## HbA1C, lipid profile and magnesium as a biomarker for early diagnosing type ii diabetes mellitus and its associated complications in the rural region of Vidarbha, Maharashtra, India

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**Introduction:** Diabetes mellitus (DM) is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. We aimed to research association between serum HbA1C, lipid profile, magnesium and blood glucose levels, hypothesizing that early detection and treatment of lipid and magnesium abnormalities can minimize the risk for cardiovascular disorder and cerebrovascular accident in the type II diabetic group.

**Methodology:** Fasting blood glucose, HbA1C, TC, HDL, LDL, VLDL, TG and magnesium levels were evaluated. Study period from July 2016 to December 2016 among 60 patients including male and females and divided into two groups. 30 patients study group with known history of Type II DM, who attended the OPD of the Medicine Department of AVBRH Hospital and 30 ages, sex matched healthy controls. The age group between 30-40 years included in the study. Statistical analysis was done by using descriptive and inferential statistics and software used in the analysis was SPSS 17.0 version.

**Results:** Results of serum lipid profile showed that the mean values for TC, TG, HDL, LDL and VLDL in study group were $227.76\pm30.72$, $152.23\pm40.94$, $40.5\pm6.43$, $153.30\pm27.70$ and $33.00\pm9.94$ mg/dl respectively and lipid profile level is significantly higher in the cases as compared to controls. Higher HbA1C level increases the risk for diabetic complications. FBS showed significant positive correlation with HBA1C ($p<0.002$). HDL has significant negative correlation with HBA1C ($p<0.008$). Serum magnesium levels were found low in study group as compared to controls.

**Discussion/Conclusion:** Early detection in the abnormalities of serum HbA1C, lipid profile and Mg can minimize the risk for micro and macro angiopathies in the known type II diabetic patients.

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