

A STUDY OF THE EFFECT OF IRON DEFICIENCY ANEMIA ON HBA1C IN DIABETES

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Introduction: Diabetes mellitus is characterized by hyperglycemia resulting from defects of insulin and is associated with long-term damage of various organs. Glycated hemoglobin is widely used as a gold standard for monitoring glycemic control over the previous three months but it may be affected by genetic, physiological, hematological and illness-related factors. Two known factors which can modulate the glycation of proteins are the prevailing concentration of glucose and the half life of the proteins. Eventhough, HbA1c is a precise diagnostic tool for diabetic patients there are different factors like iron deficiency anemia (IDA) which can give false result of HbA1c.

Aim: The aim is to study the effect of iron deficiency anemia on levels of HbA1c in diabetic patients.

Methodology: Fifty diabetic, iron deficient anaemic patients (cases) and 50 age-matched diabetic patients (controls) were enrolled. The patients with haemoglobinopathies, haemolytic anaemia, chronic alcohol ingestion and chronic renal failure were excluded. Haemato-logic investigations, fasting glucose and HbA1c levels were measured.

Results: The mean HbA1c in cases was 7.91 ± 1.20 and in controls was 7.11 ± 0.89 , which was significant statistically as the p value was $0.0003 (<0.05)$. There was a significant difference between the values of hemoglobin between the cases and controls and no difference between the fasting glucose levels.

Conclusion: Iron deficiency anemia is the most prevalent nutritional anemia in India. Our study showed that IDA spuriously elevates HbA1C levels in the diabetic patients independent of plasma glucose concentration. Hence, it is important to exclude iron deficiency anemia and correct it before making any diagnostic/ therapeutic decision in a patient of diabetes mellitus.

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