Int. J. Gynecol. Obstet., 1990, 34: 27—33
International Federation of Gynecology and Obstetrics

Fructosamine as a screening-test for gestational diabetes mellitus: a reappraisal

H.A. Nasrat, M.A. Ajabnoor and M.S.M. Ardawi

Department of Obstetrics and Gynaecology and Department of Clinical Biochemistry, King Abdulaziz University, College of Medicine and Allied Sciences, P.O. Box 9029, Jeddah 21413 (Saudi Arabia)

(Received June 12th, 1989)
(Revised and accepted September 25th, 1989)

Abstract

Fructosamine, glycosylated hemoglobin (HbA_{1c}) and serum total proteins were measured in normal nondiabetic pregnant women ($n = 170$) at three stages of pregnancy (14—18, 24—28, and 32—40 weeks of gestation). No significant correlation was found between fructosamine and either HbA_{1c} or total plasma proteins. Only early in pregnancy (< 20 weeks of gestation) was a correlation found between fructosamine and fasting blood glucose ($r = 0.40$, $P < 0.05$). There was also no correlation between either tests (i.e. fructosamine and HbA_{1c}) and fetal birthweight. The value of fructosamine measurement in the detection of diabetes in pregnancy was further tested in a group of high-risk patients ($n = 98$) for developing carbohydrate intolerance. It is concluded that fructosamine has limited value as a screening test for gestational diabetes mellitus, particularly for the mild form of the glucose intolerance.

Keywords: Gestational diabetes; Fructosamine; High-risk pregnancy; Glucose tolerance.

Introduction

Good management of diabetes in pregnancy depends on maintaining a normal blood glucose level throughout the course of gestation. Many reports have now established that infant mortality rate [4] and the rate of complications (particularly macrosomia and metabolic abnormalities in the newborn) are related to the degree of metabolic control during pregnancy [14,18]. However, the criteria for a satisfactory control varied widely even among studies with low perinatal mortality outcomes [24]. Furthermore, the traditionally used tests (e.g. urine and blood glucose measurements) for monitoring glycemic control, are unreliable as markers of long-term metabolic control [11]. Therefore, the introduction of glycated protein assays to the armamentorium of metabolic evaluation of diabetes has been welcomed particularly in the management of diabetic pregnancy where euglycemia is an important and feasible goal [5,6,14]. The first of such proteins was glycosylated hemoglobin (HbA_{1c}) which was found to serve as a marker of glycemic control over the preceding 1—2 months prior to its estimation in diabetic patients [29]. However, as a screening test for gestational diabetes mellitus

0020-7292/90/$03.50