

LETTERS TO THE EDITOR

Sex differences in therapeutic CPAP levels in adults

Response to Zheng Z, Hong C, Lu J, Zhuang C, Zhang N, Chen R. Does sex difference play an important role in therapeutic CPAP levels? *J Clin Sleep Med*. 2022;18(1):329–330. doi:10.5664/jcsm.9486

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We thank you for your interest in our study¹ and for the opportunity to clarify some of the issues raised by Zheng et al.² Our cross-sectional study showed that the therapeutic levels of continuous positive airway pressure (CPAP) derived from an auto-adjusting CPAP titration were similar between men and women who were diagnosed as experiencing moderate to severe obstructive sleep apnea (OSA).¹ OSA is a highly prevalent disease that is often associated with cardiovascular and metabolic complications, and regular CPAP therapy is the standard treatment for individuals diagnosed with OSA, especially in its more severe forms.^{3,4}

Based on extant evidence, we hypothesized that women would require lower therapeutic CPAP levels than men. Indeed, a previous study of 95 retrospectively enrolled adults (56 women and 39 men) suggested that this might be the case.⁵ However, our study in a much larger cohort did not reveal any sex-related differences in the therapeutic levels of CPAP.¹ Some issues deserve comment regarding the aforementioned study by Jayaraman et al,⁵ namely a surprising predominance in the number of women with OSA and no sex-related statistically significant differences in the baseline apnea-hypopnea index values ($P = .13$). These characteristics strikingly differ from the usual epidemiological attributes of patients with OSA, in whom men predominate, especially patients with the more severe forms of OSA.³ Furthermore, as previously commented on in our study,¹ there was no mention of the type of mask used by the individuals during the CPAP titration.⁵ Recent evidence strongly suggests that with the use of an oronasal mask, the optimal CPAP levels obtained during a titration study tend to be higher than those obtained during titration with a nasal mask.^{6,7} Our study,¹ which prospectively enrolled 1,006 adult individuals with a diagnosis of moderate to severe OSA over a 4-year period, had a predominance of men ($n = 652$), and men had statistically higher median baseline apnea-hypopnea index values than women (43.1 events/h vs 36.7 events/h; $P < .001$).¹

Further analyses revealed that factors such as body mass index, age, and baseline apnea-hypopnea index values (obtained exclusively using full polysomnography in a sleep laboratory setting) were independent predictors of the therapeutic CPAP pressure settings.¹ Although body mass index and age are well-defined risk factors in the pathophysiology of OSA,³ their role in determining therapeutic CPAP levels deserves further exploration. We agree with Zheng and colleagues² that different population groups have different clinical, demographic, and anthropometric characteristics, all of which can decisively influence the findings across studies. Considering that our study was carried out in a single center, it is susceptible to these pertinent criticisms, and therefore generalization of the findings may be limited, as indicated in the discussion section of the article.¹ Therefore, future multicenter studies will undoubtedly help solve this issue.

CITATION

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