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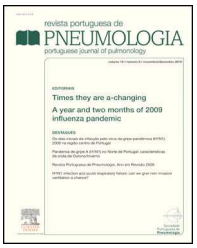

LETTERS TO THE EDITOR

Obstructive sleep apnea prevalence and adverse respiratory events in surgical patients

Prevalência de apneia obstrutiva do sono e eventos respiratórios adversos em pacientes submetidos a cirurgia

To the Editor:

In the article ''Patients with a high risk for obstructive sleep apnea syndrome: Postoperative respiratory complications'' by Pereira et al.,[1] the authors aim to evaluate the incidence of STOP-BANG score ≥ 3, in surgical patients admitted to the Post-Anesthesia Care Unit. It is rather alarming that the reported prevalence of patients with characteristics suggestive of obstructive sleep apnea (OSA) as evaluated by the STOP-BANG questionnaire was 52% (177 from 340). This number suggests that the majority of patients in the surgical population have undiagnosed OSA; however, it is unfortunate that in this study there was no polysomnography analysis of the patients and so, there was no confirmation of this estimated prevalence. If, however, we report to the study done by Chung et al.,[2] author of the STOP and STOP-BANG questionnaires,[3] which was also with a surgical population, we see that the reported percentage of patients with STOP-BANG ≥ 3 is of 57.5% (429 from 746), which is close to the number from the study by Pereira et al.[1] However, in the study by Chung et al.,[2] these patients were analyzed with polysomnography and 75.3% of the group with SOTP-BANG score >3 were confirmed to have OSA (43.3% from the total of 746). If we accept that both of these surgical populations, from the study of Pereira et al.[1] and the study of Chung et al.,[2] are similar, we can infer that the prevalence of undiagnosed OSA in patients with STOP-BANG ≥ 3 in the Pereira et al. study is 39% ($177 * 0.75/340$), somewhat lower than the reported estimated prevalence of 52%.

It is interesting to note that the authors also conclude that these patients with High Risk OSA (HR-OSA) have a higher incidence of postoperative respiratory complications and that mild/moderate hypoxia was the most frequent adverse respiratory event (ARE) to occur in these patients. If we analyze the reported ARE it seems that, HR-OSA patients were not associated with overall statistically significant higher number of ARE ($p = 0.140$). Also, out of the 6 defined types of ARE, only the previously mentioned mild/moderate hypoxia (the definition of which is included in the methods section) was statistically more frequent in this HR-OSA group. It is also noteworthy that the HR-OSA population had a statistically significant greater ASA score, more frequent neuromuscular residual blocking, high-risk surgery and major surgery and, as we can see in Table 3 of the article, out of the 8 analyzed ''predictors of adverse respiratory events'' only HR-OSA was not a statistically significant predictor, contrary to others, such as: gender, intra-abdominal surgery, high risk surgery, major surgery, use of neuromuscular blocking drugs and residual neuromuscular blockade (and the latter was the only independent risk factor for ARE).

In conclusion, this study exposes a high percentage of patients with probable undiagnosed OSA that would probably benefit from a polysomnography analysis. However, we feel this study has failed to show that surgical patients with a high risk of OSA, as determined by STOP-BANG score ≥ 3, are associated with higher incidence of ARE in the postoperative period or, that HR-OSA is a predictor of these ARE. However, previous papers have shown that OSA itself is associated with a statistically significant higher incidence of respiratory complications,[4] increased intensive care unit admissions,[5] and greater duration of hospital stay.[6]

References

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Reply to ''Obstructive sleep apnea prevalence and adverse respiratory events in surgical patients''

Resposta a ''Prevalência de apneia obstrutiva do sono e eventos respiratórios adversos em pacientes cirúrgicos''

We thank Dr. Ricardo Reis and Ana Antunes for their interest in our manuscript and for the comments related to our observational study.[1] We agree that not having done polysomnography on our patients was a limitation of the study but as it is stated by Chung et al.[2]: ''owing to its high sensitivity at a score of $\geq$3, the STOP Bang questionnaire is considered very helpful to rule out patients having moderate and severe OSA.'' As we state in introduction section although polysomnography (PSG) is considered the gold standard for the diagnosis of OSA it is not performed as a routine preoperative assessment tool for OSA patients in our hospital because it is an expensive and labor-intensive test. We choose STOP questionnaire because it has been considered a practical step forward in identifying patients with OSA and because of the known sensitivity and specificity in diagnosing OSA. We agree that we may have a lower incidence of OSA patients compared to the report incidence of High Risk of OSA patients. That is why we reported the results of our study considering a group of patients we have named specifically High Risk of OSA because we agree we could not confirm the OSA diagnosis in all patients.

Indeed HR-OSA was not a risk factor for Acute Respiratory Events considered as a unique group; in our study only mild/moderate hypoxia had a higher incidence in HR-OSA patients. We agree with you and that is stated in discussion section ''there was a greater risk of postoperative hypoxemia in HR-OSA patients in comparison with those without the diagnosis. However, in our study...analysis of perioperative adverse events did not show significant respiratory morbidity in HR-OSA patients compared to the LR-OSA patients. In fact in our study we did not find that HR-OSA was a determinant for ARE.''

We think that we should be little cautious concluding ''previous papers have shown that OSA itself is associated with a statistically significant higher incidence of respiratory complications'' or at least understand some limitations of these studies. In fact there are studies (by Liao Pu[3] and Gupta RM[4]) that apparently have succeeded in demonstrating that patients with OSA have a higher incidence of postoperative complications compared with matched non-OSA surgical patients. In the study by Liao PU[3] Oxygen desaturation with $SpO_2 < 90\%$ was also the most common complication but this study has also a limitation with the sampling methodology for group selection that should be addressed.

In the study of Gupta RM[4] the authors concluded that adverse outcomes were more common in OSA patients but the considered outcomes included other complications and even in what concerns respiratory complications they too failed to demonstrate that respiratory complications were more frequent in OSA group of patients. In their study even episodic hypoxia was not more frequent in OSA patients.

In the study by Memtsoudis S[5] OSA was considered an independent risk factor for perioperative pulmonary complications although their considered outcomes were clearly different and the studied respiratory complications were pneumonia, ARDS and respiratory failure. We may think that it is fundamental to verify if these acute events occurring at PACU are related to respiratory failure occurring after discharge from the PACU and perhaps this could be a challenge to future investigation.

Conflicts of interest

The authors have no conflicts of interest to declare.

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