



Original Article

Dyslipidemia in hypothyroid patients of Rajshahi Medical College Hospital.

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Abstract

Hypothyroidism accounts for about 2% all cases of hyperlipidemia. The present study was planned to determine the level of lipid profile in patients diagnosed with hypothyroidism. Patients were screened for T₃, T₄ and TSH. Based on these values those who were having hypothyroidism were selected. Total 60 cases were selected. Mean \pm SD values of total cholesterol was 210.37 ± 23.85 , Triglycerides was 199.40 ± 21.38 and LDL-C was 140.20 ± 26.81 . Our study is suggested that dyslipidemia is associated with hypothyroidism.

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Introduction

Hypothyroidism is the most common form of thyroid hormone disorder¹. The World Health Organization (WHO) estimates that about two billion people are iodine deficient². It is a common metabolic disorder in the general population specially in women of higher age group. 9.5% of the participants of the Colorado prevalence study had elevated levels of thyroid stimulating hormone (TSH)³. In areas of iodine sufficiency, autoimmune disease like Hashimoto's thyroiditis and iatrogenic cases like treatment of hyperthyroidism are most common⁴. Levels of total and LDL cholesterol (LDL-C) tend to increase as the thyroid function declines. Therefore hypothyroidism constitutes a significant causes of secondary dyslipidemia^{5,6}. In general hypothyroidism is associated with hypercholesterolemia mainly due to elevation of LDL- C levels. Where as high density lipoproteins cholesterol (HDL- C) concentrations is usually normal or even elevated^{7,8}. 91% had dyslipidemia

which was directly proportional to severity of hypothyroidism of dyslipidemia in patients which significantly predispose them to risks of CVDs⁹. This study was planned to determine the level of lipid profile in patients diagnosed with hypothyroidism.

Material and Methods

This study of one year duration (Oct, 2013 – Sep, 2014) was conducted in the department of Medicine, Rajshahi Medical College. Cases selected for the study were newly diagnosed with hypothyroidism. The patients having normal thyroid profile (Euthyroid) were excluded from the study. Patients suffering from diabetes, polycystic ovarian disease, tuberculosis, oral contraceptives pills, statins and other medication that affect thyroid hormone and lipid profile levels let to exclusion from the study. Data was analyzed by unpaired student t test, Results were expressed as mean \pm standard deviation.

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Results

60 cases in the present study newly diagnosed cases of hypothyroidism (Table- 1)

Mean \pm SD values of T₃, T₄ and TSH and lipid profile of thyroid patients are shown in the table-2.

Table-1 : Distribution of hypothyroidism patients according to age and gender (N- 60)

Age group	Hypothyroidism	
	Male No (%)	Female No (%)
Years		
20- 30	6	9
31- 40	4	6
41- 50	4	2
51- 60	2	3
> 60	2	2
Total	18	22

Table – 2: Mean values and standard deviation of thyroid parameters and lipid profile in Hypothyroidism.

Test parameters	Hypothyroid patients
Total Cholesterol (in mg/ dl)	230.37 \pm 23.85
Triglycerides (in mg/ dl)	220.40 \pm 21.38
HDL (in mg/ dl)	40.27 \pm 2.74
LDC (in mg/ dl)	160.20 \pm 26.81

Discussion

Thyroid disorders are among the most common endocrine diseases and these usually alter lipid Metabolism. Increase in Serum TSH level is the key laboratory finding for early detection or thyroid failure. Hypothyroidism is more common in females as compared to males.¹⁰ Shafat⁹ observed that hypothyroidism was associated with high frequency of dyslipidemia in young patients which significantly predisposes to risks of CVDS. Sing et al¹¹ in their study demonstrated positive correlation between TSH and HOMA- IR. Hypothyroidism demonstrated dyslipidema as compared to controls. Many authors correlated our findings that hypothyroidism a type of thyroid disorder was commonly associated with dislipidema.

Limitations

1 Small sample size 2. As total thyroid hormones were measured in the study. They were subject to variations due to varying levels of binding proteins through majority of the conditions which caused binding protein abnormalities were excluded from the study.

Conclusions

Our study demonstrated that dyslipidema is associated with hypothyroidism. It is recommended that the replacement therapy should be started as early as possible to reduce the ill effects of thyroid hormones.

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