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Running Title: High flow nasal insufflation for OSA

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Previous presentation in conferences: Not applicable
Conflicts of Interest: No potential conflict of interest relevant to this article was reported

Funding: No source of funding to declare

Acknowledgments: Not applicable

IRB number: Not applicable

Clinical trial registration number: Not applicable

Keywords: obstructive sleep apnea; high flow nasal insufflation; continuous positive airway pressure; postoperative.
Postoperative high flow nasal insufflation for obstructive sleep apnea: potential therapeutic alternative or prudence needed?

-Letter to the Editor-

Dear editor,

We read with great interest the article published in this journal entitled “Postoperative use of high flow nasal insufflation for obstructive sleep apnea: a case series” by Gobindram et al. [1], which reports the results of the use of high flow nasal insufflation (HFNI) in the postoperative period in patients with diagnosed or suspected moderate to severe obstructive sleep apnea (OSA), who had previous continuous positive airway pressure (CPAP) intolerance.

We consider that this case series of three patients opens a potentially important indication of HFNI for OSA management in the control of postoperative hypoventilation/apnea syndrome. However, there are some aspects to consider for a proper interpretation of these results and application to future study development.

1. **Limited information on OSA diagnosis and prior CPAP management.** While case #1 is reported as having a prior diagnosis of severe OSA, with an apnea-hypopnea index (AHÍ) of 104 /h, there is no information about how and when the diagnosis was made, and the associated symptoms, for example excessive daytime sleepiness, - which are crucial for CPAP acceptance. Also, although the patient was reported as being non complaint with CPAP in the past, no details are provided as to the reasons why, the timing and settings being used; thus it is not clear that the patient was intolerant. Additionnally, the other two patients had only suspected OSA but no definitive diagnosis. This fact
limits significantly the generalizability of the reported findings to patients with a confirmed diagnosis of OSA. Another point of concern is that the protocol for initiation of CPAP at home prior to surgery for patients #2 and #3 is not described. It is recommended for initial home initiation of PAP therapy in patients with OSA to have mask fittings and education, and it is important to troubleshoot any problems to optimize acceptance of therapy.

2. **Breathing pattern; evaluation, hypoventilation apneas/ hypopneas; postoperative period; monitoring.** During the postoperative period the authors report information on the respiratory rate, but it seems they did not monitor for hypoventilation and/or apneas or hypopneas as done by Zhang et al. [2]. It would be useful to consider monitoring for these events with methods such as capnography, which can confirm the stability of ventilation [3,4], both before and during therapy with HFNI. This is of great importance especially in patients with comorbidities like case #2.

3. **Surgery/indications.** Two patients with tonsillectomy surgery are reported. It is not clear what the indications for tonsillectomy were, and whether it was related to OSA or not. While increased airway collapsibility and worsening of OSA could be a first night effect due to residual anesthetic effect [5], the removal of very large tonsil tissue could relieve airway obstruction in some patients. One cannot know if the observed improvement of OSA indices in the postoperative phase is attributed to the tonsillectomy per se or to the effect of HFNI. This factor is important to consider. We recommend further studies in patients not undergoing any type of airway surgery to also eliminate the potential confounding factor of post-operative airway edema.

4. **HFNI flow and oxygenation settings.** There is no detailed description of the protocol to implement and titrate HFNI. For example, what was the target SpO2 and what was the starting flow?
Which were the criteria for the settings selected in each case? Would the same HFNI flow and oxygenation be effective in the different sleep stages and body positions, or would settings need to be adjusted throughout the night?

In conclusion, it is critical to prevent peri-operative complications in OSA patients. With this case series, the authors bring to light the possibility of an intriguing and potentially important indication for HFNI. We believe that our comments and suggestions may be useful for the development of future studies in this area.
References


