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

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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 ($p < 0.05$). 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 ($r = 0.83$, $p < 0.001$), glycosylated haemoglobin ($r = 0.94$, $p < 0.001$) and glycosylated albumin ($r = 0.92$, $p < 0.001$) 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 ($p < 0.05$), 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