

Original Article

Postprandial Glucose as Marker of Glycemic Control in Type 11 Sudanese Diabetics

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Abstract

Objective: To compare the accuracy of fasting blood glucose, two hour post breakfast glucose and three hour post breakfast glucose (FBG, 2hPBG, 3hPBG) in inferring glycemic control as judged by glycated hemoglobin (HbA1c); and to evaluate their association with diabetic complications and medications used.

Method: A comparative cross sectional study was carried at Gaber Abuelez diabetic center, Khartoum. 99 Patients aged 30-70 years, (55% females), with type II diabetes on oral therapy were enrolled at this study. FBG, 2hPBG, 3hPBG were measured three times one-week apart; by the end of the month HbA1c was measured. Patients were evaluated for clinical evidence of complications; drugs used, haemoglobin, serum creatinine and ECG were done.

Main Outcome Measures: Sensitivity, specificity, positive predictive values.

Results: The patients control profile was poor in the majority. Only drugs targeting basal glycemia were used. Correlations among different parameters showed FBG to be strongly correlated with HbA1c ($r=0.601$; $P=0.000$). 2hPBG correlated weakly if at all with HbA1c ($r=0.202$; $p=0.102$) but has good prediction of poor control ($p = 0.000$). 3hPBG correlation with HbA1c ($r=0.547$; $p=0.000$) was less than FBG. 2hPBG, 3hPBG correlated together very well both on single determination and means of the three values ($r=0.912$, 0.900 , $P=0.000$). Correlations with FBG had been less $r=0.830$, 0.841 respectively. Poor correlation was shown between levels of glycemia and long term diabetic complications except for erectile dysfunction ($P=0.035$). When correlated with current oral therapy only measures of basal glycemia correlated significantly, on other hand postprandial glucose and glucose excursions correlated poorly.

Conclusion: Sudanese diabetics should have their postprandial glucose measured, in addition to fasting glucose and/or HbA1c. 2 and 3-hour post breakfast blood glucose can be used alternatively. Medications specifically designed at the management of postprandial hyperglycemia (i.e. repaglinide, acarbose) should be included in the routine treatment of Sudanese diabetics.