



TITLE: Cutoff point of TyG Index for Metabolic Syndrome in Brazilian Farmers

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ABSTRACT

The determination of Insulin Resistance (IR) requires sophisticated and costly methods, for this reason the TyG Index was proposed. This was the first study in Brazil using Metabolic Syndrome (MetS) as a predictor of IR in a rural Brazilian population. The TyG index was calculated: $\text{Ln} [\text{fasting triglycerides (mg/dL)} \times \text{fasting glycemia (mg/dL)}] / 2$, and MetS was defined using the NCEP-ATPIII and IDF criteria. For association analysis, the Mann-Whitney U test was used and the comparison between means was made using the Kruskal-Wallis test. For correlations, Spearman's correlation test was used. The cutoff values of TyG Index for MetS were obtained using the Receiver Operating Characteristic (ROC) curve analysis with the area under the curve (AUC) and the Youden Index. The median TyG values were higher among individuals diagnosed with MetS ($p < 0.001$), and increased according to the aggregation of the components of MetS. All MetS components were correlated with TyG ($p < 0.001$). The AUC for NCEP was 0.873 (0.848-0.896; $p < 0.001$), with Youden's cutoff point of Ln 4.52 (sensitivity: 84.30%; specificity: 75.75%). The AUC for IDF was 0.867 (0.842-0.890; $p < 0.001$), with Youden's cutoff point of Ln 4.55 (sensitivity: 80.0%; specificity: 79.82%). A cutoff point of Ln 4.52 was defined.

In conclusion, the TyG Index is a reliable marker for identifying insulin-resistant individuals, and correlates with the metabolic changes present in MetS. A cutoff point of Ln 4,52 has good sensitivity and specificity in both diagnostic criteria of MetS, being useful both in clinical practice and epidemiological studies, and can represent an important tool for the creation of protocols for promotion, protection and recovery health of rural populations.

BIOGRAPHY

Graduated in Nutrition and Master in Public Health from the Federal University of Espírito Santo (UFES). Works as a clinical research nutritionist on two clinical trials for Eli Lilly Company (A Study of Tirzepatide (LY3298176) In Participants After A Lifestyle Weight Loss Program (SURMOUNT-3) and A Study of Tirzepatide (LY3298176) in Participants With Obesity or Overweight for the Maintenance of Weight Loss (SURMOUNT-4)), at the Osteoporosis Diagnosis and Research Center of Espírito Santo (CEDOES). She is currently studying Statistics at UFES. At the age of 25, she has already published two articles using statistical methodologies unpublished in Brazil, contributed to the writing of a book chapter and was invited to carry out several statistical analyzes in the area of epidemiology, in addition to presenting summaries of all the articles written so far at national and global conferences.

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