Reviewer's report

Title: Association between 24-hour blood pressure variability and chronic kidney disease: A cross-sectional analysis of African Americans participating in the Jackson Heart Study

Version: 2 Date: 15 April 2015

Reviewer: Asad Merchant

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Tanner et al have investigated the association of blood pressure variability with chronic kidney disease. They conducted an analysis in a large population of at risk patients with and without CKD. Their study included 1022 subjects, and they used day and night mean standard deviation, as well as average real variability as measures of BP variability in the context of 24hr ABPM. The authors demonstrated that there was no significant association between BP variability and CKD once adjusted for mean 24 hour systolic or diastolic blood pressure.

The authors should be commended on a well designed and implemented studies incorporating a large sample size. They use rigorous BP acquisition methodology that was clearly described in the text. They were able to do thorough sensitivity analyses. I have some questions/ comments listed below.

Major Compulsary Revisions

1. I would urge caution at using strong language suggesting an association between BP variability and CKD (lines 223 - 224, lines 281 - 282).

Minor Essential Revisions

2. In table 2 and 3, should there be a unit of measurement associated with the BP variability measure (eg mmHg)? It is not entirely clear from reading the table.

Discretionary Revisions

3. The strengths and limitations may be better placed in the discussion section rather than the conclusions section.

4. It would be helpful to know the number of antihypertensives used by the two populations, and the distribution of RAAS blocker, alpha blockers etc. One of the postulates put forward is autonomic dysfunction, and the authors mention adjusting for antihypertensive use, but it would be interesting to see if there were differences in the use of those medications and what kind. This could be displayed in table 1.

5. Furthermore, some studies have looked at levels of markers of adrenergic activation such as plasma metanephrines to delineate the cause of BP variability. Was there any attempt to do so by the authors in this study?
6. Was there any analysis regarding visit to visit variability? This is an important metric that has been shown to have associations with cardiovascular events as shown by a recent meta analysis by Diaz et al in hypertension in 2014. They did not specifically look at CKD. It would be interesting to know if there was a relationship present.

7. Was heart rate variability assessed in the study?

Thank you very much

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

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