Diagnostic Value of Fructosamine and Glycosylated Hemoglobin in Estimating Blood Glucose Level in Diabetic Patients with Thalassemia Major

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Abstract

Background and Objective: Diabetes mellitus is one of complications that thalassemia major patients face with. Hence, blood glucose monitoring is of vital importance to these patients. Because of high level of fetal hemoglobin in these patients, the measurement of hemoglobin A_{1c} is not reliable and should be displaced by fructosamine test.

Material and Methods: The current descriptive study was carried out on 33 beta-thalassemia major patients afflicted with diabetes mellitus (21 female and 12 male cases). Blood glucose level, fructosamine, hemoglobin A_{1c}, serum ferritin and fetal hemoglobin were measured.

Results: Blood glucose levels are 204±103 mg/dL and 221±101 mg/dL (p=0.63); fetal hemoglobin levels are 9%±7% and 13%±9% (p=0.22); serum ferritin levels are 1744±1534 ng/mL and 3253±1773 ng/mL (p=0.96) in female and male patients, respectively. The level of fructosamine (42±124 mmol/L) and glycosylated hemoglobin (8.9%±1.8%) are correlated significantly (r=0.69, p<0.01). Both Hemoglobin A_{1c} (r=0.75, p<0.01) and fructosamine (r=0.54, p<0/01) show a significant correlation with blood glucose level.

Conclusion: In diabetic thalassemia major patients with frequent blood transfusion, the level of fructosamine and glycosylated hemoglobin are related significantly, therefore; they can be used alternatively.

Keywords: Thalassemia major; Fructosamine; Hemoglobin A_{1c}; Diabetes Mellitus

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