

Original Article

**ASSOCIATION OF LIPID PROFILE AND TYPE II DIABETES MELLITUS:
A STUDY IN BANGLADESH**

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ABSTRACT

The objective of this study is to compare the lipid profile of diabetic patients and healthy people. The serum cholesterol level in control (N=22) and diabetic subjects (N=114) in this study were 179.5 mg/dl and 201.68 mg/dl, respectively. Similar trend was observed for LDL cholesterol levels for control and diabetic subjects; 110.92 mg/dl and 130.83 mg/dl, respectively; and serum triglycerides were 141.68 mg/dl and 204.45 mg/dl, respectively. These results suggested that substantial increased in serum cholesterol, LDL cholesterol and triglycerides in type II diabetes mellitus which could be used as as a guidelines for lipid lowering management in such patients.

Keywords: Lipid profile, Type II DM, Bangladesh.

INTRODUCTION

The precise relationship between hyperglycemia and atherosclerosis is still unclear. Among persons with diabetes, several concomitant conditions may affect the etiology of atherosclerosis, obesity, inactivity, hyperinsulinemia, hyperlipidemia, abnormalities in platelet function, and defects in blood coagulation and flow¹.

High cholesterol levels are associated with an increased risk of coronary heart disease, hardening of the arteries (atherosclerosis), and stroke. A total cholesterol level of less than 200 milligrams per deciliter (mg/dl) is desirable, 200-239 mg/dl is borderline high, and over 239 mg/dl is high².

In an effort to provide internists and other primary care physicians with effective management strategies for diabetes care, the present study was designed to determine the serum total cholesterol, LDL cholesterol and triglycerides in 114 in type II diabetic patients³.

MATERIALS AND METHOD

This study was comprised of 114 type II diabetic subjects who had their onset of diabetes after the age of 30 years. The number of age and sex matched control was twenty two healthy persons. The entire patients were recruited from out patient department of BIRDEM. Five ml of fasting and 2 hours after breakfast (2HABF) blood samples were taken in different test tubes with proper identifications and preserved well with KF anticoagulant for further analysis, respectively. Serum glucose were estimated following the principles of

GOD-PAP and Serum cholesterol, triglycerides were estimated by CHOD-PAP and TGO PAP method from the fasting sample of blood and LDL cholesterol of the same samples were estimated by Immunoturbidetric method. The analysis were estimated and calibrated in 902 HITACHI Auto analyzer. The results were documented, analyzed and plotted as graph accordingly from Microsoft excel.

RESULTS AND DISCUSSION

Abnormalities in the concentration of lipids and lipoproteins in plasma have been reported to occur in almost 30% of persons with diabetes⁴. The mean serum Cholesterol in control and diabetic subjects in my study are 179.5 mg/dl and 201.68 mg/dl respectively. LDL cholesterol of the same is 110.92mg/dl and 130.83 mg/dl respectively. Serum triglycerides are 141.68 mg/dl and 204.45 mg/dl respectively. The differences in the parameters of the analytes estimated are significant and diabetic person shows higher level of such chemical profile estimated.

Among persons with diabetes, part of the increased likelihood of cardiovascular disease appears to be a consequence of the increased frequency of risk factors like abnormalities in lipid profile⁵. Yet diabetes itself is an independent risk factor for cardiovascular disease. The available statistics in Bangladesh about diabetes mellitus is cited in the table below: Lipid-lowering therapy should be used for secondary prevention of cardiovascular mortality and morbidity for all patients (both men and women) with known coronary artery disease and type II diabetes⁶. Men and women with type 2 diabetes should be receiving lipid-

Table 1: Result

	FASTING BLOOD SUGAR	2HABF BLOOD SUGAR	FASTING SERUM CHOLESTEROL	FASTING SERUM LDL CHOLESTEROL	FASTING SERUM TRIGLYCERIDES
CONTROL (n=22)	5.19 mmol/l	5.87 mmol/l	179.5 mg/dl	110.92 mg/dl	141.68 mg/dl
CASES (n=114)	10.71** mmol/l	12.89** mmol/l	201.68** mg/dl	130.83** mg/dl	204.45** mg/dl

*p < 0.005

lowering treatment regardless of whether they have or do not yet have cardiovascular disease since available studies do not provide good information about the best cholesterol levels for people with type 2 diabetes^{6,7}. Previous guidelines addressed the critical role of lipid profile control in type II diabetes mellitus^{8,9} who worked on type II diabetes mellitus and found abnormal lipid profile. The patient population in my study is all persons with type 2 diabetes and abnormal patterns of LDL cholesterol, cholesterol and triglycerides were observed.¹⁰ The target audience for the result of this study is all clinicians who care for patients with type 2 diabetes with increased lipid profile.¹¹

CONCLUSION

The risk for cardiovascular disease is directly proportional to the concentration of low-density lipoprotein (LDL) cholesterol and serum triglycerides level. Although hypertriglyceridemia is common among persons with non-insulin-dependent diabetes mellitus, whether the triglyceride level independently predicts cardiovascular disease is uncertain. The designed study was done in an effort to provide internists and other primary care physicians with effective management strategies for control of lipids in diabetes.

RECOMMENDATION

A study with large sample of such diabetic subjects may be advocated as recommendations may improve the studies and guideline on lipids in type II diabetes mellitus when new research results become available.

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