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SERUM MAGNESIUM LEVELS AS AN INDICATOR OF STATUS OF TYPE 2 DM

General Medicine

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KEYWORDS

Introduction:
Magnesium is the second most abundant intracellular cation in the body. It plays a significant role in many metabolic pathways, especially in glucose metabolism, by acting as a cofactor for several enzymes. It plays a vital role in insulin secretion, insulin binding and homeostasis . Magnesium deficiency is commonly associated with endocrine and metabolic disorders, especially with Diabetes Mellitus type 2 though the mechanism of hypomagnesemia in Diabetes Mellitus is not completely known. There is a close association between metabolic control of Diabetes Mellitus and impaired magnesium balance.

Objectives:
To estimate the serum levels of magnesium in patients of with Diabetes Mellitus type 2 and to find a correlation if any, with the duration and control (by estimating HbA1c) of Diabetes Mellitus type 2.

Materials and Methods:
35 Diabetes Mellitus type 2 were included in the study. Blood samples were analyzed for fasting and post prandial glucose, HbA1c and magnesium. The patients were grouped into three categories based upon their HbA1c levels into those with good control, need intervention and poor control. The three groups were compared with reference to their mean levels of blood glucose and magnesium. Association of serum magnesium levels with HbA1c, Fasting and postprandial blood glucose and duration of Diabetes Mellitus was also done.

Results:
The mean serum magnesium was 1.74+ 0.32mg/dl. Of the patients, 23(65%) had low serum magnesium levels (less than or equal to 1.5mg/dl). We observed that serum magnesium levels were lower in patients with increasing duration of diabetes. Out of the 23 patients who had hypomagnesaemia, 18 patients had HbA1c > 7 %. This correlates between hypomagnesaemia and poor glycemic control in our study. Serum magnesium levels were found to decline with rise in HbA1c levels and with duration of Diabetes Mellitus type 2.

Conclusion:
Magnesium deficiency is present at the time of diagnosis in newly diagnosed diabetic patients who have higher levels of HbA1c. As the age of the study population increased, serum magnesium levels also varies. Levels of magnesium drop with increasing glucose levels, much more before the onset of diabetic micro and macro vascular complications. This can be used as a marker to assess the risk of complication even at the first encounter with diabetic patients as values correlates with HbA1c levels. It may be worthwhile to screen newly diagnosed Indian diabetic patient for hypomagnesaemia.