

TO STUDY CORRELATION OF CRITERIA LIKE OBESITY, DM, HYPERTENSION, DYSLIPIDEMIA IN RELATION WITH THYROID DISORDER

Dr. Ravija Prasad Ram¹ (Asst. Prof.), Dr. Shivam Sharma² (Junior Resident), Dr. Manish Kumar Saraf³ (Junior Resident) & Dr. Gyanendra AHIRWAR⁴ (Junior Resident)

Department of Medicine, Index Medical College Hospital and Research Center, Indore^{1,2,3&4}

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Corresponding author: Dr. Shivam Sharma

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Abstract

Background: In this study 100 cases of thyroid dysfunction were studied for the cardiovascular manifestations. Out of these, 60 cases were of hypothyroidism and 40 cases were of hyperthyroidism.

There was no age bar for inclusion in the study. All of these cases were selected from those attending the Endocrinology OPD in IMCHRC hospital, Indore.

Result: 78.3% cases of hypothyroidism in our study were suffering from obesity. Relationship between age group and obesity was not significant in these patients. In our study out of 40 patients suffering from hypothyroidism 10 (25%) patients have DM. In our study out of 60 patients suffering from hypothyroidism 28(46.7%) patients were have DM. In our study out of 40 patients of hyperthyroidism, 12 had dyslipidemia. In our study out of 60 patients of hypothyroidism, 41 had dyslipidemia.

Conclusion: In our study out of 60 patients suffering from hypothyroidism 28(46.7%) patients were found to have diabetes mellitus. All were females. Out of 60 patients of hypothyroidism, 33 had diastolic hypertension. Out of these 6.1% were male and 93.9% were female. Out of 60 patients of hypothyroidism, 41 had dyslipidemia, of these 97.6% were females only 2.4% were male.

Keywords: Cardiac, Manifestation, Thyroid, Hyperthyroidism & Hypothyroidism.

Introduction

It is well known that hypothyroid patients have elevated serum lipid levels. Overt hypothyroidism is characterized by hypercholesterolemia & a marked increase in low-density lipoproteins (LDL) & apolipoprotein B,⁽¹⁾ while the prevalence of overt hypothyroidism in patients with hypercholesterolemia is probable to be 1.3% to 2.8%, 90% of patients with hypothyroidism had hypercholesterolemia. 64–66 Lipid profile changes are also evident in subclinical hypothyroidism. Specifically, some studies have demonstrated that LDL is increased in subclinical hypothyroidism and reversible with thyroid hormone replacement,^(2,3) whereas other studies have shown increased total cholesterol in subclinical hypothyroidism with no changes in LDL. The reported mechanisms for the development of hypercholesterolemia in hypothyroidism include decreased fractional clearance of LDL by a reduced number of LDL receptors in the liver in addition to decreased receptor activity.⁽⁴⁾

There are some confirmatory reports on the role of the dyslipidemia and its atherogenesis behaviour by prescribing levothyroxine and subsequent treatment of cardiovascular disorder but its strategy is not universally accepted.⁽⁵⁾

Material & Method

It is cross sectional, observational and descriptive study for the assessment of cardiovascular manifestations in patients of thyroid disorder. Period of Study was from November 2015 to December 2017.

In this study 100 cases of thyroid dysfunction were studied for the cardiovascular manifestations. Out of these, 60 cases were of hypothyroidism and 40 cases were of hyperthyroidism.

There was no age bar for inclusion in the study. All of these cases were selected from those attending the Endocrinology OPD in IMCHRC hospital, Indore. Complete evaluation was done of each patient according to the Performa prepared to facilitate a systematic study in all cases. Investigation like ECG, Chest X-Rays, 2 D-ECHO done.

Inclusion Criteria

Following criteria were used for selection of the patients.

1. Age: Patients from all age groups were included in this study.
2. Sex: Patients of both sexes were studied.
3. Therapy: Only fresh cases were selected. Also those who had admitted treatment for more than 6 months were included.

4. All types of thyroid disorder were included except those which are included in exclusion criteria.

5. Population: Indian patients from all socio - economical class, casts, and from rural and urban areas were studied.

Exclusion Criteria

1. Seriously ill patient.
2. Patients with multi-system diseases or cancer.
3. Drug induced thyroid disorder.
4. Patients with sick Euthyroid syndrome.
5. Pregnant women.
6. Patients who are suffering from active renal and liver diseases.
7. Patients suffering from acute psychiatric illness.

On clinical suspicion of thyroid dysfunction (hypothyroidism or hyperthyroidism) with or without thyroid enlargement the patient was subjected to further clinical and laboratory evaluation

1. Biodata: The particulars of the patients including age, sex, locality etc were recorded.
2. Therapy: The particular regarding thyroid surgery, antipsychotic treatment and previous treatment for hyper or hypothyroidism was noted
3. Symptomatology: Non cardiac symptoms were recorded to aid the clinical diagnosis of thyroid dysfunction.

Results

Table 1: Age wise distribution of obesity in patients with hypothyroidism

	Present		Absent		P Value
	No.	%	No.	%	
11-20	03	6.3	03	23.0	0.076
21-30	10	21.2	02	15.3	0.638
31-40	13	27.6	04	30.7	0.826
41-50	15	31.9	03	23.0	0.538
51-60	06	12.7	01	5.9	0.614

78.3% cases of hypothyroidism in our study were suffering from obesity. Relationship between age group and obesity was not significant in these patients.

Table 2: Gender wise distribution of diabetes in patients with hyperthyroidism

	Present		Absent		P Value
	No.	%	No.	%	
Male	01	10	04	13.3	0.783
Female	09	90	26	86.7	
Total	10	100	30	100	

In our study out of 40 patients suffering from hypothyroidism 10 (25%) patients were found to have diabetes mellitus.

Table 3: Gender wise distribution of diabetes in patients with hypothyroidism

	Present		Absent		P Value
	No.	%	No.	%	
Male	00	00	03	9.4	0.096
Female	28	100	29	90.6	
Total	28	100	32	100	

In our study out of 60 patients suffering from hypothyroidism 28(46.7%) patients were found to have diabetes mellitus.

Table 4: Gender wise distribution of dyslipidemia in patients with hyperthyroidism

	Present		Absent		P Value
	No.	%	No.	%	
Male	00	00	05	17.8	0.118
Female	12	100	23	82.2	
Total	12	100	28	100	

In our study out of 40 patients of hyperthyroidism, 12 had dyslipidemia.

Table 5: Gender wise distribution of dyslipidemia in patients with hypothyroidism

	Present		Absent		P Value
	No.	%	No.	%	
Male N=03	01	2.4	02	10.5	0.181
Female N=57	40	97.6	17	89.5	
Total	41	100	19	100	

In our study out of 60 patients of hypothyroidism, 41 had dyslipidemia.

Discussion

Biondi et al (2002) found incidence of diastolic hypertension in 40% patients (60) Yazbeck et al found hyper cholesterolemia in 57% (2001). (34) American College of Physicians–

American Society of Internal Medicine in 2000 done a cross sectional study on hypothyroidism & atherosclerosis, myocardial infarction found that Results: Subclinical hypothyroidism was associated with a greater prevalence of aortic atherosclerosis (odds ratio, 1.7 [95% CI, 1.1 to 2.6]) and myocardial infarction (odds ratio, 2.3 [CI, 1.3 to 4.0]). Additional adjustment for body mass index, total and high-density lipoprotein cholesterol level, blood pressure, and smoking status, as well as exclusion of women who took b-blockers, did not affect these estimates. Associations were slightly stronger in women who had subclinical hypothyroidism and antibodies to thyroid peroxidase (odds ratio for aortic atherosclerosis, 1.9 [CI, 1.1 to 3.6]; odds ratio for myocardial infarction, 3.1 [CI, 1.5 to 6.3]). The population attributable risk percentage for subclinical hypothyroidism associated with myocardial infarction was within the range of that for known major risk factors for cardiovascular disease. It

concluded that Subclinical hypothyroidism is a strong indicator of risk for atherosclerosis and myocardial infarction.⁽⁶⁾

A comparison between the thyroid hormone levels in patients with and without pericardial effusion was done by Kerber, et al (1975).⁽⁷⁾

Also Saha et al (2001) found no correlation between T3, T4, TSH levels and heart rate and electrocardiographic changes.⁽⁸⁾

Conclusion

In our study out of 60 patients suffering from hypothyroidism 28(46.7%) patients were found to have diabetes mellitus. All were females. Out of 60 patients of hypothyroidism, 33 had diastolic hypertension. Out of these 6.1% were male and 93.9% were female. Out of 60 patients of hypothyroidism, 41 had dyslipidemia, of these 97.6% were females only 2.4% were male.

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