



## EDITORIAL

# Obstructive Sleep Apnea and Surgery: Wake up for the problem!

## Apneia Obstrutiva do Sono e Cirurgia: prestem atenção

Obstructive sleep apnea (OSA) is a common disease characterized by repetitive obstruction of the upper airways during sleep. It is now recognized that OSA is much more prevalent than previously thought. For instance, one recent study of a representative sample of the city of São Paulo, Brazil, found that 33% of the adult population presented OSA syndrome as defined by full polysomnography showing an apnea-hypopnea index above 5 events/hour plus symptoms or an apnea-hypopnea index > 15 events per hour independent of symptoms<sup>1</sup>. The prevalence of OSA may be even higher among specific populations for at least 2 reasons. Firstly, because OSA shares several risk factors with common conditions such as obesity, hypertension and diabetes and secondly, OSA once present triggers a series of pathways that may negatively affect co-morbid conditions such as high blood pressure and insulin resistance<sup>2</sup>. Independently of the exact mechanism, it is well known that among patients with established diagnosis of hypertension<sup>3</sup>, resistant hypertension<sup>4</sup> and metabolic syndrome<sup>5</sup> the prevalence of OSA is strikingly high and varies from 30 to 70%. The recognition of OSA among surgical patients is particularly important. Despite the fact that awareness is still low, one should anticipate a high prevalence of OSA solely based solely on the presence of the demographic and clinical conditions commonly observed in this population. In addition, although not fully established, it is clear that there may be an association between unrecognized OSA and the increased risk of post operative complications. Finally, the pre-operative setting is a good time to investigate co-morbidities because patients may be more receptive to lifestyle and medical interventions. On the other hand, a major limitation in the recognition of OSA is the limited access to the full polysomnography that is considered the gold standard method for OSA diagnosis. In this context, screening questionnaires are important in facilitating identification of OSA patients and in keeping down costs. In this issue of the Portuguese Journal of Pulmonology, Pereira and

colleagues evaluated the prevalence of OSA symptoms using a validated questionnaire (STOP-BANG score) in 357 surgical patients admitted to the Post-Anesthesia Care Unit<sup>6</sup>. The STOP-BANG questionnaire has been designed to detect OSA in the surgical population and presents a high sensitivity to detecting OSA, but has a low specificity. The positive questionnaire may result in a high number of false-positives. Therefore, if the primary goal is to include all cases of OSA, the STOP-BANG questionnaire is a good option, but ideally the final diagnosis would require a diagnostic test. One interesting option for OSA diagnosis in the surgical population is the use of portable monitoring which has been previously validated among patients waiting for coronary artery bypass surgery<sup>7</sup>. The prevalence of patients with traits that are suggestive of OSA as evaluated by the STOP-BANG questionnaire in the study of Pereira and colleagues was very high (slightly over 50%). The estimated prevalence of OSA is striking, and clearly suggests that the vast majority of the patients in the surgical population remain undiagnosed. More importantly, the authors also showed that patients with suggestive of OSA were more likely to present post operative complications. The question not answered in this study is whether OSA is in fact an independent risk factor for complications, or whether co-variables such as obesity or other co-morbid conditions, could fully explain the negative association. In conclusion, the paper by Pereira et al raises several important questions about the identification and consequences of OSA in the perioperative period. Further research on the impact of recognition and treatment of OSA in the population of patients submitted to surgeries should be mandatory.

## References

1. Tufik S, Santos-Silva R, Taddei JA, Bittencourt LR. Obstructive sleep apnea syndrome in the Sao Paulo Epidemiologic Sleep Study. *Sleep Med.* 2010;11:441–6.
2. Drager LF, Polotsky VY, Lorenzi-Filho G. Obstructive sleep apnea: an emerging risk factor for atherosclerosis. *Chest.* 2011;140:534–42.

DOI of refers to article: <http://dx.doi.org/10.1016/j.rppneu.2013.01.003>

3. Drager LF, Genta PR, Pedrosa RP, Nerbass FB, Gonzaga CC, Krieger EM, Lorenzi-Filho G. Characteristics and predictors of obstructive sleep apnea in patients with systemic hypertension. *Am J Cardiol.* 2010;105:1135–9.
4. Pedrosa RP, Drager LF, Gonzaga CC, Sousa MG, de Paula LK, Amaro AC, Amodeo C, Bortolotto LA, Krieger EM, Bradley TD, Lorenzi-Filho G. Obstructive sleep apnea: the most common secondary cause of hypertension associated with resistant hypertension. *Hypertension.* 2011;58:811–7.
5. Drager LF, Lopes HF, Maki-Nunes C, Trombetta IC, Toschi-Dias E, Alves MJ, et al. The impact of obstructive sleep apnea on metabolic and inflammatory markers in consecutive patients with metabolic syndrome. *PLoS One.* 2010 Aug 11;5: e12065.
6. Pereira H, Xará D, Mendonça J, Santos A, Abelha F. Patients with high risk for obstructive sleep apnea syndrome: Post-operative respiratory complications. *Rev Port Pneumol.* 2013 <http://dx.doi.org/10.1016/10.1016/j.rppneu.2013.01.003>
7. Danzi-Soares NJ, Genta PR, Nerbass FB, Pedrosa RP, Soares FS, César LA, et al. Obstructive sleep apnea is common among patients referred for coronary artery bypass grafting and can be diagnosed by portable monitoring. *Coron Artery Dis.* 2012;23:31–8.

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