Methylglyoxal Level In Type-2 Diabetes Mellitus Patients: A Prospective, Randomized and Case Control Study at Tertiary Care Hospitals, Hyderabad, Pakistan.

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{Original Article (Medicine)}
ABSTRACT

Objective: To study the methyglyoxal (MG) levels in type 2 diabetes mellitus (T2DM) subjects compared with normal controls and to evaluate relationship of MG with blood sugar, systolic and diastolic blood pressure.

Study Design: comparative case control study

Place and Duration of Study: This study was conducted at the Diabetic clinics of Isra University Hospital for a period of six months from.

Subjects & methods: Thirty normal controls (Group. I) and thirty T2DM (Group. II) were studied according to inclusion and exclusion criteria. 5.0 ml of blood was transferred into citrated bottles. Serum was obtained by centrifugation at 4000 rpm for ten minutes and were frozen at -20°C.

The blood glucose level was detected by glucose oxidase method. MG was measured by the ELISA assay. Student’s t-test, Chi square test and Pearson’s correlations were used for the continuous & categorical variables and linear association respectively. The Data was analyzed using SPSS version 17.0. A p-value of ≤0.05 was taken statistically significant.
Results: Very high levels of MG were observed in type 2 diabetics compared with controls; 45.60±37.24 vs.1.29±0.30 ng/l (p=0.0001). The male and female in groups I & II were 19 (63.3%) vs.11 (36.6%) and 20 (66.6%) vs. 10 (33.3%) respectively. Mean (±SD) of age was 47.9±5.0 and 49.3±6.6 years in both groups respectively (p= 0.67). Majority of diabetics; 23 (76.6%) were having very high levels of blood sugar. More alarming situation was of anti-diabetic drug non-compliance which was noted in 19 (63.3%). Hypertension was observed in 17 (56.6%) of diabetics. A positive linear correlation of MG was observed with RBS (r=0.70, p = 0.001), SBP (r=0.33, p = 0.01) and DBP (r=0.35, p=0.006).

Conclusions: We report elevated methyglyoxal levels in type 2 diabetes mellitus patients compared with controls. A positive linear correlation was observed with systemic hypertension and blood glucose level.

Key Words: Diabetes mellitus, Hyperglycemia, Methylglyoxal.

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