

## Lipids, Lipid Peroxidation and Total Antioxidant Capacity as Biomarkers of Coronary Heart Disease in Patients with Diabetes Mellitus

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### Background

Diabetes represents a major public health burden, both locally and globally. Future projections have estimated the prevalence of diabetes to exceed 300 million cases by 2030, with the majority of growth occurring in developing countries. It is well known that diabetes is associated with significant morbidity and mortality.

### Aims & Objectives

To identify the biomarkers of coronary Heart disease in patients with diabetes mellitus.

### Material & Methods

In the present study 50 diabetic patients attending OPD at SLIMS, Pondicherry were taken as the study group and 50 healthy age and sex matched individuals were taken as control group. Inclusion criteria: Diabetic patients without any micro and macro vascular complications. Exclusion criteria: Alcoholics and smokers. A 'P' value <0.05 was considered as statistically significant.

### Results

A significant increase in (LPO) MDA levels were found

to increase significantly ( $p < 0.001$ ) when compared to controls. There was a significant decrease ( $p < 0.001$ ) in FRAP levels when compared to the control levels. It is significantly associated with increased concentrations of low density lipoprotein cholesterol, decreased concentrations of high density lipoprotein cholesterol, and increased triglyceride concentration, haemoglobin A1c, systolic blood pressure, fasting plasma glucose concentration, and a history of smoking. The absolute excess coronary risk due to diabetes was greater in the presence of other risk factors, including cigarette smoking, hypertension, and obesity.

### Conclusions

Our findings in the present study shows a decrease in antioxidant capacity which indicates that in DM with CHD, there is hyperglycemia induced oxidative stress and abnormal lipid levels associated with a depleted antioxidant status which sets the stage for further disease progression.

**Keywords:** Coronary heart disease; Diabetes mellitus; Oxidative stress; Malondialdehyde; Total antioxidant capacity.