

A STUDY ON TRIGLYCERIDE GLUCOSE INDEX AS A MARKER OF INSULIN RESISTANCE”

ABSTRACT

Type 2 diabetes mellitus has foremost clinical and social impact, but its causal pathophysiology is below par to be understood. The predominant, obesity related form of diabetes is characterized by hyperinsulinemia, resistance to insulin-mediated glucose disposal in skeletal muscle, and elevated plasma free fatty acid and triglyceride levels.

Because of the clinical importance of IR, the ability to identify individuals with IR before the development of cardiometabolic diseases is of paramount importance. Although the hyperinsulinemic euglycemia clamp remains the gold standard for measuring IR, its practical clinical application is limited by the labor intensiveness and cost and by ethical concerns. Therefore, a simple, reliable and reproducible index for measuring IR like “Triglyceride Glucose Index” is urgently required.

The prime intention of this study is to evaluate TyG index as a surrogate method for estimation of Insulin Resistance (IR) and to establish TyG index’s correlation with adiposity, metabolic and atherosclerosis markers related to IR.

MATERIALS AND METHODS :

A total of 120 adult patients, who came for diabetes screening are taken in to study and are grouped in to IR + and IR – based upon ATPIII criteria.

Anthropometric, blood pressure, carotid intimal thickness and other biochemical parameters like lipid profile, fasting insulin, fasting and postprandial blood sugar were investigated. TyG index and HOMA IR were calculated accordingly. TyG index is compared to HOMA IR and its correlation with other anthropometric, metabolic and atherosclerotic markers are established.

CONCLUSION

TyG index established a positive correlation with almost all anthropometric and Metabolic Parameters. There was a statistically significant correlation with Age, BMI, waist circumference, WHR, fasting and postprandial blood sugars and all the lipid parameters. However, blood pressure (both systolic and diastolic) and carotid intimal thickness did not achieve significant correlations with these indices. TyG index cutoff was calculated. Those with 8.65 were definitely diabetics. TyG index also gave a positive correlation with HOMA IR; Indeed, the ROC curve analysis showed that TyG index had the largest AUC, thus demonstrating its superior performance in recognizing IR than HOMAIR. Hence TyG index is finally proven to have a superior hand in assessing insulin resistance and predicting diabetes and can be used as a efficient tool in our clinical setup.

Key words : Triglyceride glucose index, TYG index, Surrogate Markers of IR, Insulin resistance