Role of Lipid Profile Parameters in Newly Diagnosed Diabetes Mellitus Type 2 Patients

Kush Manna

Ph.D. Scholar, Department of Biochemistry, Index Medical College Hospital & Research Center, Indore, Madhya Pradesh, India

Dr. Jaya Jain

Professor, Department of Biochemistry, Index Medical College Hospital & Research Center, Indore, Madhya Pradesh, India

Abstract:

Background: Diabetes Mellitus type 2 (T2DM) is a major metabolic syndrome affecting poor countries worldwide, leading to complications like diabetic nephropathy, neuropathy, nephrotic syndrome, and glucoma. It is characterized by low insulin secretion and hyperglycemia. India is the capital of T2DM, with a predicted 134 million population by 2045. T2DM often leads to multiorgan problems, including cardiovascular complications. Diabetic dyslipidemia, a group of lipid abnormalities, contributes to elevated cardiovascular risk in T2DM patients.

Aims & Objectives: The study aims to estimate the role of Lipid Profile parameters in newly diagnosed Diabetes Mellitus type 2 patients and correlate their levels with normal individuals.

Materials & Methods: A study was conducted on 200 newly diagnosed Diabetes Mellitus type 2 patients and 200 normal individuals. Samples were collected from the Department of Medicine and tested at the Department of Biochemistry, Index Medical College Hospital and Research Center, Indore. Methods used included Trinder's method, HbA1c method, total cholesterol, triglyceride, high-density lipoprotein, and Friedewald Equation.

Discussion: The study found significant positive correlations between HbA1c and FBS levels in both Group 1 (Control Group) and Group 2 (Control group), with the mean and standard deviations for Total Cholesterol, Total Adenosine, High-density Lipoprotein (HDL), Low-density Lipoprotein (LDL), and VLDL, respectively. For Group 1, the mean and standard deviations were 5.215% for HbA1c, 102 mg/dl for FBS, 166.44mg/dl for Total Cholesterol, 15.68 mg/dl for TAG, 39.32 mg/dl for HDL, 97.54 mg/dl for LDL, 29.3mg/dl for VLDL, 2.55 for LDL/HDL Ratio, and 4.21 for Cholesterol/HDL ratio. All Lipid Profile parameters showed a significant positive correlation.

Summary & Conclusion: In our present study, we found that poor glycaemic management in Type 2 Diabetes Mellitus patients leads to dyslipidemia, characterized by elevated HbA1c and fasting blood

glucose levels. The study also found a positive correlation between dyslipidemia and inadequate glycaemic control, suggesting the need for early and comprehensive care to reduce cardiovascular risk and improve long-term outcomes.

Keywords:

T2DM,Cholesterol,Triacyglyceride (TAG),High Density Lipoprotein (HDL),Low Density Lipoprotein (LDL), Very Low Density Lipoprotein (VLDL).