

ORIGINAL ARTICLE

Common Clinical signs and symptoms observed in Patients diagnosed with Thyrotoxicosis in Gujranwala, PakistanMUHAMMAD ADNAN IQBAL¹, SADIA RASHID², SAVEELA SADAQAT³, NADIA JUNAID⁴, MUHAMMAD RIZWAN⁵¹Assistant Professor Medicine, Gujranwala Medical College, Gujranwala²Professor of Physiology, HBS Medical and Dental College, Islamabad.³Assistant Professor Biochemistry, M Islam Medical and Dental College, Gujranwala⁴Assistant Professor Community Medicine, Federal Medical College, Islamabad⁵Professor Oral Pathology, HBS Medical and Dental College, Islamabad.Correspondence to Dr. Sadia Rashid, Email: drsadiarizwan@gmail.com, Ph. 0331-5330326,**ABSTRACT****Aim:** To assess the common clinical sign and symptoms in Patients of Thyrotoxicosis in Gujranwala, Pakistan. This study was conducted at the Civil Hospital and Salamat Hospital & Healthcare Center, Gujranwala from July 2019 to February 2020.**Methods:** This was a prospective study consisted of 120, male and female patients of different age groups, diagnosed with thyroid gland disorder. The Clinical features and history related to thyroid disorders was taken. Complete thyroid profile was checked in initial screening of Thyrotoxicosis. The bloodscreening for various thyroid hormonal levels, Thyroid imaging for the patients with neck swelling and clinically various thyroid function tests were done by using Radiation Imaging (Radiotracers) techniques. An informed consent of all patients was taken before tests and study. The data was recorded on designed Performa.**Results:** In this study the prevalence of Thyrotoxicosis patients was higher in females (78) than male (42) and majority of patients belonged to 31-50 years of age range. Various typical clinical sign and symptoms of Thyrotoxicosis like Goiter, sweating, heat intolerance, Hoarseness, Tremors, Diarrhoea, anxiety, hair loss, Menstrual irregularities in females, Exophthalmus, increased appetite and poly urea were observed in patients diagnosed with Thyrotoxicosis. While in blood screening, marked mean \pm SD of BMI, free T₃(ng/dL), T₄(ng/dL) and TSH(mIU/L) were found in male & female patients (table 2).**Conclusion and practical implication:** Thyroid cases are found high in our population. This high prevalence rate is affecting the health and quality of life of affected persons. So it is deeply felt that awareness to use dietary iodine and other remedies is a need of hour for our communities to decrease high prevalence of the thyroid dysfunctions and improve health and quality of life of the community.**Keywords:** Thyrotoxicosis, Radiotracers, Radiation Imaging Technique, Signs and Symptoms, TSH, T₃ and T₄, Prevalence.**INTRODUCTION**

Thyrotoxicosis is a clinical state of abruptly raised levels of free thyroid hormones (T₃ and/or T₄) in the body due to any etiological factor¹. Thyroid gland has important role in regulating certain body systems. Thyroid disorders have been reported worldwide affecting more than 1.6 billion people over 110 countries³. Thyroid disorders along with diabetes mellitus are the most common glandular disorders around affecting people of all ages around the globe⁴.

The common causes of thyrotoxicosis may include Graves' disease, toxic multinodular goiter (TMNG), toxic adenoma (TA), thyroiditis, gestational hyperthyroidism, drug-induced Thyrotoxicosis and Rarely causes can be due to TSH-producing adenomas, struma ovarii, gestational trophoblastic neoplasia, thyrotoxicosis factitia, activation mutations of the TSH receptor, and functional thyroid cancer metastases^{2, 19}.

Any morphological, physiological or functional changes in thyroid glands can disrupt its regulatory function on body mechanisms^{2, 5}. Thyroid disorders lead to hormonal defects varying from asymptomatic with abnormal TSH level and normal T₃ and T₄ levels to symptomatic with abnormal T₃ and T₄ levels⁶. Apart from hormonal irregularities, thyroid dysfunctions may include features of goiter, iodine deficiency disorder, Hashimoto's thyroiditis, Graves disease and thyroid cancer. Iodine an essential dietary component, is important for producing thyroid hormones T₃ and T₄^{7, 8, 9}.

Iodine deficiency is the basis of high prevalence of thyroid disorders in South Asian population specially goiter, up to 80% among patients^{10, 11, 12}. Bislecka D A et al has reported about 5.1% prevalence of hyperthyroidism in Pakistan and up to 12% in adults and 23% in children in India and also higher female to male patient's ratio of thyroid disorders has been perceived in various studies^{9, 13, 14}.

The differential for thyrotoxicosis is broad and will need a combination of a thorough physical exam, laboratory studies, and

imaging to determine the underlying etiology for appropriate treatment. If not adequately treated, thyrotoxicosis can lead to serious complications including delirium, altered mental status, osteoporosis, muscle weakness, atrial fibrillation, congestive heart failure (CHF), thromboembolic disease, cardiovascular collapse, and death¹.

Main Purpose of our study was to assess the common clinical sign and symptoms in patients of Thyrotoxicosis in certain area of Pakistan and pay special attention towards public awareness about thyroid conditions and its features to deal with such disorders. And also try to highlight common etiological factors of Thyrotoxicosis and remedies to prevent its occurrence thus improving the quality of life of the affected people.

MATERIALS AND METHODS

This was a prospective study, conducted at the Civil Hospital and Salamat Hospital and Healthcare center, Gujranwala Pakistan from July 2019 to Feb. 2020. Our study consisted of 120 newly diagnosed patients of all age groups and both genders. To confirm hyperthyroidism, Several patients with neck swelling and other features who reported to OPD of medical specialists, were subjected to various tests. Thyroid imaging tests using Radioactive imaging by radiotracer (Radioactive Iodine uptake), patients presenting enlarged swelling in the neck were subjected to thyroid scan and ultrasound. Blood tests were done to see free thyroid hormones from laboratory. After these test, 120 confirmed Thyrotoxicosis patients were selected. Then Complete thyroid profile (thyroid function test) to identify Thyrotoxicosis, clinical examination of neck, eyes, hands, skin and heart along with patient's history were taken to record various common clinical sign and symptoms of diagnosed patients. Two same medical specialists noted all features of patients for uniformity of findings and to avoid any discrepancy in observations of these signs and symptoms. An informed consent was obtained from each patient. The data was noted on designed sheet and results were prepared.

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RESULTS

Our study population consisted of 120 newly diagnosed patients of all age groups and both genders (42 Males and 78 females). Common findings recorded in the patients diagnosed with Thyrotoxicosis are shown in Tables 1, 2 and figures 1 & 2.

Figure 1: Graphical presentation of patients of various age groups

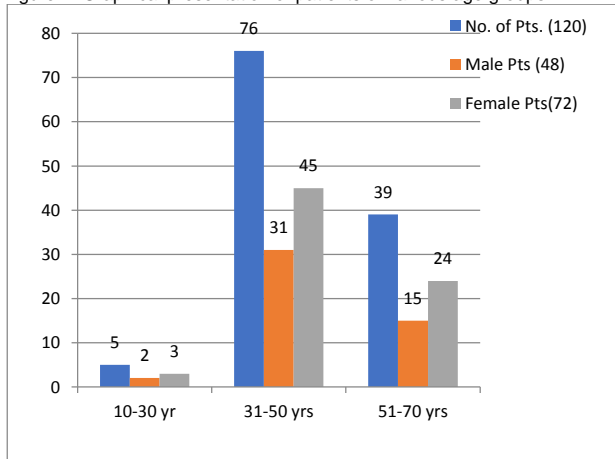


Figure 1 shows that the majority of Patients are female (n=72) than male (n=48) and majority of the patients are between 41-50 years of age compared to other age groups.

Table 1: Biochemical parameters of thyrotoxicosis patients.

Biochemical parameters	Male Mean±SD	Female Mean±SD	Total Mean±SD
BMI (kg/m ²)	17.46±2.78	23.37±2.70	21.45±1.70
T4 (ng/dL)	10.8±1.8	11.7±2.4	7.25±1.9
T3 (ng/dL)	198.0±15.2	210±23	203.7±9.5
TSH (mIU/L)	0.63±0.15	0.56±0.29	0.63±0.17

Figure 2: Graphical presentation of various clinical sign and symptoms seen in male and female patients.

Table 2: Clinical signs, symptoms history of patients with thyrotoxicosis

Signs and symptoms	Male %	Female %	Total %
Goiter	9	66	75
Sweating	5	63	68
Heat intolerance	4	60	64
Hoarseness	3	35	38
Tremors	10	64	74
Diahorrea	7	42	49
Increased appetite	6	47	53
Anxiety	10	75	85
Polyurea	4	36	40
Exophthalmus	6	43	49
Hair loss	5	30	35
Irregular menstruation	-	45	45

Table 2 and Figure 2: Show the clinical sign, symptoms and other features of the patients diagnosed with thyrotoxicosis.

DISCUSSION

Thyrotoxicosis is a clinical state of inappropriately raised levels of Free thyroid hormones (T3 and/or T4) in the body from any condition^{1,2}. Thyroid hormones are vital for normal growth, development and several body system regulations of both mammals and amphibians¹⁵. Their actions are usually apparent in conditions of hypothyroidism or hyperthyroidism¹⁶. Various etiological as well as contributing factors may be responsible for such thyrotoxic conditions. Such factors can be geographical distribution, food habits, dietary iodine and genetics as mentioned by Tata JR in his studies in 2012¹⁷ and Furlow JD in 2006¹⁸.

Our study was aimed to determine the common clinical features and cases occurrence in patients of Thyrotoxicosis in Gujranwala, Pakistan. In our study, among 120 Thyrotoxicosis patients, 78 patients were females and 42 were males from all ages, which showed similar findings by Bahn RS et al¹⁹, indicating higher cases among females than male in middle age patients (31-50 yrs) mentioned in Figure 1.

Also BMI, T₃, T₄ and TSH Levels observed among the Patients with thyrotoxicosis mentioned in table 1, show the marked increase and variation of thyroid hormones and indicating similar disease findings mentioned in other studies⁹.

As Pakistan is one of iodine deficient regions and here increased hyperthyroidism cases noted in several studies may be due to autoimmune disorder like Graves's disease and Hashimoto's thyroiditis, or lack of dietary iodized salt intake or proliferative effect of estrogen on thyroid gland for example Goiter. Pakistan is one of iodine deficient region and Goiter and Thyrotoxicosis also found in our study which were similar to seen in other studies^{20,21}. Clinically profound and common sign and symptoms of hyperthyroidism found in our study among male and female patients are mentioned in Table 2 and figure 2 which include Goiter, sweating, heat intolerance, hoarseness Tremors, Diarrhoea, increased appetite, Anxiety, Polyurea, Exophthalmus, Hair loss and Irregular Menstrual Cycle in Females. These all findings are similar to the finding highlighted in several other studies done previously^{1,2,7,21,22,23}.

CONCLUSION

It is observed in the study that hyperthyroid state is common in our population with various clinical features which are affecting life of the persons. There are several causes of Thyrotoxicosis and among those, Iodine deficiency being one of the common causes in our region. People's awareness about the dietary iodine intake is necessary to overcome this increased prevalence of the thyroidal dysfunction in our communities.

Conflict of interest: Nil

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