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COMMENTARY

Aerophagia During CPAP for OSA: The Case for Auto-CPAP and Nasal Mask

Commentary on Shirlaw et al. A randomized crossover trial comparing autotitrating and continuous positive airway pressure in subjects with symptoms of aerophagia: effects on compliance and subjective symptoms. *J Clin Sleep Med*. 2017;13(7):881–888.

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Continuous positive airway pressure (CPAP) is a highly effective treatment for obstructive sleep apnea (OSA).[1] However, CPAP compliance remains an important obstacle that mitigates the effects of OSA therapy. The experience of side effects with CPAP treatment may impair adherence.[2] Few randomized controlled trials have been designed to address CPAP side effects. Aerophagia is one of the common side effects of CPAP that has not been adequately studied. In this issue of the *Journal of Clinical Sleep Medicine*, Shirlaw et al.[3] report the results of a randomized controlled trial comparing fixed and auto-CPAP among subjects presenting with aerophagia symptoms but well adapted to CPAP therapy. The primary outcome was CPAP adherence. Although auto-CPAP failed to improve adherence to therapy as compared to fixed CPAP, auto-CPAP significantly improved aerophagia symptoms. The results of this study provide clear evidence to switch treatment of patients experiencing aerophagia from fixed CPAP to auto-CPAP.

Auto-CPAP may improve aerophagia symptoms by reducing mean overnight CPAP level. In the study by Shirlaw et al.,[3] median CPAP level was reduced from 14 to 9.8 cm H_2O (fixed CPAP and auto-CPAP, respectively). Another involved mechanism leading to aerophagia is oronasal CPAP in the study by Shirlaw et al.[3] Aerophagia symptoms were significantly greater under oronasal fixed CPAP as compared to nasal fixed CPAP.[3] There is growing evidence that oronasal CPAP may lead to higher unintentional leak, require higher therapeutic pressure level, and lead to poorer adherence as compared to nasal CPAP.[4] The study by Shirlaw et al.[3] provides further evidence to avoid widespread use of oronasal CPAP.

Auto-CPAP and other technological improvements such as expiratory pressure relief and humidification have not been shown to substantially improve CPAP adherence in unselected patients with OSA initiating CPAP.[5] The study by Shirlaw et al.[3] used a different approach where specific interventions may improve CPAP side effects and potentially improve adherence. This is a reminder that CPAP therapy for patients with OSA should not use a "one size fits all" approach. Rather, it should be individualized. The evidence from the Shirlaw et al. study[3] is a step closer to individualized sleep medicine.

Interestingly, both fixed and auto-CPAP arms in the study by Shirlaw et al.[3] showed an increase in CPAP adherence of almost 25% (1.3 to 1.5 hours) after randomization when compared to baseline CPAP use. Mean daily CPAP use almost reached the impressive mark of 7 hours, and for that the authors should be applauded. Selecting patients already well adapted and compliant with CPAP may have influenced the negative effect of auto-CPAP on adherence since there was no room for further improvement. The increase in CPAP use in both study arms after randomization may be attributed to the Hawthorne effect, a motivational consequence of participating in a research study.[6] The Hawthorne effect is a potential source of bias in studies addressing CPAP adherence that has not been adequately studied. Future studies addressing specific side-effect interventions on CPAP adherence should focus on patients with suboptimal CPAP adherence attributable to the side effect being studied. Furthermore, the study should have a larger duration (eg, 8 weeks) in order to decrease the possibility of Hawthorne effect bias.

Evidence from randomized controlled trials addressing important clinical questions such as the study by Shirlaw et al.[3] are highly needed in the field of clinical sleep medicine. Additional studies addressing common CPAP side effects such as aerophagia, dry mouth, and nasal obstruction are needed to provide better care for patients with OSA.

CITATION

Genta PR, Grad GF, Herculano S. Aerophagia during CPAP for OSA: the case for auto-CPAP and nasal mask. *J Clin Sleep Med*. 2017;13(7):859–860.

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DISCLOSURE STATEMENT

The authors have indicated no financial conflicts of interest.