Reviewer's report

Title: Oxidative stress mediated arterial dysfunction in patients with obstructive sleep apnoea. Effect of continuous positive airway pressure treatment

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Reviewer: Frank Reichenberger

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Review

“Oxidative stress mediated arterial dysfunction in patients with obstructive sleep apnoea. Effect of continuous positive airway pressure treatment.” by Del Ben Maria et al.

The authors studied markers of oxidative stress and endothelial dysfunction in a mixed population of 138 patients without, mild or severe OSA assessed by home polysomnography.

They describe a higher rate of oxidative stress (measured by markers of lipoxidation and NADPH activity) and a higher rate of endothelial dysfunction (measured by flow mediated dilatation) in patients with severe OSAS characterised with an AHI > 30/h.

In a subset of patients a repeat measurement showed improvement in some oxidative stress mediators and endothelial dysfunction after 4 month successful treatment with nCPAP.

Comments

The submitted manuscript deals with the interesting subject of systemic consequences of OSAS. However, there are several significant comments to be made.

A main problem arises from the unclear patient population. The authors mention that the main purpose of the work is the study on OSAS patients with comorbidities. However, it is not clear how many do have e.g. full metabolic syndrome or only diabetes et.c, and how does the presence of comorbidities affects the measurements. The concept of “healthy OSAS patients” and “real world OSAS patients” is somehow difficult, as most of these patients are at least obese with subsequent complications. Table 2 is unclear in this respect.

The authors do not explain why they choose these distinct parameters to assess oxidative stress. Especially the role of NOx and sNOX-dp should be shortly explained in the introduction.

Table 3: A correlation of the apnoea-hypopnoea- index with a coefficient minor than r= -0,3 or so might be statistically significant, but questionable biologically
relevant.

Therefore the presented results should be interpreted very cautiously.

Surprisingly, the authors did only include 10 patients in the follow up cohort resulting in an acceptance rate of long term nCPAP treatment for severe OSAS of only 30%. What happened with the patient with moderate OSAS?

The conclusions of the presented work are not new. Several previous works describe similar findings in OSAS patients but also controversial results, which is sufficiently discussed in the presented manuscript.

In general, the manuscript is not targeted on a distinct subject. It should be focussed on the core findings e.g. new parameter to assess oxidative stress or OSAS patients with metabolic syndrome etc.

**Level of interest:** An article of limited interest

**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.