

# TO ASSESS THE PREVALENCE OF LIPID ABNORMALITIES IN PATIENTS WITH DIABETIC MELLITUS

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**AIM:** To assess the prevalence of lipid abnormalities in patients with diabetes mellitus.

**OBJECTIVE:** To assess the lipid abnormalities such as VLDL, LDL, HDL in diabetic patients.

**MATERIALS AND METHODS:** This was a cross-sectional study of 50 Diabetic patients in Saveetha Medical College and hospitals. Patients' VLDL, LDL, HDL and total cholesterol were recorded.

**BACKGROUND:** Hyperlipidemia is common in diabetic patients. The roles of insulin deficiency, insulin resistance, obesity, and genetic factors are discussed in relation to their effects on lipoprotein production and catabolism. The most important defect in insulin-deficient subjects appears to be a deficiency of lipoprotein lipase, which is responsible for the removal of the triglyceride-rich lipoproteins. In non-insulin-dependent subjects there is evidence for a removal defect as well as, in some patients, for overproduction of VLDL-triglyceride. Cholesterol levels may be elevated and it is important to distinguish between VLDL, LDL, and HDL as the causes for these increases. HDL-cholesterol levels may be increased in insulin-dependent subjects, whereas they may be decreased in obese non-insulin-dependent patients. Mild elevations of LDL-cholesterol may occur in inadequately controlled type I and II diabetic patients, while elevated VLDL may raise the serum cholesterol in addition to the triglyceride levels.

**REASON FOR RESEARCH:** With increased levels of Diabetic patients, the need to understand various aspects of the disorder is important. Diabetic hyperlipidemia should be viewed as resulting from an interaction between the diabetic syndrome, the genetic background of the patient, and the environment.

## INTRODUCTION:

Diabetes is a metabolic disorder of multiple etiology characterized by chronic hyperglycemia associated with abnormal carbohydrate, protein and lipid metabolism.<sup>[1]</sup> India had 32 million diabetic subjects in the year 2000 and this number would increase to 80 million by the year 2030<sup>[2]</sup>. The macrovascular complications of diabetes account for more than 70% of all deaths in individuals with diabetes.<sup>[3]</sup> Lipid abnormalities in type 2 diabetes are characterized by High triglyceride concentrations, Low high density lipoprotein-cholesterol concentrations, normal total and low density lipoprotein cholesterol concentrations.<sup>[4]</sup> 70–97% of individuals with diabetes have dyslipidemia.<sup>[5]</sup> Type 2 diabetes is an independent risk factor for coronary artery disease and risk of coronary disease is three to four fold increased in patients with Type 2 diabetes compared with nondiabetic population.<sup>[6]</sup> The main of this research is to identify the various aspects of this disorder so that targeted and patient specific treatment can be given.

**MATERIALS AND METHODS:** A cross-sectional study was done with 50 diabetic patients in Saveetha Medical college and hospitals from 1<sup>st</sup> December 2016 to 1<sup>st</sup> February 2017. Diabetic patients of either sex and all age groups were included. Patients who were admitted in internal medicine ward, all type 1 DM patients, and diabetic patients with pancreatitis, acromegaly, and patient with steroid or lipid lowering therapy were excluded from the study. A clinical profile was created and filled. Results were expressed as mean ( $\pm$  Standard Deviation (SD) or Standard Error Mean (S.E.M.) using Microsoft Excel 2003/2007 programme.

## RESULTS:

Of the 50 patients selected, 20 were male and 30 were females. In this study, we found a higher incidence of diabetes among elderly patients, in the age group between 41-50 years. This study reported a lower age of patients as compared to other studies.<sup>[7]</sup> Women of high socioeconomic status tend to be more concerned about their fitness, consume healthy food, and practice regular exercise as found in servicing woman, but this correlation between health practices and economic status does not exist in male subjects with service as a occupation, the finding of this study correlates with Spanish study.<sup>[8]</sup>

In the present study, nearly two-thirds (77.91%) of the patients had a diabetic history of less than 5 years. Patients with a long duration of diabetes are at a higher risk of developing complications. Among the various complications, cardiovascular complications create burden on patients regarding treatment.<sup>[9]</sup>

Table 1: Lipid Profile table

LIPID PROFILE:	NORMAL	OVERWEIGHT
Total Cholesterol	218.4±47.98	247±47.98
Triglycerides	135.2±53.95	135±53.95
HDL	42.53±13.04	42.53±13.04
LDL	178.3±48.87	178.3±48.87

## DISCUSSION:

The type of lipoprotein abnormality in diabetes depends upon many factors such as type of diabetes, endogenous insulin reserve, degree and distribution of obesity, degree of glycemic control, type of therapy and the presence or absence of Nephropathy. Majority of selected patients were females this is contradictory to previous studies that is study from Nepal and Indore.<sup>[9,10]</sup>

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The most characteristic lipid abnormality in diabetes is hypertriglyceridemia, with or without associated increase in plasma cholesterol. Studies from various parts of India reveal differences in the prevalence of lipid abnormalities in diabetes. In this study majority of the subjects were found to higher LDL-C levels, which is comparable to study from Hazara division. The higher number overweight patients are prevalent of high LDL cholesterol. Another prevalent lipid abnormalities includes increased serum cholesterol, low HDL-C as complimentary to study from northern India.<sup>[11,12]</sup>

In current study we map the lipid profile pattern of diabetic patients. Study shows overweight individual had statically significant difference in serum cholesterol, LDL-C and HDL-C levels as compare to normal weight and obese patient. More than half of the overweight patient had increased serum cholesterol and increased LDL-C level and decreased HDL-C levels as compare to normal weight and underweight patients. This study comparable to study from Nigeria<sup>[13]</sup> which shows that half of the study subjects with dyslipidemia were overweight.

## CONCLUSION

This study had provided a baseline data regarding the lipis pattern of diabetic patients. Elevated LDL-C and reduced HDL-C should be the primary targets of treatment in our patients with dyslipidemia and thus, it could help give targeted treatment to patients.

## REFERENCES:

1. Definition, Diagnosis and Classification of Diabetes Mellitus and its Complications Report of a WHO Consultation, (publication W.H.O./NCD/NCS/99.2) Geneva, Switzerland: World Health Organization, 1999.
2. Mohan V, Sandeep S, Deepa R, Shah B, Varghese C, Epidemiology of type 2 diabetes: Indian scenario, Indian J Med Res, 2007, 125, 217-230.
3. Ken G, Catherine CC, Maureen IH, Mortality in adults with and without diabetes in a national cohort of the U.S. population 1971–1993, Diabetes Care, 1998; 21 Number 7, 1138-1145
4. Mooradian AD, Dyslipidemia in type 2 diabetes mellitus, Nature Clinical Practice Endocrinology & Metabolism, 2009, 5 No 3, 150-159
5. Samy I M, Scott J J, Nathaniel W, Jasjeet K, Jonathan PC, Marylou A W, et al, Control of cardiovascular risk factors in patients with diabetes and hypertension at urban academic medical centers, Diabetes Care, 2002, 25, 718–723.
6. Kannel WB, Lipids, diabetes, and coronary heart disease: Insights from the Framingham Study, American Heart Journal, 1985, 110, 1100-1107.
7. Jha N, Shankar PR, Bajracharya O, Piryani RM, Framing Objective Criteria for Selection of Medicines in a Nepalese Teaching Hospital, Initial Experiences. Journal of Clinical and Diagnostic Research, 2009, 3, 1455-1459.
8. Holloway K, Green T, Drug and therapeutics committees. A practical guide, World Health Organization, Geneva, 2003, WHO/EDM/PAR/2004

9. Upadhyay DK, Palaian S, Ravi Shankar P, Mishra P, Shah AK, Prescribing pattern in diabetic outpatients in a tertiary care teaching hospital in Nepal, *Journal of Clinical and Diagnostic Research*, 2007, 1(4), 248-255.
10. Vengurlekar S, Shulka P, Patidar P, Bafana R, Jain S, Prescribing pattern of antidiabetic drug in indore city hospital, *Indian J. Pharm. Sci.*, 2008, 70(5), 637-640.
11. Misra A, Pandey RM, Ramadevi J, Sharma R, Vikram NK, Khanna N, High prevalence of diabetes, obesity and dyslipidaemia in urban slum population in northern India, *International Journal of Obesity*, 2001, 25, 1722-1729.
12. Parikh RM, Joshi SR, Menon PS, Shah NS, Prevalence and pattern of diabetic dyslipidemia in Indian type 2 diabetic patients, *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*, 2009, 1-3.
13. Ogbera, AO, Fasanmade OA, Chinenye S, Akinlade A, Characterization of lipid parameters in diabetes mellitus - a Nigerian report. *International Archives of Medicine*, 2009, 2-19.

