Author's response to reviews

Title: Prehypertension is associated with increased carotid atherosclerotic plaque in the community population of Southern China

Authors:

Hongxuan Wang (waterwhx@21cn.com)
Huanquan Liao (364475794@qq.com)
Hua Hong (sumshh@21cn.com)

Version: 4 Date: 17 December 2012

Author's response to reviews: see over
Dear Dr. Christian Delles:

Thank you for arranging a timely review for our manuscript. We have carefully evaluated the reviewers’ comments and thoughtful suggestions, responded to these suggestions point-by-point, and revised the manuscript accordingly. Changes made to the text are in blue so that they may be easily identified. With regard to the reviewers’ comments and suggestions, we wish to reply as follows:

Answers to Reviewer 1:

1. *The measurement of carotid IMT needs to be more specified.*

   **Response:** The measurement of carotid IMT was shown as the picture below and figure 1 in the revised manuscript. The point of carotid bifurcation is defined as the point (b) in the picture. And the points of CCA and ICA are measured at point (a) and (c).

   ![Diagram of carotid bifurcation](image)

2. *Participants who had symptomatic cardiovascular diseases were excluded. But, the authors also stated “Previous histories of ... heart disease or stroke were defined ...”*

   **Response:** Here are our including/excluding criteria. We excluded the patients in acute or sub-acute phases of cardiovascular diseases (the period between the recovery from the diseases and the study recruitment was less than six months). We included the participants who had cardiovascular diseases more than six months ago, and who were totally recovered without
any persistent symptoms, sequelae or disabilities. In the new version of the manuscript we define it more clearly. In our study, 50 (5.3%) participants had previous history of coronary heart diseases (mainly angina pectoris), and 25 (2.7%) cases had stroke (mainly ischemic stroke) more than six months ago. However, they have no any persistent symptoms, sequelae or disabilities when they are recruited in our study.

3. Some of the contents in table 1 and 2 are duplicated.

Response: We deleted the duplicated parts in Table 2, focusing on comparison of normal BP and high normal BP residents in revised manuscript. In addition, we moved cIMT and plaque formation data into a new figure (Figure 2) to make manuscript more attractive.

4. If the medications information, particularly lipid-lowering and antihypertensive drugs, is available, this can be more informative.

Response: Thanks the reviewer for the great suggestion. We added the medications information, including antihypertensive drugs, antidiabetic drugs, and lipid-lowering drugs in revised tables. Among 392 hypertensive participants, 234 (59.7%) had antihypertensive drugs daily. However, the other 158 hypertensive participants did not have antihypertensive drugs daily because they were all newly diagnosed. In subgroup analysis, the effect of antihypertensive medications on carotid plaque formation in the participants with hypertension was not statistically significant (Data not shown).

5. The upper quintile value can be a cutoff point.

Response: Table 3 and 4 were combined into a new table. New Logistic regression analysis to find the determinants of carotid IMT is added in the revised manuscript. The upper quintile value was used as a cutoff point of cIMT.

6. Present the results in abstract as odds ratios (95% CI, p-value) of IMT and carotid plaque for prehypertension and hypertension.

Response: Odds ratios are added in abstract.
**Answers to Reviewer 2:**

We thank the Reviewer for thinking that finding the association of prehypertension with carotid artery plaque formation and increased carotid IMT is interesting. We also thank the Reviewer for thoughtful comments. We have addressed all these comments below.

**MAJOR POINTS**

1. *Please explain how cIMT images were analysed. Was special image analysis software used?*

**Response:** Measurements of cIMT were taken in the images of a proper view in the screen of B-mode ultrasound systems and measured by electronic calipers by one well-trained sonographer. We added Figure 1, showing the locations of measure point. The quality controls were made by repeated scans on several randomly selected participants who were examined twice by two sonographers. No specific software was used.

2. *It appears that the pre-hypertensive and normotensive participants were not on antihypertensive medication. Please clarify this issue by providing data on antihypertensive and other cardiovascular medication (e.g. statins) in the tables.*

**Response:** Thanks the reviewer for the great suggestion. We added the medications information, including antihypertensive drugs, antidiabetic drugs and lipid-lowering drugs in revised tables. Among 392 hypertensive participants, 234 (59.7%) had antihypertensive drugs daily. However, the other 158 hypertensive participants did not have antihypertensive drugs daily because they were all newly diagnosed after they were recruited in our study. Majority of the investigated population were “health” and never had their cholesterol tests before. Because of the limited number of participants who using statins (42/942, 4.5%) in our study, further analysis on the interaction between statins and BP could not be justified.

3. *Would be interesting to see a scatterplot of cIMT vs systolic and diastolic blood pressure. These would clearly be unadjusted data, but may add an interesting figure to the paper.*

**Response:** Please find Figures of scatterplot of cIMT in revised manuscript.
To the Editors:
The authors’ sequence is changed to **Hua Hong, Hongxuan Wang** *(contributed equally first author)*, **Huanchuan Liao**
Both Hua Hong and Hongxuan Wang wrote and revised the manuscript, and contributed equally on research. The study was sponsored by Hua Hong’s funds and it was done in the first-author institute (the First Affiliated Hospital, Sun Yat-sen University). H.W. and H.L. collected the data and analyzed the data. H.W. had graduated from first-author institute, and work at another institute (Sun Yat-sen Memorial Hospital, Sun Yat-sen University). Therefore, the authors’ sequence has been changed. H.H. was also the corresponding author.

Sincerely yours,

Hongxuan Wang

Hua Hong