

Abstract**Diabetes screening in the high risk individuals: Can the Glycosylated hemoglobin test replace oral glucose tolerance test?**

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Abstract**Introduction**

First degree relatives of patients with type 2 diabetes carry a high risk of pre-diabetes and diabetes. We aimed to study the diagnostic accuracy of glycosylated hemoglobin test (HbA1c) and fasting blood glucose (FBS) in screening diabetes and pre-diabetes in this category.

Methods

157 previously non-diabetic, adult, first degree relatives of diabetic patients underwent FBS, HbA1c and oral glucose tolerance test (OGTT). Sensitivity and specificity of FBS over 101 and 126 mg/ dL and HbA1c of 5.5% and 6.5% in detecting individuals with pre- diabetes and diabetes were determined according to the 2-hour OGTT blood glucose values of 140 and 200 mg /dL respectively.

Results

Majority (63%) of the sample were females. Mean (SD) age, BMI were 49.9(11) years and 23.5 (3.6) kg/m². Percentages with diabetes on FBS, HbA1C and OGTT were 10.19%, 12.73%, 14% and pre-diabetes were 28.6%, 45.9% 30.57% respectively. Sensitivity and specificity of HbA1c in detecting pre-diabetes were 83.33% and 70.64% and diabetes were 77.27% and 97.77% respectively. The corresponding figures for pre-diabetes with FBS were 60.41% and 85.32% and diabetes 68.13% and 99.25%. Area under the curve of the receiver operator characteristic curves (ROC) of FBS and HbA1c with OGTT were 0.88 and 0.98 respectively.

Conclusions

In this high diabetes risk category, HbA1c test detects higher percentage of patients with diabetes and pre-diabetes than FBS. Diagnostic yield of diabetes with HbA1c was superior to FBS and almost identical to OGTT. HbA1c test may replace OGTT in detecting diabetes among high risk individuals.

Key words: Type 2 diabetes mellitus; Screening in high risk individual; HbA1C

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