P-0759 – Plasma glucose at 30 minutes during oral glucose tolerance test predicts future dysglycemia among Asian Indian men

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Background: Evidence from several observational studies including our own consistently showed that early glucose measurements during the oral glucose tolerance test (OGTT) i.e., 30 minutes (30min) and 1hour post glucose (PG) are useful for predicting diabetes¹ ². Furthermore, from a pathophysiological point of view, the 30min PG level is important due to its strong association with markers of first phase insulin secretion and insulin sensitivity¹. However, practical clinical implications of using a 30min PG measurement as a screening tool for prediction of dysglycemia is seldom recognized.

Aim: The aim of this study was to examine whether 30min PG during OGTT would be a more relevant screening tool for future risk assessment.

Methods: For the present analysis in 2015, data from an Indian Diabetes Prevention Programme, a community-based intervention program that examined the effectiveness of mobile phone based text messaging in the prevention of type 2 diabetes (T2D) among Asian Indian men (2010-2013) was used³. Initially they had impaired glucose tolerance (IGT) as per WHO criteria and a second OGTT done within a week showed non-diabetic glucose values (n=653, age 35 – 55 years). They were advised standard lifestyle practice. Five years later, 569 of the 653 responded to the invitation for a clinical assessment with OGTT. Tests were done in person for 408 and 161 provided details of recent medical records. Normoglycaemia (NGT) was detected in 376, 115 had IGT and 78 had developed diabetes.

The association between dysglycaemia and 30min PG was assessed by logistic regression model. Receiver operating characteristic (ROC) curve was used to analyze the performance of the fasting, 30 min and 2-hr plasma glucose in predicting dysglycemia (prediabetes+ diabetes).

Results: The unadjusted OR was 2.7 (95% CI 1.8 – 4.2) and the adjusted OR was 2.5 (95% CI 1.6 – 3.9), p<0.0001. The ROC analysis showed that the highest area under the curve was obtained with the 30min PG value (AUC = 0.616, 95% CI 0.566 - 0.665), p<0.0001. The sensitivity and specificity were 62% and 54% respectively for the 30min PG of 163 mg/dl.

Discussion: This study showed that the baseline 30min PG was significantly associated with the future risk of dysglycemia within a 5 year period. A simplified OGTT procedure is likely to be more acceptable to the public and will help to identify larger number of individuals at risk of developing T2D. Early intervention with lifestyle modification will be facilitated by this strategy.

References: