



**Title :** Antioxidative status in patients with Diabetes Mellitus as compared to paired normal subjects

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Human being survives only in presence of oxygen. During the utilization of this life supporting element oxygen, we generate by-products as 'Reactive oxygen species' (ROS), commonly known as free radicals. These free radicals are produced as the part of the body's normal stress response. But when these reactive species formed in larger amount and with chronic exposure, it can damage healthy cells, resulting degenerative cellular function. Oxidative stress is currently suggested as the mechanism underlying all non communicable diseases, causing 38 million deaths per year globally, with rising prevalence across the world particularly in developing countries.

In a normal situation, the oxidative stress, caused by reactive oxygen species, is controlled by the action of antioxidant defense mechanism, including antioxidative enzymes, present inside the cells [e.g. superoxide dismutase; catalase and glutathione peroxidase] and dietary antioxidants like certain vitamins and minerals and some phytochemicals having a major antioxidative effect in the body.

Once the chronic antioxidative stress sets in, it weakens the antioxidative defense enzyme system of the body and further increase the complication due to oxidative stress. In diabetic patients, hyperglycemia weakens the antioxidant enzyme defense which further increases damage to cell proteins and increase the progression of complications of diabetes.

The present study evaluates and compares antioxidative status, in patients with type 2 diabetes mellitus patients and healthy controls. Inclusion criteria were T2 diabetic patient of either sex, from similar socioeconomic background, blood sugar is controlled by only OHG drug, having no other co morbidity. A total number of 43 subjects comprising of 33 diabetic male and female patients and 10 age matched, normal healthy controls were enrolled. Plasma Malondialdehyde (MDA) which is the marker of lipid peroxidation and enzymes erythrocyte catalase, superoxide dismutase and glutathione peroxidase were estimated in all subjects.

The plasma Malondialdehyde levels were significantly higher in diabetic male and female patients as compared to the control male and female subjects. Erythrocyte superoxide catalase, superoxide dismutase and glutathione peroxidase levels were significantly low in patients with diabetes than control subjects. The study concludes that free radical induced lipid peroxidation is significantly higher in diabetic subjects, indicating besides restricting free sugar intake in diabetic subjects, recommendation of higher intake of antioxidant rich food will have a major role in dietary management of Diabetic subjects.

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