



Letter to the Editor

Concerns regarding the use of continuous positive airway pressure to treat stable patients with obesity hypoventilation syndrome



To the Editor

The article “Efficacy of bilevel ventilatory support in the treatment of stable patients with obesity hypoventilation syndrome: systematic review and meta-analysis” published by Royer et al. [1], is a timely review about a key topic considering the ventilatory support in the management of patients with obesity hypoventilation syndrome (OHS). The authors' purpose was to evaluate the effect of bilevel airway titration in such population, however, studies with patients on continuous positive airway pressure (CPAP) were included. CPAP is considered a treatment option only for patients with obstructive sleep apnea (OSA). Notwithstanding, CPAP does not promote thoracic expansion and is not considered a non-invasive ventilator support device (NIV), consequently does not treat hypoventilation [2]. Thus, we can speculate that if the patient has been diagnosed with a hypoventilation syndrome and responded to CPAP, the main sleep disordered breathing is probably OSA, not OHS.

A great limitation of the studies in this setting is the heterogeneous terms used to characterize OHS. By definition, isolated OHS can be diagnosed in an obese patient with a sleep study showing an apnea/hypopnea index less than five events per hour of sleep and sustained hypercapnia. The classical diagnostic criteria of OHS still consider only the diurnal hypercapnia or equivalents in obese, in the absence of others causes of hypoventilation, as sufficient to establish the diagnosis [3]. Nevertheless, hypercapnia is a finding that can occur in OSA as well (“Hypercapnic OSA”). It is estimated that 11–15% of obese patients with OSA can present hypercapnia during the day [4]. Furthermore, the diurnal hypercapnia is a late finding in an already fully established disease. The onset of hypoventilation findings are presented first during REM sleep followed by non-REM sleep and lastly during wakefulness [5]. Some authors have called attention to the compelling need to review and update these criteria, as well as establish earlier and proper NIV treatment [6].

Considering the elevated number of patients with significant OSA included in these paper and the unsuitable treatment with CPAP for isolate OHS, the authors' conclusions need to be

interpreted cautiously, particularly considering the high morbidity and mortality of these specific population.

Conflict of interest

The ICMJE Uniform Disclosure Form for Potential Conflicts of Interest associated with this article can be viewed by clicking on the following link: <https://doi.org/10.1016/j.sleep.2019.01.038>.

References

- [1] Royer CP, Schweiger C, Manica D, et al. Efficacy of bilevel ventilatory support in the treatment of stable patients with obesity hypoventilation syndrome: systematic review and meta-analysis. *Sleep Med* 2019;53:153–64.
- [2] Berry RB, Chediak A, Brown LK, et al. Best clinical practices for the sleep center adjustment of noninvasive positive pressure ventilation (NPPV) in stable chronic alveolar hypoventilation syndromes. *J Clin Sleep Med* 2010;6(5):491–509.
- [3] American Academy of Sleep Medicine. International classification of sleep disorders (ICSD-3). 3rd ed. Westchester: American Academy of Sleep Medicine; 2014.
- [4] Laaban JP, Chailleux E. Daytime hypercapnia in adult patients with obstructive sleep apnea syndrome in France, before initiating nocturnal nasal continuous positive airway pressure therapy. *Chest* 2005;127(3):710–5.
- [5] Becker HF, Piper AJ, Flynn WE, et al. Breathing during sleep in patients with nocturnal desaturation. *Am J Respir Crit Care Med* 1999;159(1):112–8.
- [6] Rabec C, de Lucas Ramos P, Veale D. Respiratory complications of obesity. *Arch Bronconeumol* 2011;47(5):252–61.

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