Reviewer's report

Title: Effects of CPAP on nitrate and norepinephrine in severe and mild/moderate sleep apnea

Version: 1 Date: 2 June 2011

Reviewer: Suely Roizenblatt

Reviewer's report:

This study was designed to compare the levels of plasma nitrate (NOx), urinary norepinephrine (U-NE) levels, and ambulatory blood pressure (BP) monitoring between mild/moderate and severe male obstructive sleep apnea (OSA) patients and to determine the therapeutic effect of CPAP. The authors confirmed impairment of these parameters in severe OSA that could be reverted by the use of CPAP, as previously demonstrated. The lack of modification of these biomarkers in mild/moderate OSA with the use of CPAP may be due to a floor effect, since they are comparable to the post-CPAP values of severe OSA group.

MAJOR COMPULSORY REVISIONS

1. The "take-home" message is not that "mild/moderate OSA do not benefit from one month of CPAP treatment as measured by plasma NOx, 24-h U-NE levels and BP", but it seems the findings are that a floor effect did not allow to detect any benefit of CPAP treatment, or at least that a four-week period of study was not enough to detect differences between groups.

2. Introduction should include comments on the discrepancy of previous studies on nitrate deficiency and sympathetic dysfunction in OSA since some of them did not care about the severity of the OSA condition.

3. Methods. It should be clarified how the authors screened participants for obstructive/restrictive lung disease or subclinical cardiac impairment.

4. Statistics is confusing, since there were parametric and non-parametric data such as SaO2<90% (% of TST), ODI (n/h), and NOX (%), probably among others. Data should be treated in a multivariate ANOVA rather than isolated t-tests that accumulate errors. Furthermore, comparison of pre-CPAP in mild/moderate apnea and post-CPAP in severe apnea should be performed in order to evidence a floor effect.

5. Discussion. Since the authors failed to find short term modification of biomarkers with the use of CPAP in mild/moderate OSA, they should discuss more long term modification of these parameters in mild/moderate

MINOR ESSENTIAL REVISIONS

5. Introduction. If there is a concern on cardiovascular disease in mild/moderate OSA, the authors should comment on studies that report such involvement.

6. METHODS
6.a. The authors did not comment about a possible loss of selected patients
6.b. What were the number of hypertensive patient, the medications in use?
6.c. Was there a run time counter to evaluate compliance of CPAP therapy.

7. Table 1
7.a. NOX is indicated as plasma nitric oxide and not nitrate levels in Table 1
7.b. There are typing error between column 2 and 3 of Table 1
7.c. Since NOx and U-NE data are expressed in Figures it is not necessary to repeat them in Table 1.

8. Results. There is a lot of unnecessary repetition in the text of data shown in table 1

9. Figure 1 should resume in one graphic intra and inter group changes

Level of interest: An article of importance in its field

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:

'I declare that I have no competing interests'