

Prevalence, Hematological Picture and Blood Glucose in Thyrotoxicosis at Sialkot

Hematological
Picture and Blood
Glucose in
Thyrotoxicosis

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ABSTRACT

Objective: To Study the Prevalence, Hematological Picture and Blood Glucose in Thyrotoxicosis at Sialkot.

Study Design: Descriptive / observational Study.

Place and Duration of Study: This study was conducted at the Idris Teaching Hospital Sialkot and Allama Iqbal Memorial Hospital Sialkot from January 2014 to April 2017.

Materials and Methods: This study included 100 newly diagnosed patients of thyrotoxicosis registered at Idris Teaching Hospital Sialkot and Allama Iqbal Memorial Hospital Sialkot. Subjects were examined for their signs and symptoms as well as their clinical and family history of thyroid disorders. Their blood samples were drawn and preserved at -80C. They were clinically categorized into hyperthyroidism by thyroid function test utilizing RIA. Patients having clinically visible enlarged swelling in front of neck were subjected to 99Tc Pertechnetate thyroid imaging. The Hematological Picture and Blood Glucose were also recorded. Our study included subjects of all ages and both genders. An informed consent was obtained from each individual participant and all the subjects were interviewed for collecting demographic and disease data on designed Performa. Initial screening included complete thyroid profile to identify thyrotoxicosis. Permission of ethical committee was also taken.

Results: In our study the prevalence of the patients of Thyrotoxicosis was higher (31 %) n=31 at the age of 41-50 years as compared to other age groups as shown in table no. 01. Female patients were (90%) n=90 and (10%) n=10 male as shown in table no. 01. The patients of Thyrotoxicosis from rural area were (68%) n=68 & (32%) n=32 from urban population as shown in table no. 02. Fasting blood glucose was 108.62±31.47 mg/dl in male and 142.5±64.68 mg/dl in female. Random blood glucose was 200±25.27 mg/dl in male and 250±54.24 mg/dl in female. Glycosuria was present in 1 (1%) male and 4 (4%) in female. Proteinuria was absent in both genders as shown in table no. 03. Hemoglobin was 7-10 (gm/dl) in (4%) 4 male and 45 (45%) in female, 11-12gm/dl in (4%) 4 male and (22%) 22 in female, more than 12gm/dl (2%) 2 in male and (23%) 23 female. TLC was less than 4000cmm 1 (1%) in male and 1 (1%) in female, 4000-11000cmm (7%) 7 male and (85%) 85 female, more than 11000cmm was in (2%) 2 male and 4 (4%) in female. ESR was 15-30mm after 1st hour (6%) 6 male and (66%) 66 in female, more than 30mm after 1st hour was (4%) 4 in male and (24%) 24 in female as shown in table no. 04.

Conclusion: Public awareness about the dietary iodine consumption is mandatory in our region, so as to overcome the increased prevalence of the thyroidal dysfunction in our population. Furthermore, hyperthyroid state is more common in our population.

Key Words: Thyrotoxicosis, Hematological Picture and Blood Glucose.

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INTRODUCTION

Thyroid hormones influence glucose digestion by means of a few instruments. In Hyperthyroidism, thyroid hormones has for quite some time been perceived to advance hyperglycemia¹.

Amid hyperthyroidism, the half-existence of insulin is diminished undoubtedly auxiliary to an expanded rate

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of corruption and an upgraded arrival of organically dormant insulin forerunners^{2,3}.

In untreated Graves' illness, expanded proinsulin levels in light of a dinner were seen in a review⁴. Furthermore, untreated hyperthyroidism was related with a decreased C-peptide to proinsulin proportion proposing a basic deformity in proinsulin handling⁵. Another instrument clarifying the connection amongst hyperthyroidism and hyperglycemia is the expansion in glucose gut retention intervened by the abundance thyroid hormones^{6,7}.

Endogenous generation of glucose is likewise improved in hyperthyroidism by means of a few components. Thyroid hormones create an expansion in the hepatocyte plasma film convergences of GLUT2 which is the principle glucose transporter in the liver, and thus, the expanded levels of GLUT-2 add to the expanded hepatic glucose yield and unusual glucose digestion^{8,9}. Also, the non-oxidative glucose transfer in

hyperthyroidism is upgraded bringing about an overproduction of lactate that enters the Cori cycle and advances promote hepatic gluconeogenesis. The expansion in GH, glucagon and catecholamine levels related with hyperthyroidism additionally adds to the hindered glucose resilience¹⁰⁻¹¹.

The relationship of thyroid issue and variations from the norm in hematological parameters is notable.

It is likewise seen that the pervasiveness of both hyperthyroidism is higher in females than guys¹².

Subsequently, enhanced open mindfulness about thyroidal sicknesses is one of the critical elements to adapt to this issue. This forthcoming review goes for deciding blood glucose and hematological changes exhibit in our populace.

MATERIALS AND METHODS

This prospective study included 100 newly diagnosed patients of thyrotoxicosis registered at Idris Teaching Hospital Sialkot and Allama Iqbal Memorial Hospital Sialkot from January 2014 to April 2017. Subjects were examined for their signs and symptoms as well as their clinical and family history of thyroid disorders. Their blood samples were drawn and preserved at -80C. They were clinically categorized into hyperthyroidism by thyroid function test utilizing RIA. Patients having clinically visible enlarged swelling in front of neck were subjected to ⁹⁹Tc Pertechnetate thyroid imaging. The Hematological Picture and Blood Glucose were also recorded. Our study included subjects of all ages and both genders. An informed consent was obtained from each individual participant and all the subjects were interviewed for collecting demographic and disease data on designed Performa. Initial screening included complete thyroid profile to identify thyrotoxicosis. Permission of ethical committee was also taken. The data was analyzed for results.

Inclusion Criteria: All the patients of hyperthyroidism were included in this study.

Exclusion Criteria: The patients of hypothyroidism were excluded from the study.

RESULTS

Table No. 1: Age & Sex Distribution in Patients of Thyrotoxicosis

Sr. No	Age (Years)	No of Patients(%)	Male (%)	Female (%)
1	10-20	10	1 (1%)	9 (9%)
2	21-30	14	3 (3%)	11 (11%)
3	31-40	23	1 (1%)	22 (22%)
4	41-50	31	2 (2%)	29 (29%)
5	51-60	10	1 (1%)	9 (9%)
6	61-70	12	2 (2%)	10 (10%)
	Total	100(100%)	10 (10%)	90 (90%)

Table No. 2: Area Distributions in Patients of Thyrotoxicosis

Sr. No	Area	No of Patients	Male %	Female %
1	Urban	32 (32%)	3 (3%)	29 (29%)
2	Rural	68 (68%)	7 (7%)	61 (61%)
	Total	100 (100%)	10 (10%)	90 (90%)

Table No. 3: Blood glucose in the patients of Thyrotoxicosis

Sr. No	Blood Glucose (mg/dl)	Male Mean±SD	Female Mean±SD	Total Mean±SD
1	Fasting Blood Glucose	108.62 ±31.47	142.5±64.68	112.02±37.08
2	Random Blood Glucose	200±25.27	250±54.24	225±36.08
3	Glycosuria	1 (1%)	4 (4%)	5 (5%)

Table No. 4: Hematological Picture in the patients of Thyrotoxicosis

Sr. No	Hb (gm/dl)	Male (%)	Female (%)	Total (%)
1	7-10	4 (4%)	45 (45%)	49 (49%)
2	11-12	4 (4%)	22 (22%)	26 (26%)
3	>12	2 (2%)	23 (23%)	25 (25%)
Sr. No	TLC/cmm	Male (%)	Female (%)	Total (%)
1	<4000	1 (1%)	1 (1%)	2 (2%)
2	4000-11000	7 (7%)	85 (85%)	92 (92%)
3	>11000	2 (2%)	4 (4%)	6 (6%)
Sr. No	ESR (mm after 1 st hour)	Male (%)	Female (%)	Total (%)
1	15-30	6 (6%)	66 (66%)	72 (72%)
2	>30	4 (4%)	24 (24%)	28 (28%)

In our study the prevalence of the patients of Thyrotoxicosis was higher (31 %) n=31 at the age of 41-50 years as compared to other age groups as shown in table no. 01 . Female patients were (90%) n=90 and (10%) n=10 male as shown in table no .01. The patients of Thyrotoxicosis from rural area were (68%) n=68 & (32%) n=32 from urban population as shown in table no. 02. Fasting blood glucose was 108.62±31.47 mg/dl in male and 142.5±64.68 mg/dl in female. Random blood glucose was 200±25.27 mg/dl in male and 250±54.24 mg/dl in female. Glycosuria was present in 1

(1%) male and 4 (4%) in female. Proteinuria was absent in both genders as shown in table no. 03. Hemoglobin was 7-10 (gm/dl) in (4%) 4 male and 45 (45%) in female, 11-12gm/dl in (4%) 4 male and (22%) 22 in female, more than 12gm/dl (2%) 2 in male and (23%) 23 female. TLC was less than 4000cmm 1 (1%) in male and 1 (1%) in female, 4000-11000cmm (7%) 7 male and (85%) 85 female, more than 11000cmm was in (2%) 2 male and 4 (4%) in female. ESR was 15-30mm after 1st hour (6%) 6 male and (66%) 66 in female, more than 30mm after 1st hour was (4%) 4 in male and (24%) 24 in female as shown in table no. 04.

DISCUSSION

It was watched an expanded recurrence of thyroid brokenness with propelling age and a higher pervasiveness of thyroid infection in ladies contrasted with men and in diabetic subjects contrasted with nondiabetic.

A few reports archived a higher than ordinary predominance of thyroid brokenness in the diabetic populace. Especially, in a study exhibited a general commonness of 13.4% of thyroid sicknesses in diabetics with the most astounding predominance in sort 1 female diabetics (31.4%) and least pervasiveness in sort 2 male diabetics (6.9%)¹³. As of late, a pervasiveness of 12.3% was accounted for among Greek diabetic patients¹⁴ and 16% of Saudi patients with sort 2 diabetes were found to have thyroid brokenness¹⁵. A review revealed that thyroid brokenness was available in 12.5% of sort 2 diabetic patients¹⁶. Besides, it has been hypothesized that the impact of THs on haematopoiesis includes an expanded generation of erythropoietin or haematopoietic components by non erythroid cells^{17,18}. Be that as it may, a developing number of studies have exhibited an immediate part of THs in typical human and creature erythropoiesis^{19, 20-21}.

CONCLUSION

Public awareness about the dietary iodine consumption is mandatory in our region, so as to overcome the increased prevalence of the thyroidal dysfunction in our population. Furthermore, hyperthyroid state is more common in our population.

Author's Contribution:

Concept & Design of Study:	Mansoor Hassan
Drafting:	Saleh Muhammad
Data Analysis:	M. Awais & Saleh Muhammad
Revisiting Critically:	Muhammad Sabir
Final Approval of version:	Mansoor Hassan

Conflict of Interest: The study has no conflict of interest to declare by any author.

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