OMICS Group Conferences
Accelerating Scientific Discovery

3rd World Congress on
Diabetes & Metabolism

September 24-26, 2012 Marriott Convention Center, Hyderabad, India

A study on glutathione peroxidase and malondialdehyde in type 2 diabetes

Davina Hijam

Regional Institute of Medical Sciences, India

Abstract

Oxidative stress is involved in the pathophysiology of diabetes mellitus and this occurs before the clinical appearance of late complications of diabetes. This study was a cross-sectional study carried out in the Department of Biochemistry in collaboration with the Department of Medicine, Regional Institute of Medical Sciences, during the period from October 2009 to April 2011 to estimate the level of Glutathione Peroxidase(GPx) and Malondialdehyde(MDA) in patients with type 2 diabetes mellitus(DM) with and without complications and healthy individuals. The study was carried out among 30 cases of type 2 DM without complications and 30 type 2 DM cases with microvascular complications. Thirty apparently healthy were taken as controls. Erythrocyte GPx and MDA levels were estimated spectrophotometrically using Beckman DU640 Spectrophotometer using commercially available kit RANSEL, Randox Lab Ltd. and Bioxytech, Oxis International,USA respectively. Patients with complications had longer duration of illness than those without complication. There was a significant decreased in the level of GPx among the type 2 diabetes mellitus with complications when compared to those without complication and also controls (19.18$\pm$0.97U/gHb,24.07$\pm$0.88U/gHb,29.48$\pm$0.92U/gHbrespectively). Increased lipid peroxidation as indicated by MDA level was observed in the cases when compared with controls. MDA level was found to be significantly increased in those with complications(6.08$\pm$0.47µmol/l) compared to those without complication(4.01$\pm$0.22µmol/l) and controls(2.79$\pm$0.27µmol/l).The study showed a significant negative correlation between GPx and HbA1c and a positive correlation between MDA and HbA1c($p<0.01$). This findings confirmed the evidence that diabetic patients are susceptible to oxidative stress and poor glycemic control had an association with free radical mediated lipid peroxidation