

The association between oxidative stress and obstructive sleep apnea syndrome

**Demosthenes Makris · Melpomeni Ntalapascha ·
Epaminondas Zakyntinos**

Received: 1 October 2012 / Accepted: 22 October 2012 / Published online: 6 November 2012
© Springer-Verlag Berlin Heidelberg 2012

Dear Editor,

We read with great interest a recent study published in your journal few months ago [1]. The authors assessed markers of oxidative stress in morning samples in obstructive sleep apnea (OSA) patients and healthy controls and found no significant differences between the two groups. Notably, they observed associations between waist-to-hip ratio and oxidative stress markers. On this basis, the authors concluded that oxidative stress is related to central obesity and not to hypoxia that may occur during sleep in OSA. We wish to congratulate Lee et al. [1] for their work.

However, one might argue that increased oxidative stress may be precipitated by several pathways that have not been assessed in the study. Moreover, oxidative stress was assessed at one time point by Lee et al. [1]. We wish to point out that another recent study [2] assessed various pathways of oxidative stress and antioxidant capacity and found significant differences in the overnight changes of reduced glutathione (GSH) and GSH/oxidized glutathione

ratio between OSA patients—free of comorbidities—and controls. These findings indicate that OSA patients may present a relative insufficiency to increase their GSH level and, therefore, their antioxidant capacity overnight, compared to controls. In this respect, OSA per se may be associated with increased oxidative stress.

Conflict of interest None.

References

1. Lee SD, Ju G, Choi JA, Kim JW, Yoon IY (2012) The association of oxidative stress with central obesity in obstructive sleep apnea. *Sleep Breath* 16:511–17. doi:10.1007/s11325-011-0536-7
2. Ntalapascha M, Makris D, Kyparos A, Tsilioni I, Kostikas K, Gourgoulis K, Kouretas D, Zakyntinos E (2012) Oxidative stress in patients with obstructive sleep apnea syndrome. *Sleep Breath*. doi:10.1007/s11325-012-0718-y

D. Makris (✉) · E. Zakyntinos
Intensive Care Department, University Hospital of Thessaly,
Biopolis,
Larissa 41110, Greece
e-mail: appollon7@hotmail.com

M. Ntalapascha
Department of Cardiology, University Hospital of Thessaly,
Biopolis,
Larissa 41110, Greece