

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	High TG/HDL ratio suggests a higher risk of metabolic syndrome among an elderly Chinese population: A cross-sectional study
AUTHORS	Nie, Guqiao; Zhang, Meng; HOU, KAI; Peng, Wen

VERSION 1 – REVIEW

REVIEWER	27-Jul-2020
REVIEW RETURNED	Qiukui Hao China

GENERAL COMMENTS	<p>This topic is likely to be of interest to the endocrine community. Considering few studies explore the association of TG/HDL-C and metabolic syndrome among Chinese people, the present study presents new evidence on this topic. But the findings from this study are not surprising, and there are several limitations in their methodology.</p> <p>One primary concern about this study is a cross-sectional study. Considering the nature of the cross-sectional study, we can not get the causation conclusion about the relationship between TG/HDL-C and metabolic syndrome. From the point of my view, the prediction should be we know the predictor (here, TG/HDL-C) first, and then we follow up the participants until some of them had events (here metabolic syndrome). After obtaining these pieces of information, we can get the prediction value of the predictor. For the cross-sectional design, we only can get the information on the association of the TG/HDL-C and metabolic syndrome.</p> <p>The reason for the association of TG/HDL-C and metabolic syndrome is not surprising is that dyslipidemia is one of the criteria for metabolic syndrome (Page 7.).</p> <p>There are also some other issues in this study:</p> <ol style="list-style-type: none">1. Methods: The authors state that "It is an anonymous, non-invasive examination, only oral notification, waiving the signing of written informed consent"... Did the researchers draw fasting blood from the participants? If so, I think the study needs a written informed consent.2. Statistical analyses: the author should provide how to chose risk factors into the binary logistic regression model and the details of potential confounders in their multivariate logistic regression models3. Results: in model 1 (page 10), the "TG/HDL-C" appears two times with different B and ORs. What's the meaning of this? The authors should present the result for the multivariate logistic regression
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	<p>models rather than the unviable modes. Some ORs had two digits, but some ORs had three digits. Please keep consistent. Two digits would have enough information.</p> <p>4. As the authors state in the discussion, the results are based on a community-dwelling sample. They may not be generalizable to older adults living in long-term facilities or to those who are seeking health care services.</p> <p>5. It is not at all clear how clinicians can use these results in their care to improve clinical outcomes. If the authors could provide practical advice in this regard, it would make their endeavour more compelling.</p>
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REVIEWER	Mohammad Saklayen Wright State university,USA
REVIEW RETURNED	11-Aug-2020

GENERAL COMMENTS	I think if the authors broke down the cohort into 2 groups and use one group for derivation of the TG/HDL-C for diagnosis of metabolic syndrome and use that parameter in the remaining cohort to validate the applicability of the ratio in diagnosing metabolic syndrome, it would strengthen the value of this observational study.
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REVIEWER	Jaqueline Garcia University of Granada - Spain
REVIEW RETURNED	25-Sep-2020

GENERAL COMMENTS	The article meets the publication requirements, the objective is clear, the method is adequate and the results respond to the authors' proposal. The discussion supports the findings and considers the limitations of the study.
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VERSION 1 – AUTHOR RESPONSE

Response to comments from reviewer 1 :

Thank you very much for your comments during your busy schedule. I added "This study has passed the review of the ethics committee of Tongji Medical College of Huazhong University of Science and Technology" in the ethics section. I added "Our research is a cross-sectional study, and the causal relationship between TG/HDL and metabolic syndrome cannot be obtained" in the part of strengths and limitations section. In this modification, I will upload the STROBE checklist .

Response to comments from reviewer 2 :

First of all, thank you very much for your review comments. I agree with your point of view that the cross-sectional study cannot draw a causal relationship between TG/HDL and metabolic syndrome. This is the limitation of our research. Therefore, I modified the title "High TG/HDL ratio suggests a higher risk of metabolic syndrome among an elderly Chinese population: A cross-sectional study" and part of the expression. I added "When TG/HDL is greater than 1.49, the risk of metabolic syndrome is higher, and we need to pay more attention to the patient's uric acid, blood sugar, blood pressure and abdominal circumference" in the discussion section.

1. Methods: This study is a retrospective study, the laboratory indicators collected are pre-existing

data. And this study has passed the review of the ethics committee of Tongji Medical College of Huazhong University of Science and Technology. I add "It is an anonymous, retrospective , non-invasive examination, only oral notification, waiving the signing of written informed consent" in the manuscript.

2. Statistical analyses: We incorporated variables related to metabolic syndrome in univariate analysis and correlation analysis into the multiple logistic regression model for analysis to exclude the interference of factors other than TG/HDL. In addition, I added "After consulting the literature, we have studies suggesting that there is a correlation between uric acid, age, sex and metabolic syndrome, [27,28,29] and our research has also found this." to the manuscript.
3. Results: It may be that my table is not clear enough. The second "TG/HDL" in the model belongs to the content of Model 2. For this problem, I adjusted the table again.
- 4、5. I agree with you that our research population comes from a single community, and it does not reflect the situation of all Chinese elderly people. This is the limitation of this study. However, this study is valuable for the elderly who live in the community for a long time. When we find that the TG/HDL ratio is higher than the critical value, we need to be more vigilant about the risk of metabolic syndrome. At the same time, we need to pay attention to the patient's uric acid and other conditions. Drug intervention can be carried out when necessary. In the future, we look forward to prospective and multicenter studies based on our research in the future.

Response to comments from reviewer 3 :

Thank you very much for your comments. It is very necessary to verify the applicability of the TG/HDL cut-off value in metabolic syndrome. The ROC curve chart we have drawn calculates that the sensitivity and specificity under this cut-off value are 72.4% and 80.8 respectively. %, this result reflects the applicability of the ratio to a certain extent.

VERSION 2 – REVIEW

REVIEWER	Qiukui Hao West China Hospital
REVIEW RETURNED	18-Nov-2020

GENERAL COMMENTS	<p>Many thanks for the opportunity to review the revised manuscript again. My primary concern for the paper is dyslipidemia already in the definition of metabolic syndrome. The dyslipidemia was defined as TGs 1.7 mmol/L or over, the HDL-c <0.9. The ratio of TG/HDL-c is $1.7/0.9=1.8$ for males and $1.7/1=1.7$ for females. If the author uses different cut-off values for the HDL-c according to sex. Form the point of my view, the TG/HDL ratio may have different optimal critical values between males and females. The authors should do a sex-stratified analysis. And we are not sure if the single TG or HDL-c had a larger AUC than the TG/HDL ratio in the study sample.</p> <p>In model 2 and model 3, lots of independent variables are closely correlated, causing severe collinearity and instability for the model. For example, put hypertension, SBM and DBP in the same model is problematic.</p> <p>I can not found data in the study support the following statement in the conclusion part: "This study is of great significance for the early identification and management of MetS among the elderly people in China".</p>
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VERSION 2 – AUTHOR RESPONSE

Responses to reviewer 1 :

Thank you very much for your precious comments on my manuscript. Based on your first suggestion, I added some content to the manuscript section (font in red) . After analyzing the male and female populations separately by gender, we did find a difference in the critical value. In addition, I made a separate ROC curve diagram for the two indicators of TG and HDL. It is obvious that the predictive value of a single indicator is not better than the value of the value. This can be understood through the respective AUC.

For the second suggestion, I did ignore the problem of collinearity in the regression model, so I adjusted the regression model again. The revised table could be seen in the manuscript.

Finally, thank you very much for reviewing my manuscript in your busy schedule. I believe that the manuscript under your suggestion will be more substantial and complete.