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Estimation of serum magnesium levels as an indicator of diabetes mellitus type-2: A case control study

G Nishanth Kumar
Government Medical College, India

Introduction: Hypomagnesaemia has been reported to occur in diabetic patients. Studies have shown that magnesium levels are lower in diabetic patients when compared with non-diabetics and that magnesium deficiency has a negative effect on post receptor signaling of insulin.

Objective: To evaluate serum magnesium and random blood glucose in type-2 diabetes mellitus and compare them with the normal to evaluate the role of serum magnesium as an indicator of type-2 diabetes mellitus.

Methodology: This study was done for a period of 3 months in which 37 controls and cases were included. Persons with type-2 diabetes of age 18 and above as cases and similar age group as controls in patients are included in the study. Patients with type-1 diabetes mellitus, chronic diarrhea, impaired renal function, people on diuretics, chronic alcoholics and people with hypomagnesaemia symptoms was excluded from the study. The samples were analyzed on semi auto analyzer using Chemchek magnesium kit which is based on xylidyl blue with ACTS method and random blood glucose level was measured GOD-POD (glucose oxidation) method.

Results & Conclusion: The obtained p-value for the given data set is 0.9941 with alpha level of 0.1 (for type-1) error. It is evident that the p-value is significantly higher than that of the alpha level. The mean magnesium values for control subjects were 2.19 mg/dL for diabetic subjects is 1.8624 mg/dL. From the mean values of magnesium levels for both the populations, hypomagnesaemia reported to be occurring in diabetics than in controls, which may act as a risk factor for diabetes and as a biomarker.

nagsischikki@gmail.com