Reviewer's report

Title: Oscillometric measure of blood pressure detects association between orthostatic hypotension and depression in population based study of older adults

Version: 2 Date: 23 May 2013

Reviewer: Jess Fiedorowicz

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Major Compulsory Revisions
1) The potential for spurious findings in small samples should be noted given the size of the SOH group from which the primary inferences are being drawn.
2) Abstract, Conclusion. Please reword as in current form implies a broader association with OH when findings were only observed in SOH group.
3) Methods, Asymptomatic OH, SAO. States “within 2 minutes.” What is the range of times that the blood pressure was obtained after standing? The methods seem to report one blood pressure being checked immediately after standing. Timing remains confusing. The methods talk about 3 minutes, the results 2 minutes, and the discussion 25-40 seconds.
4) Psychotropic medications appear to be captured by a single variable, which could pool agents that cause OH with those that do not. This leaves considerable potential for residual confounding.
5) Please report proportion of participants that completed a health assessment.
6) The discussion needs to discuss not finding an association between OH and depression (only SOH) and perhaps reasons for this. It currently reads as if the authors found an association between OH and depression. The authors also discuss the finding in a community sample with lower “severity rates” although the restriction of the finding to SOH suggests it was seen only for more severe OH. Also, the term rates implies an incidence over time and they may want to consider replacing the term “severity rates” with “greater acuity.” The results are not so “broadly supportive of previously findings” as the second paragraph of the discussion suggests and a more nuanced version of the discussion should be provided.
7) Please specify in methods whether SOH was analyzed separately a priori or
later in the analysis.

8) The discussion states “our results broadly support a role for hypoperfusion in the development of LLD” which is again an over-statement. The authors cannot determine a temporal relationship here and again the finding was limited to a very small subset (N=20) of the sample.

9) The concluding sentence extends beyond the scope of the data and should be deleted.

Minor Essential Revisions

1) Abstract, Results. Please add (N=20) following participants with SOH so it is clear what proportion of the sample this inference is based on.

2) Page 15. The authors mean “sensitivity” instead of “sensitively.” The sensitivity analysis should be mentioned in the results.

3) Discussion, paragraph 5. The fact that orthostatic symptoms were only reported by participants with OH would suggest a good sensitivity (because no evidence based on this criterion of false negatives), rather than specificity.

4) Discussion, paragraph 5, last sentence. Again, a more general association between OH and depression was not found. The finding was restricted to only a small sample with SOH.

5) Discussion, paragraph 6. Please replace “causality” with “temporality” and later “cannot be ruled out” with “exists.”

6) Discussion, paragraph 6. Please delete portion from “nevertheless…were acceptable.” Please mention that this small group is the group from which primary conclusions were drawn and the potential for spurious findings exists.

7) Conclusion. The study does not support the association can be detected with a traditional cuff-based oscillometric device as the association was not demonstrated for OH and depression as hypothesized, but was rather limited only to SOH.

8) Table 1. The row for N and & should appear after the continuous and before the categorical variables (currently appears immediately above age). The authors could consider grouping continuous variables together.

Discretionary Revisions

1) Page 8, DBP was previously abbreviated.

2) Authors may want to note that consensus statement on definition of OH was updated a few years ago, 13 years after the 1996 version that is cited in the manuscript (Freeman R et al. 2011).

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

Quality of written English: Needs some language corrections before being published
**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

No competing interests.