Reviewer’s report

Title: The Prevalence and Correlates of High Aortic Stiffness in North China: a Community-based Study

Version: 2 Date: 30 July 2012

Reviewer: Eric Loucks

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This interesting study investigated the distribution of brachial-ankle pulse wave velocity (baPWV) in a Northern Chinese population, as well as investigated associations of CVD risk factors with baPWV. As baPWV is a relatively novel and straight-forward measure of arterial stiffness, and has been associated with vascular damage and cardiovascular events, this paper offers contributions to better understand the distribution of baPWV in the Northern Chinese population. Furthermore, it should help better identify potential risk factors associated with elevated baPWV. Specific comments are shown below.

Major Compulsory Revisions:

1. In the limitations section, please state the likely biases that could result from having a fairly low participation rate (53.6%), including the impact of this low participation rate on generalizability of the findings.
2. Table 6: Please report all tests performed for associations between baPWV with CVD risk factors. It appears that only significant findings are shown (e.g. for heart rate, systolic blood pressure, etc.) Showing null associations is also important for the literature (e.g. associations of total cholesterol, fasting glucose and smoking with baPWV, in males and females; showing other CVD factors that you likely tested such as BMI, diastolic blood pressure, etc. – likely all variables shown in Table 5). As needed please address issues of multiple statistical testing, such as the use of Bonferroni corrections.
3. Table 6: please state the covariates adjusted for in the regression analyses. It is important that confounders such as age are included in the models.

Minor Essential Revisions:

4. Title: using the term “correlates” suggests that correlation tests were performed. In reality, regression analyses were performed, which is a more sophisticated method. I would recommend removing “correlates” from the title, and consider using other terms (e.g. association) such as “Prevalence of aortic stiffness in North China, and associations with CVD risk factors.” Also, please change throughout the manuscript (including the abstract) any reference to “correlates”, being sure that term is only used to reflect tests of correlation rather than regression tests.
5. Please state whether IRB ethics approval was obtained for this study, and if
so, which organization provided the IRB approval.

6. Please state the reasons for excluding participants with the following factors:
   a) Previous percutaneous coronary intervention and/or coronary artery bypass grafting;
   b) aortic valvular heart disease;
   c) aorticaneurysm;
   d) serious myocardial dysfunction with an ejection fraction of <30%;
   e) peripheral arteriosclerosis obliterans with an ankle-brachial index (ABI) of <0.9.

7. In the methods section, please state more detail on the assay methods that were used to measure total cholesterol, HDL, glucose and triglycerides, including evidence of internal/external quality control, and measures of internal consistency (e.g. coefficients of variation for all assays).

8. For the finding of the highest baPWV founds in the age 50-60 year ages, please add more information in the Discussion section as to why levels were higher in this age compared to older ages. For example, is there evidence (in your study or other studies) that there is a survivor effect (in that the healthiest people with lower baPWV are more likely to survive past 60 years, and hence be assessed in the cross-sectional study), or is there evidence of cohort effects (e.g. with the epidemiologic transition in diet and other CVD risk factors in China, do those greater than age 60 have fewer CVD risk factors due to more traditional, less CVD-inducing behaviors)? Are there other possible reasons for this finding?

9. Table 1 – it appears there is an error in the point estimate for baPWV in females for the overall sample (baPWV=15786 cm/s – it should likely be 1578.6 cm/s). Please check and correct as needed.

10. There are many minor incorrect usages of English in the manuscript. Please have the manuscript edited to improve the English communication.

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.