

U-Shaped Relationship Between MSpO₂ Levels and the Incidence of Frailty in Elderly OSA Patients: Findings from a Multicenter Cohort Study [Letter]

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Dear editor

We read with great interest Xin's recent study on the relationship between mean pulse oximetry saturation (MSpO₂) and the occurrence of frailty in patients with obstructive sleep apnea (OSA) in China.¹ This study is timely and provides valuable insights into the complex relationship between OSA and frailty in the elderly. However, we wish to highlight several areas worthy of further exploration to enhance the robustness of these findings.

First, this study initially revealed the relationship between different levels of intermittent hypoxia (IH) and the occurrence of frailty in elderly patients with OSA. Based on long-term follow-up and a large sample size, the study innovatively found that mild IH may potentially reduce the risk of frailty in the elderly, providing new evidence for the concept of "low-dose" IH. The research team used Cox regression and restricted cubic splines for non-linear correlation analysis, with visualization being a significant strength.

Despite its unique advantages, it is noteworthy that the study did not specify the sample size of each center. Considering the multi-center design involving regions that are geographically distant, there may be considerable differences in climate, altitude, and air environment across these centers. Patients from different ethnic groups also have distinct genetic backgrounds and lifestyle habits, which could influence the study results. Future studies could select participating centers within a more similar range to reduce these biases, and even consider multi-ethnic or multinational studies to enhance the generalizability of the findings.

Moreover, the study did not collect or adjust for patients' educational level and economic status. These factors may affect patients' willingness to participate in the study, the choice of treatment interventions, and the occurrence of frailty outcomes. Future research could consider including these covariates as confounders for adjustment to improve the precision and reliability of the study.

We also note that the diagnosis of OSA in the study was based on polysomnography (PSG), which is the gold standard recommended by guidelines,² but this method is cumbersome and economically burdensome. Elderly individuals may experience difficulty falling asleep or maintaining sleep, leading to a higher rate of PSG failure, which can complicate the patient recruitment process. Furthermore, a single night of PSG may introduce bias into the data parameters. Studies have shown that home sleep apnea testing (HSAT) is an effective method for diagnosing OSA in the elderly,³ being less costly and more efficient, and improving patient compliance. Using different diagnostic criteria may enhance the efficiency of patient recruitment, expand the sample size, and make the conclusions more widely applicable.

Finally, Xin's study represents an important step in understanding the relationship between mean pulse oximetry saturation (MSpO₂) and the occurrence of frailty in OSA patients among the elderly. It paves the way for elucidating the complex relationship between OSA and frailty in the elderly, benefiting more people globally. Our suggestions are intended to further refine and enhance an already excellent study, and we eagerly anticipate more innovative contributions from other researchers in this field.

Disclosure

The authors report no conflicts of interest in this communication.

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