Reviewer’s report
Title: The product of fasting plasma glucose and triglycerides improves risk prediction of type 2 diabetes in middle-aged Koreans

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Reviewer: Odysseas Androutsos

Reviewer's report:
The study by Lee et al aimed to explore the utility of the TyG index as a screening tool for the identification of Korean patients at high risk for T2DM. The manuscript is well-written, but the following remarks need to be taken considered.

A. Abstract: in the "methods section" it is mentioned that "7,708 Koreans aged 40-69 years without diabetes at baseline were selected from the Korean Genome and Epidemiology Study". It is important to clarify if subjects were randomly selected from the larger study sample or if the subjects participating in the present study are actually those who were eligible. In the latter case, it is proposed that the Authors revise the wording in this sentence from "were selected" to "were eligible".

B. Introduction: Line 43: revise to "...waist circumference (WC) has also been used,..."

C. Methods:
C1. Line 48: although the Authors included a reference to the paper describing the methodology followed in more detail, it is recommended that some more information is included in this manuscript too regarding the areas/regions where this study was conducted.  
C2. Statistical analysis: did the Authors check for collinearity between WC and BMI in the multivariate model? If yes, please indicate the results.

D. Results
D1. Table 1: how do the Authors justify the large difference between the number of smokers between men (n=1,753) and women (n=142)?

D2. Table 3: the model should be also adjusted for behavioural data (e.g. dietary intake, physical activity level). The Authors mentioned in the Discussion as a limitation of the present study that no such adjustments were made. Still, if these data are available, it would be important to add them as covariates in the model.

E. Discussion

E1. Lines 30-31: the Authors suggest that "WC is not easily used in practice because of measurement inaccuracy", which is true. However, the collection of blood samples causes more burden and costs more. Therefore, it needs to be clearly highlighted what is the added value of using the TyG index as a screening tool. Would it be more meaningful to use this index in the clinical practice (i.e. in a hospital), instead of using it in the general population (e.g. by healthcare professionals who do not necessarily ask for blood examination or cannot prescribe it)?

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Unable to assess

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

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