

Investigation of lipid profiles and lipid peroxidation in patients with type 2 diabetes.

ABSTRACT

The aim of this study was to investigate the lipid peroxidation of plasma as a marker of oxidant-induced protein damage, the effects of oxygen radicals on glycated-hemoglobin and to find out the relationship between the increase level of Malondialdehyde (MDA) on HbA1C, lipid profiles and FBS (Fasting Blood Sugar) in patients with type 2 diabetes. This randomized study included 200 individuals, 100 cases had history of diabetes for at least 3 years (file in Isfahan hospital, Diabetic Center of Medical Sciences University) and 100 cases as the control group without history of diabetes. In both groups, level of MDA, FBS, lipid profiles and HbA1C were determined in fasting blood samples. Results showed that MDA level in diabetic patients was significantly ($p < 0.005$) higher ($0.9222 \pm 0.3 \mu\text{mol/L}$) than those in the control group ($0.7428 \pm 0.04 \mu\text{mol/L}$). The same was also true ($p < 0.05$) for the level of HbA1C ($9.387 \pm 2.4 \text{ mg/dl}$ in diabetic patients and $7.356 \pm 1.0 \text{ mg/dl}$ in the control group) and the FBS ($163.31 \pm 56 \text{ mg/dl}$ in patient group and 85.740 ± 10.1 in the control group). Furthermore, the concentration of LDL significantly was higher ($p < 0.05$) and the HDL level were significantly lower ($p < 0.05$) in case group as compared to control group. The increased plasma lipid peroxidation and decreased plasma HDL that we observed in patients with type 2 diabetes mellitus indicated that these may predispose to the development of cardiovascular complications.

Keyword: FBS; HbA1 C; Lipid peroxidation; Malondialdehyde.