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Answer to the letter ''TyG in insulin resistance prediction''☆

Resposta à carta ''TyG na predição da resistência à insulina''

Dear Editor,

We carefully evaluated with great interest the comments made by the authors of the Letter to the Editor and we appreciate the opportunity to answer them.

To calculate the TyG (triglyceride-glucose índex) in our study[1], we used the formula proposed by Simental-Mendía et al.[2] in 2008 and Guerrero-Romero et al.[3] in 2010, described as follows:Ln[fasting triglycerides (mg/dL) × fasting glucose (mg/dL)/2].Moreover, the same formula was also used in other studies[4–7] that evaluated the TyG index in predicting insulin resistance in children and adolescents, with similar cutoffs to those identified in our study.

As our main objective was to evaluate the factors associated with the TyG index (dependent variable), linear regression analysis was used (the index was included in the analyses as a quantitative variable). Therefore, regardless of the formula used in the calculation of TyG, there is no change in the observed associations.

Additionally, we redid the TyG index calculation using the following formula: ln[fasting triglycerides (mg/dL) × fasting glucose (mg/dL)]/2, which was used by the same authors in another study in 2016[8]. As shown below, the cutoff point identified for the index was lower, as expected. However, the sensitivity and specificity values are similar.

Formula	Cutoff point	Sensitivity (%)	Specificity (%)
ln[fasting triglycerides (mg/dL) × fasting glucose (mg/dL)/2]	7.88	80.0	53.2
ln[fasting triglycerides (mg/dL) × fasting glucose (mg/dL)]/2	4.29	80.0	53.9

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In response to the email sent by a researcher from our institution inquiring about the correct formula for calculating TyG, Fernando Guerrero-Romero points out that: ''Both procedures appropriately identify the presence of insulin resistance; however, using the procedure [ln(glucose × triglycerides/2)] gives higher cutoff values for the TyG.''

We believe in the importance of the standardized formula use for the index calculation;however,to the best of our knowledge, there is no opinion from the authors who validated itregarding which one would be better.

Finally, we would like to highlight the importance of the observations made by the authors of the Letter, as they will greatly contribute to other studies that adopt the TyG index.

Conflicts of interest

The authors declare no conflicts of interest.

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