Triglyceride–Glucose Index and Ratio and The Relation to Microvascular Complications in Patients with Type 2 Diabetes

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Abstract

Aim:

Triglyceride based indices have gained much attention through the past few years. Relation of triglyceride–glucose (TyG) index with insulin resistance and diabetic macrovascular complications was thoroughly studied, yet its relation to microvascular complications is still unclear. This invited us to conduct the present study.

Methods:

In this cross-sectional study, 500 patients with type 2 Diabetes (T2DM) were recruited from the outpatient clinic of the Diabetes unit at Alexandria Main University Hospital. The TyG index was calculated using the equation: TyG = Logarithm of [Fasting triglyceride (mg / dl) x Fasting glucose (mg / dl)] / 2 while The TyG ratio was calculated as fasting triglycerides (mg/dL)/fasting glucose (mg/dL). Microvascular complications were defined according to the diagnostic criteria of American Diabetes Association.

Results:

In patents with T2DM, TyG index was significantly higher in patients with diabetic retinopathy (DR), diabetic kidney disease (DKD) and diabetic peripheral neuropathy (DPN) compared to those without complications ($p<0.001$) TyG index is significantly positively correlated to diabetes duration, fasting plasma glucose and triglyceride/ high density lipoprotein ratio in the total sample ($p<0.001$).

Conclusion:

TyG index is an easy, cheap and available marker for detection of microvascular complications in patients with T2DM.

Keywords:

Type 2 diabetes, microvascular complications, TyG index.