Reviewer’s report

Title: Comparison of blood pressure and blood pressure changes in patients with positional and non-positional mild obstructive sleep apnea

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Reviewer: Stuart Quan

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General Comments:

In this paper by Huang and colleagues, blood pressure measurements in the evening and morning in patients with mild positional OSA were compared to patients with mild non-positional OSA. Although it appeared that several parameters of sleep architecture were worse in those with non-positional OSA, BP parameters were not different between the two groups. Generally, the paper is well written and organized, and easy to follow. It does appear that the overall findings are valid. However, some of the conclusions and clinical recommendations may be somewhat premature. My concerns are outlined below under specific comments.

Specific Comments:

Minor Essential-
1. Background, 2nd Sentence: To be fair, I think that whether mild OSA is causally related to hypertension and CVD is still up for debate. Longitudinal cohort studies are not consistent in this regard, and a recent RCT (Barbe et al, JAMA, see supplemental tables) did not find OSA related to incident hypertension). You may want to be less dogmatic about this.

2. Discussion: You recommend that patients with poor sleep quality irrespective of OSA severity status should receive “optimal” treatment. Does “optimal” mean CPAP? Regardless, although sleep quality is associated with hypertension, I know of no evidence that improving sleep quality lowers BP.

3. Discussion: You recommend that patients with mild OSA should receive “active and effective therapy”. Unfortunately, I think this is a debatable issue because it is still unsettled whether mild OSA leads to hypertension or CVD. The ATS has assembled a working group to examine the literature on this point given its controversy.

Major Compulsory-
1. Methods: It appears that airflow during the PSG was only ascertained using a thermistor. AASM standards now require a nasal pressure transducer. Use of only a thermistor may underestimate the severity of OSA. In the case of this study, misclassification of patients as mild OSA may have occurred. You should explain how lack of a nasal pressure transducer signal could have impacted your
results.

2. Methods: In what position were the BP measurements taken? Supine, sitting, standing?

3. Methods: I am little concerned that BP measurements were taken with an automated device. Were these devices calibrated and/or validated against manual measurements performed with a Hg sphygmomanometer?

4. Results: There was a high prevalence of hypertension in both groups with the non-positional group having a greater prevalence than the positional group. However, I am surprised that only 1 patient in each group was receiving BP medications at bedtime (Table 1). If actually more patients were on BP medications (i.e., taken earlier in the day), then this represents a major potential confound, and you should then perform a sensitivity analysis using only those patients not on anti-hypertensive meds. The paper indicates that you controlled for hypertension, but you don’t indicate whether hypertension status was a significant independent variable in explaining the results.

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 have no competing interests.