

ESTIMATION OF OXIDATIVE STATUS IN LYMPHOCYTES OF TYPE 2 DIABETES MELLITUS PATIENTS

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Introduction: Diabetes mellitus (DM) is a group of metabolic disorders which opens the door for many diseases leading to various complications like neuropathy, nephropathy and retinopathy. Type 2 diabetes mellitus (T2DM) is associated with elevated level of oxidative stress, which is one of the most important factors responsible for the development of chronic complications of this disease. Antioxidants like reduced glutathione (GSH), superoxide dismutase (SOD) and catalase protects cells against oxidative damages.

Purpose: Our present study suggests that hyperglycemia induced oxidative stress leads to various complications in T2DM patients. Here we investigated oxidative stress markers in lymphocytes of healthy control and diabetes mellitus patients.

Methods: In the present study, 40 patients with T2DM (group A), aged 35-65 years and 30 healthy individuals (group B) of same age group were included. Lymphocytes were isolated by using ficoll hypaque from heparinised blood obtained from all the participants in this study. Lymphocyte SOD, Catalase, Glutathione and MDA were estimated by using ELISA reader.

Results: SOD activity was higher in group B (98.97 ± 8.01) as compared with group A (49.71 ± 5.85); whereas catalase (61.50 ± 8.79 vs 76.33 ± 6.80) and glutathione (44.22 ± 6.85 vs 63.61 ± 8.89) amount was reduced in the same group as compared with healthy control. Lipid peroxidation was higher in group B (13.43 ± 3.99) as compared with healthy control (9.89 ± 2.59). [Figure1]

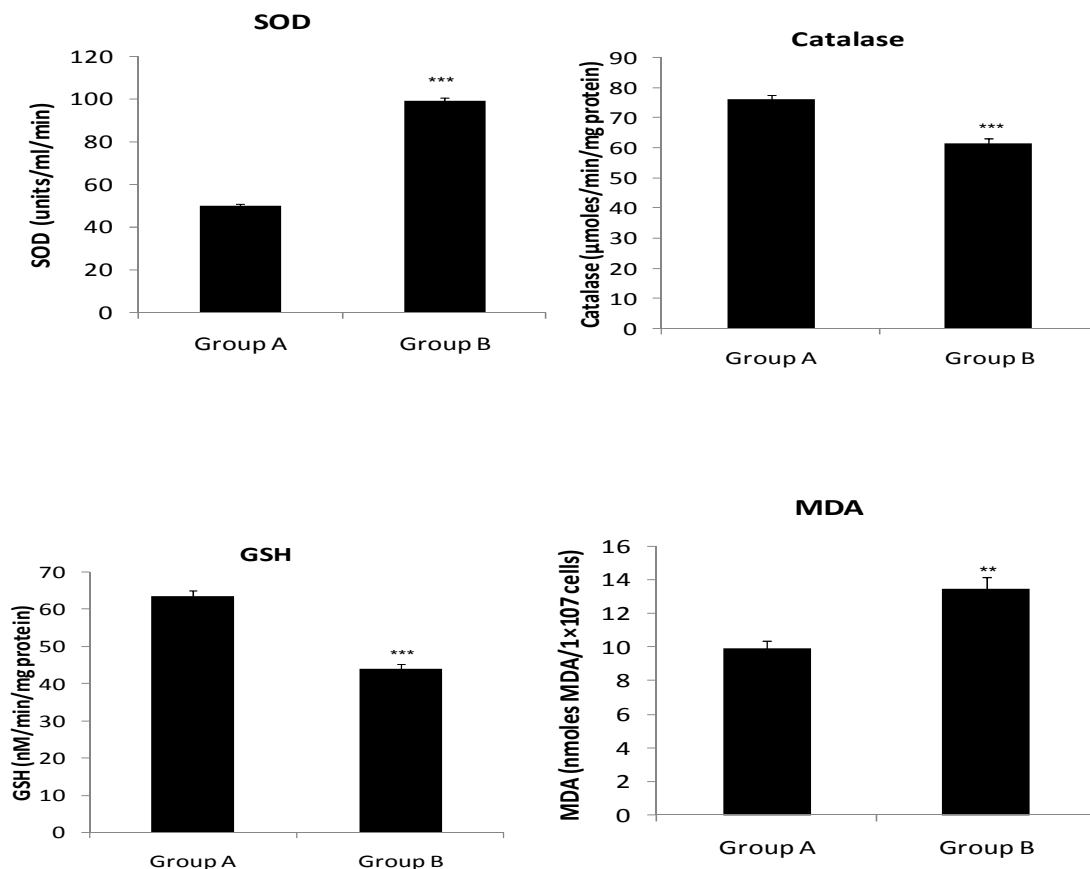


Figure1. Antioxidants level and lipid peroxidation status in T2DM

Conclusions: Hyperglycemia induces oxidative stress condition inside the lymphocytes which stimulates cell death of various cells including lymphocytes. Our data collectively confirms a significant decrease in lymphocytes GSH and catalase activity as well as increase activity of SOD and MDA reflects the elevated oxidative stress in the diabetic state.