

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Carotid Artery Stiffness in Rural Adult Chinese: A Cross-Sectional Analysis of the Community-based China Stroke Cohort Study
AUTHORS	Wei, Yao; Wang, Ming; Gui, Yang; Piao, Xue-Mei; Sun, Cong-Hui; Zhang, Xue-He; feifei, zhai; yicheng, zhu; liying, cui; Zhang, Shuyang; Dai, Qing; Yang, Meng

VERSION 1 – REVIEW

REVIEWER	Ji-Bin Liu. MD Thomas Jefferson University, USA
REVIEW RETURNED	12-May-2020

GENERAL COMMENTS	<p>Authors presented a study to use ultrasound for measurements of carotid elasticity by using quality arterial stiffness (QAS) in rural adult Chinese population, and to assess the relationship and changes of relevant parameters (such as hypertension and diabetes as well as ages). The research data was derived from an epidemic population-based study which was designed to investigate the risk factors of cardiovascular and age-related diseases. The data seems quite reliable and adequate for this study protocol. The results based on study findings provide useful information for clinical application and research. The discussion is relevant with references; however, the limitation of this study may need more mentions. The figures and tables are fine. The manuscript may need some editing in term of the language and expression. I recommended to accept the paper with some revision.</p> <p>Specific comments:</p> <p>Page 4, line 18, To use “properties” here may not appropriate. Ultrasound parameters? Please rewording this sentence.</p> <p>Page 4, line 27, why to use left common carotid artery only? How many measurements were taken on each segment? Were the measurements done online or offline? How the scanning parameters were set it up or optimized? Please clarify and provide more details for imaging acquisition.</p> <p>Page 4, line 35-54, please provide references for these statement and technique.</p> <p>Page 5, line 19, Suggest to use + for the SD expression throughout the entire manuscript, such as 54.6+7.8 instead of 54.6 (7.8).</p> <p>Page 5, line 44-45, please provide p value for this no significant difference.</p> <p>Page 14, figure 1. In this figure, the caption is confusion since there are short red lines, orange lines and green lines. Are the red lines correct? How about the orange lines? Please clarify.</p>
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REVIEWER	Bo Wu
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	West China Hospital, Sichuan University, Chengdu, Sichuan, China
REVIEW RETURNED	13-May-2020

GENERAL COMMENTS	<p>The authors investigated the association between carotid artery stiffness and risk factors of cardiovascular disease. The paper deals with an interesting topic, but there are some issues that needed to be noticed by the authors:</p> <ol style="list-style-type: none"> 1. The authors recruited 1586 participants, but only 583 of them were included in the final analyses. A flowchart could illustrate the details of patient selection. 2. The authors divided patients into three groups according to HbA1c levels: lower risk of diabetes group, increasing risk of diabetes group, and diabetes group. However, some participants with diabetes might have received medical treatment, which could influence the level of HbA1c. In other words, some patients in the increasing risk of diabetes group might have diabetes. 3. When performing multiple comparison, the authors should compute a separate adjusted p value.
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VERSION 1 – AUTHOR RESPONSE

Reviewer(s)' Comments to Author:

Reviewer: 1

Reviewer Name: Ji-Bin Liu. MD

Institution and Country: Thomas Jefferson University, USA

Please state any competing interests or state 'None declared': None declared

Please leave your comments for the authors below

Authors presented a study to use ultrasound for measurements of carotid elasticity by using quality arterial stiffness (QAS) in rural adult Chinese population, and to assess the relationship and changes of relevant parameters (such as hypertension and diabetes as well as ages). The research data was derived from an epidemic population-based study which was designed to investigate the risk factors of cardiovascular and age-related diseases. The data seems quite reliable and adequate for this study protocol. The results based on study findings provide useful information for clinical application and research. The discussion is relevant with references; however, the limitation of this study may need more mentions. The figures and tables are fine. The manuscript may need some editing in term of the language and expression. I recommended to accept the paper with some revision.

Reply for Reviewer 1's comments:

Thank you for your careful review of the manuscript. We have added discussion about the limitation of this study in the Discussion section (Page 8 Line 13-24).

Specific comments:

Reply for Reviewer 1's Specific comments:

Thanks a lot for your specific comments. We have revised the manuscript as follows:

1. Page 4, line 18, To use "properties" here may not appropriate. Ultrasound parameters? Please rewording this sentence.
We have reworded this sentence (Page 4 Line 11).
2. Page 4, line 27, why to use left common carotid artery only? How many measurements were taken on each segment? Were the measurements done online or offline? How the scanning parameters were set it up or optimized? Please clarify and provide more details for imaging acquisition. The reproducibility of QAS technique varied in different indicators and methods has been discussed elsewhere, and we have added the reference in the manuscript. The details for imaging acquisition was added in the Method section (Page 4 Line 11-22).
3. Page 4, line 35-54, please provide references for these statement and technique.
We have added the references for the statement and technique (Page 4 Line 30).
4. Page 5, line 19, Suggest to use + for the SD expression throughout the entire manuscript, such as 54.6+7.8 instead of 54.6 (7.8).
We have changed the related expressions throughout the entire manuscript (Page 2 Line 27-28, Page 5 Line 19-26, Page 6 Line 17-18, Table 1, Table 2, Table 3, Table 4).
5. Page 5, line 44-45, please provide p value for this no significant difference.
We have provided the P value for these significant difference (Page 5 Line 37, Page 6 Line 2).
6. Page 14, figure 1. In this figure, the caption is confusion since there are short red lines, orange lines and green lines. Are the red lines correct? How about the orange lines? Please clarify.
We feel very sorry about the confused caption of this figure, and we have used another figure which is more clear about the colored lines (Figure 2).

Reviewer: 2

Reviewer Name: Bo Wu

Institution and Country: West China Hospital, Sichuan University, Chengdu, Sichuan, China

Please state any competing interests or state 'None declared': None declare

Please leave your comments for the authors below

The authors investigated the association between carotid artery stiffness and risk factors of cardiovascular disease. The paper deals with an interesting topic, but there are some issues that needed to be noticed by the authors:

Reply for Reviewer 2's comments:

Thanks a lot for your remarks and statistical advices about the manuscript. We have revised the manuscript as follows:

1. The authors recruited 1586 participants, but only 583 of them were included in the final analyses. A flowchart could illustrate the details of patient selection.

We have added the participant selection flowchart as Figure 1 to illustrate the details of participant selection in our study (Figure 1).

2. The authors divided patients into three groups according to HbA1c levels: lower risk of diabetes group, increasing risk of diabetes group, and diabetes group. However, some participants with diabetes might have received medical treatment, which could influence the level of HbA1c. In other words, some patients in the increasing risk of diabetes group might have diabetes. According to our study, the results of the QAS analysis in Table 4 show that PWV increased with the lower, increasing risk of diabetes and diabetes group. PWV had a significant difference between lower risk and increasing risk of diabetes ($P = 0.023$). But there was no significant difference between increasing risk of diabetes and diabetes group ($P = 0.255$). The results were not inconsistent with the above comments. These results validate the hypothesis that arterial remodeling occurring in local and elastic arteries increases the risk for future diabetes.
3. When performing multiple comparison, the authors should compute a separate adjusted p value. We feel very sorry that we didn't compute the adjusted p value for the multiple comparison. We have used ANOVA (Bonferroni-T test) to assess the multiple comparison again (Page 5 Line 3), and the P value was adjusted (Page 2 Line 20-23, Page 6 Line 5-11).

VERSION 2 – REVIEW

REVIEWER	Ji-Bin Liu Thomas Jefferson University Hospital
REVIEW RETURNED	31-Aug-2020
GENERAL COMMENTS	The revised manuscript looks good.

VERSION 2 – AUTHOR RESPONSE

1. Reviewer 2 previously raised a concern that some participants placed in the "increasing risk of diabetes" group might already have diabetes since medical treatment for diabetes could influence the level of HbA1c. The response to this comment is currently unclear. Please discuss the possibility of medical treatment influencing the level of HbA1c in the manuscript. Alternatively, please clarify if there were any further checks to ensure that participants in the "increasing risk of diabetes" group did not already have diabetes.
Thank you for your advice. According to our study, there were 100 participants with prior diabetes (Table 1) including 32 participants with HbA1c at 5.8-6.4% and the other 68 participants with HbA1c at >6.4%. We feel very sorry that the previous statistical analysis has been shallow and incomplete for not considering the medical treatment influence. We have adjusted the description of the groups, analysis results and discussion throughout the manuscript (Page 2 Line 12-15, Page 5 Line 29-38, Page 6 Line 1-2, Page 7 Line 18-25, Table 1, Table 4).

Reviewer(s)' Comments to Author:

Reviewer: 1

Reviewer Name: Ji-Bin Liu. MD

Institution and Country: Thomas Jefferson University, USA

Please state any competing interests or state 'None declared': None declared

Please leave your comments for the authors below

The revised manuscript looks good.

Reply for Reviewer 1's comments:

Thanks a lot for your comments and previous statistical advices about the manuscript.