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Comparison of glycosylated fibrinogen, albumin, and haemoglobin as indices of blood glucose control in diabetic patients.

[Ardawi MS](#), [Nasrat HN](#), [Mira SA](#), [Fatani HH](#).

Department of Clinical Biochemistry, College of Medicine and Allied Sciences, King Abdulaziz University, Jeddah, Saudi Arabia.

Abstract

The value of glycosylated fibrinogen as an index of short-term diabetic control was compared with indices of long-term (glycosylated haemoglobin) and intermediate-term (glycosylated albumin) diabetic control, respectively. In this study, percentages of these glycosylated proteins and fasting plasma glucose concentration were determined in 95 healthy non-diabetic subjects and 48 diabetic patients (22 well-controlled and 26 poorly-controlled) after an overnight fast. The differences in the percentages of glycosylated fibrinogen, haemoglobin, and albumin between non-diabetic subjects (4.7, 6.4, and 2.0), well-controlled diabetic patients (6.9, 9.5 and 2.9), and poorly-controlled diabetic patients (11.3, 15.8, and 5.1) were statistically significant (p less than 0.05). The percent glycosylated fibrinogen exhibited significant association with severity of hyperglycaemia when diabetic patients were divided by 2, 4, and 6 standard deviations above the mean of fasting plasma glucose of non-diabetic subjects. There were significant correlations between glycosylated fibrinogen and fasting plasma glucose ($r = 0.83$, p less than 0.001), glycosylated haemoglobin ($r = 0.94$, p less than 0.001) and glycosylated albumin ($r = 0.92$, p less than 0.001) for all subjects studied. In ten newly diagnosed diabetic patients after 6 days of treatment, only the decrease in glycosylated fibrinogen (33.4%) was significant (p less than 0.05), but not that of glycosylated haemoglobin (4.8%) or albumin (8.0%). It is suggested that glycosylated fibrinogen provides the clinician with earlier objective evidence of the metabolic response to therapeutic intervention, and might be regarded as a short-term (2-3 days) index of blood glucose control