, Rajasthan, India. Researchers collect data regarding age and gender from the outcomes of 100 patients, Because of the increased proportion of females and the various parameters impacted by thyroid neoplasm, the researcher's findings closely matched those of this study.

A.M. Panaitescu et al. (2018) found that out of 151 patients with thyroid neoplasms in our study, only one case was reported as benign goiter. This suggests that goiter by birth is observed in 1 out of approximately 5,000 labors and is typically linked to maternal Graves' disorder. This study's findings are strikingly similar to those of a study conducted by a researcher on a congenital condition in children aged 0 to 10.

The study demonstrates Patients with thyroid tumors and their residential status The data clearly show that patients with thyroid neoplasms are primarily from rural regions, with roughly 87 (57.62%) and 64 (42.38%) coming from urban areas, despite the overall ratio suggesting that persons in urban areas are less impacted than those in rural areas.

According to frequency between urban and rural areas, this study and Shahnaz Attaullah et al. (2013)'s research on the relationship of locality-wise correlation of thyroid neoplasms are quite similar.

The findings of the study on the educational status of thyroid neoplasm patients reveal that the majority of the illiterate individuals (70.86%) with thyroid disorders and 13.25 percent completed primary school, while 10.60 percent had secondary education, 4.0% had intermediate education, and only 1.32 percent had graduated. These findings suggest an antagonistic relationship between thyroid neoplasms and educational status, with the ratio of disease decreasing as educational status rises.

In 2020, researcher Xiaorong Wang et al. conducted research at the Hospital of Qingdao University, Qingdao Shandong, to examine the state of thyroid education in relation to thyroid disorders and to consider ways to encourage patients with thyroid disorders to participate in thyroid education. 300 thyroid disease patients from our hospital and 100 medical examinees

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from the Medical Examination Center were chosen for the study. The respondents' level of thyroid health education was examined using questionnaires. The two groups were separated based on whether or not they were educated. The outcomes were compared between the two groups and statistically examined. Out of 300 patients, only 13.5% participated in thyroid health education, and 41.7% of patients were unaware of thyroid information. However, 87.9% of patients and 70.6% of healthy individuals expressed a desire to participate in thyroid education. Compared to individuals who did not receive health education, those who do have better illness control ($P < 0.05$). The findings of academic studies Determine that although there is a great need for health education on thyroid disorders, there are not many patients with these conditions and the general public is not receiving education about them. The prognosis and treatment status of individuals with thyroid disorders might be considerably enhanced by thyroid health education. Thyroid illness health education should be actively implemented based on patient characteristics.

Xiaorong Wang et al.'s 2020 study, conducted at the Hospital of Qingdao University in Qingdao Shandong, also assessed the relationship between education and knowledge about thyroid neoplasm, ultimately demonstrating an antagonistic relationship between the two. The research findings from the aforementioned reference are likewise quite similar to those from this study.

On the basis of this parameter, this study again resembles the research conducted. Fahad Mohammed Alotaibi et al., 2019] found that education and awareness of thyroid disease knowledge among people with thyroid neoplasm is important and that it reduces the ratio among the peoples.

The findings of the study conducted by SAADM et al. in 2021 are very comparable to ours because they found that patient ratio is impacted by educational awareness of the condition. The study demonstrates the relationship between the frequency of thyroid neoplasms and iodine intake in daily diet. The findings unmistakably showed that just 2% of patients had a diet with adequate iodine consumption, whereas 98.01 percent of affected patients did not consume enough iodine in their daily routine diet.

We concurred with the findings of the scientific study by Prof. Michael B. Zimmermann et al. [180] on iodine intake and its impact on thyroid disorders.

The study shows how often thyroid neoplasms are on laboratory diagnosis.

The findings show that the greater ratio was nearly 103 (68.21%) for euthyroidism, 27 (17.88%) for hypothyroidism, and 21 (13.91%) for hyperthyroidism. According to the results of the gender-wise correlation between thyroid neoplasm and laboratory diagnosis, the majority of patients (103 out of 151) were female, with 94 having euthyroidism, 23 having hypothyroidism, and 17 having hyperthyroidism. In males, the ratio of euthyroidism, hypothyroidism, and hyperthyroidism was 9,4,4.

According to the above table, the study of age factor determination in patients with thyroid neoplasms is classified into seven age groups A–G, ranging from congenital to 70 years of age, and it displays laboratory associations and correlations. Age-group-based diagnosis shows that, of the 151 instances in the first A group, just one patient (≤10 years old) has euthyroidismIn the second, third, fourth, fifth, sixth, and seventh age groups, the proportion of patients with euthyroidism was 10,38,33,14,7; patients with hypothyroidism were 6,6,8,4,2,1; and patients with hyperthyroidism were 2,4,13,2 in the second, third, fourth, fifth, sixth, and seventh age groups, respectively. According to lab diagnosis observations, the majority of individuals (around 103) have euthyroidism compared to hypothyroidism (27), while only 21 people had hyperthyroidism. This study substantially resembles the findings of [183] about the frequency of hypothyroidism, hyperthyroidism, and euthyroidism based on the correlation of laboratory diagnosis.

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This study is similar to the research conducted in 2020 by Dr. Rasool Bux Behan et al. at LUMHS in Jamshoro, Sindh, Pakistan.

Mohammed A. (2018) reported that the mean age of the patients was 45.36 (SD 14.85) years, with a range of 15 to 79 years. Fifty-five percent of the patients were in their fourth or fifth decade of life. The female to male ratio in this study was 4:1, with 80 (80%) of the patients being female and 20 (20%) being male. All patients had neck US, which showed 82 (82%) cases of MNG and 18 (18%) cases of a single thyroid nodule. A computed tomography scan was performed on 31 individuals (31 percent). Aspirates from one hundred patients were collected. The patients tolerated the surgery quite well, and there were few problems. Only seven patients (7%) experienced a minor hematoma, which was identified during the procedure. Just three patients (3%) had an unsatisfactory aspirate; 61 patients (61%).

75 (75%) of the cases found by the post-operative histopathological study were benign: There were five (5%) cysts, twenty-two (22%) simple MNG, twenty-nine (29%) toxic MNG, thirteen (13%) colloid nodules, and six (6%) adenomas. Twenty-five (25%) of the cases were malignant. Five (5%) had follicular cancer, two (2%) had medullary carcinoma, three (3%) had anaplastic carcinoma, and fifteen (15%) had papillary carcinoma. Surgery was used to treat 97 (97%) of the cases, including 82 (84.5%) complete thyroidectomies and 15 (15.5%) hemi thyroidectomies. Three (3%) instances (cases with anaplastic carcinoma) did not get surgical therapy, while seven (7.2%) malignant cases had their necks dissected. According to histology, out of 25 patients with thyroid cancer, 21 had total thyroidectomies, one had a hemi-thyroidectomy for follicular carcinoma, which necessitated a completion thyroidectomy, and three had no surgical intervention for anaplastic carcinoma. 17 cases (17%) involved adjuvant therapy, with one patient receiving external irradiation, one patient receiving chemoirradiation, and 15 patients receiving radioactive iodine.Girls 2018, Mohammed A. Sirrya et al.

T3 and age have a weakly positive connection, according to the BIVAR scatter plot. This study, however, was not significant (r=.066) (p=.420).

According to the data, the standard deviation of the mean Triiodothyronine (T3) level was 1.49.T4 level correlations with age in patients with thyroid neoplasms range from 0 to 4, with a deviation of 0.619 T4 and age have a weakly negative connection, according to the scatter plot (BIVAR). This study, however, was not significant (r=-.073) (p=.371).

According to the data, the average Tetraiodothyronine (T4) level was 8.176 with standard deviation. Thyroid neoplasm patients with a deviation of 3.512 range from 0.77 to 20.44. Demonstrates the relationship between TSH and the patient's age when they have thyroid cancer.

TSH and age have a negative connection, according to the BIVAR scatter plot. This study, however, was not significant (r=-.092) (p=.263).

According to the results, the average TSH level was 3.291 with standard deviation. In patients with thyroid disorders, the deviation of 8.874 falls between 0.001 to 100.0.

A study by Ahmad Kurnia et al. from Jakarta on 668 instances of thyroid cancer suggests a connection between changes in thyroid hormones and thyroid cancer. According to the study's findings, the histological features of thyroid cancer at CMGH were not connected with the levels of the hormones TSH, T3, and T4. Age, nodule involvement, and gender had no effect on the T3, T4, or TSH hormone levels.

CONCLUSION

According to this study, there was a negligible correlation (p=.155) between the laboratory-diagnosed TSH, T3, and T4 hormone and the histopathological results. Of the 103 cases, 77 were diagnosed with euthyroidism, 18 of which were hypothyroid, and 14 of which were hyperthyroid at the Department of Surgery at the Tertiary Care Hospital Lumhs Jamshoro in Hyderabad. Pakistan.

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