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COMMENTARY

# Obstructive sleep apnea screening protocol and safety measures: advancing treatment quality and reducing medical emergency team activation in patients with atrial fibrillation, respiratory diseases, and frailty

Commentary on Saha AK, Sheehan KN, Xiang KR, et al. Preoperative sleep apnea screening protocol reduces medical emergency team activation in patients with atrial fibrillation. *J Clin Sleep Med*. 2024;20(5):783–792. doi:10.5664/jcsm.11002

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Despite ongoing research, the association of in-hospital medical emergency team activation (META) among patients with atrial fibrillation (AF) who are at risk for obstructive sleep apnea (OSA) is unclear. Using sleep questionnaires and other forms of screeners have become useful tools for such patients, but their sensitivity and specificity, application in various diseases and risk factors, and therefore, overall usefulness, require further study.[1,2] For instance, a study by El-Sayed[2] showed that the sensitivity of the Berlin, STOP (Snoring, Tiredness, Observed apnea, high blood Pressure), and STOP-BANG (Snoring, Tiredness, Observed apnea, high blood Pressure, BMI, Age, Neck circumference, Gender) questionnaires was high when screening for OSA; however, the low specificity of these questionnaires resulted in increased false positives and failure of exclusion of individuals at low risk.[2] Undiagnosed and untreated OSA is associated with increased in-hospital morbidity and serves as a risk factor for cardiac complications, including hypertension, diabetes, and dyslipidemia, and diseases such as coronary artery disease and AF.[1,3] In addition, pathophysiologic pathways related to OSA, such as alterations in intrathoracic pressure, intermittent hypoxemia, and autonomic nervous system fluctuations, may lead to atrial structural and electrical remodeling, resulting in predisposition to AF.[4] Chen et al[5] reported that the apnea-hypopnea and desaturation indices cannot fully represent the severity of OSA in patients with stroke. Instead, the mean desaturation value during nocturnal hypoxia must be used. Nocturnal hypoxia due to OSA was shown to be an independent predictor of AF in patients with subacute ischemic stroke, and it was concluded that the use of an overnight pulse oximeter to assess nocturnal hypoxia and to predict paroxysmal AF in patients with cryptogenic stroke requires further evaluation, illustrating the importance of reliable screening methods for OSA and its risk factors.[1]

Moderate to severe OSA may increase postoperative complications, and preoperative patients are recommended to undergo screening for OSA and to receive treatment during the perioperative period. To date, it has not been established whether patients newly diagnosed with OSA prior to elective surgery are adherent with continuous positive airway pressure (CPAP) therapy.[6] Overall, CPAP as a therapy for OSA is underused, and it is unknown if CPAP might reduce rates of AF, which often leads to META in severe cases.[7]

Guralnick et al[6] showed that presurgical patients with newly diagnosed OSA had very poor adherence to CPAP therapy. These findings suggest that CPAP adherence is hindered in the perioperative period, and requires further study.

In this issue of the *Journal of Clinical Sleep Medicine*, the study by Saha et al[1] evaluated the performance of the DOISNORE50 (Diseases, Observed apnea, Insomnia, Snoring, Neck Circumference > 18 inches, Obesity with BMI > 32. R = are you male, Excessive daytime sleepiness, 50 = age ≥ 50) sleep questionnaire as an OSA screener for patients with AF with the aim of ascertaining the prevalence of META among perioperative patients with underlying AF who have a diagnosis or are at risk for OSA. There was a reduced adjusted odds of META in the screened group of 0.69 (95% confidence interval: 0.48–0.98; $P < .001$) in comparison to the nonscreened group, based on propensity score matching. The adjusted odds of intensive care unit admissions and emergency department visits within 30 days of discharge were statistically lower for the screened group compared with the nonscreened group. The DOISNORE50 questionnaire could be used to predict OSA in a perioperative population with underlying AF. Therefore, this study showed that the implementation of the DOISNORE50 questionnaire as a screening tool and interventions toward sleep safety is associated with a reduction in META, intensive care unit admissions, and emergency department visits within 30 days of hospital discharge across all OSA risk categories. It can be concluded that, among patients with perioperative AF, novel evidence supports DOISNORE50 screening and implementation of an OSA safety protocol for reduction of META. Patients at high risk and those diagnosed with OSA showed reduced odds of META following the implementation of an OSA safety protocol, thus illustrating its usefulness.

The retrospective design of the study does not allow cause-and-effect inferences to be drawn from the results, as these results represent those of a single regional academic health system. The median age of the patients was high, most patients were male, and most were White, possibly leading to bias. Therefore, future studies should have a more balanced cohort with regard to sex and age, which may be complicated as age and sex may be representative of the regional population typically diagnosed with OSA. Polysomnography results confirming a prior OSA diagnosis would also be informative in future studies when considering patients with chronic or long-term OSA and how screening processes can help them. As it has been shown that presurgical patients with newly diagnosed OSA had poor adherence to CPAP therapy, suggesting that CPAP adherence is hindered in the perioperative period,[6] screening before initiating therapy would provide valuable insights. Overall, this study by Saha et al has shown the usefulness of the sleep questionnaire, along with sleep safety interventions that incorporate electronic medical record (EMR) alerts, wrist bands, AutoPAP, and inpatient sleep consultation in leading to fewer METAs among patients with AF. The lowest-risk groups were shown to have experienced the lowest number of events, thus supporting that the DOISNORE50 questionnaire appropriately stratified patient risk status. The association between known- or high-risk OSA screening with META rates in patients with AF, which is valuable in supporting the implementation of screening questionnaires and OSA safety protocols, has also been shown in this study. Early screening for symptoms of OSA and treatment of OSA is customarily recommended for patients with AF; however, screening remains ineffective or the benefits of current methods are unknown to patients. A study by Mehawej et al[8] showed that patients at intermediate or high risk for OSA were more likely to be frail and, therefore, identified older adults with AF as a group who would benefit highly from the early screening for OSA.

These findings illustrate the value of screening protocols, especially when paired with other sleep safety protocols, in patients with AF as well as other at-risk populations. Future studies should focus in the generalizability of this system to other patient groups predisposed to cardiac risk factors and other life-threatening diseases. Extensive research is required to further elucidate the association of META among patients with AF and other critical diseases or frailty who are at risk for OSA or who have already been diagnosed with this condition, and an optimized screening protocol with accompanying sleep safety measured has been shown to be a strong starting point.

## CITATION

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## SUBMISSION & CORRESPONDENCE INFORMATION

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## DISCLOSURE STATEMENT

The author reports no conflicts of interest.