Comparision of fructosamine test with glycated hemoglobin in assessing diabetes

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Abstract

Background: Optimal glycemic control is generally believed to be essential in patients with diabetes to minimize the long-term complications associated with the disease. Measuring the level of glycated hemoglobin is usually performed to assess long term control while evaluation of short term control is achieved by determining the levels of plasma proteins or fructosamine. Regarding the shorter half-life of plasma proteins, it is believed that fructosamine test is more sensitive in responding to variations in glycemic condition.

Objective: To compare fructosamine and glycated hemoglobin tests in assessing glycemic control.

Methods: This method evaluation study carried out in Yazd center for diabetes in 2003. The study group consisted of 50 diabetic patients who were tested for plasma fructosamine and glycated hemoglobin levels during two months. Two measurements for fructosamine level (once each month) and one assay for glycated hemoglobin level (at the end of two months) were performed. Ion exchange chromatography and chlorometric method based on nitro blue tetrazolium reduction were used to measure glycated hemoglobin and fructosamine, respectively.

Findings: The results were indicative of a highly significant correlation between fructosamine and glycated hemoglobin (r=0.94; p<0.001). Variation coefficient among series and days of fructosamine measurement were 2.7 and 5.1 with recovery rate of 96.8%.

Conclusion: Based on data found in our study and also in view of lower price, easy performance, high accuracy and precision, it seems that fructosamine to have a high capacity in assessing diabetes control.

Keywords: Fructosamine, Glycated Hemoglobin, Diabetes Mellitus