

Obstructive Sleep Apnea, Sleep Disorders, and Perioperative Considerations



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KEYWORDS

- Obstructive sleep apnea • Difficult airway • Perioperative • Postoperative • Monitoring

KEY POINTS

- Patients with obstructive sleep apnea (OSA) are at risk for difficult mask ventilation and tracheal intubation.
- Most patients with OSA do not have a formal diagnosis.
- Identification of patients at risk for OSA may have safety implications in the perioperative period.
- Questionnaire tools can aid in the prediction of the presence of OSA; however, polysomnography is the gold standard test to diagnose the disorder.

INTRODUCTION

Of all the sleep disorders, obstructive sleep apnea (OSA) is the most likely to cause concern for those responsible for managing the airway during the perioperative period. Highly prevalent in the general population, OSA affects 4% and 2% of middle-aged men and women, respectively.¹ OSA has been associated with a number of co-morbidities including cardiovascular disease, arrhythmia, stroke, obesity, metabolic syndrome, insulin resistance, and depression.² Untreated, OSA can lead to uncontrolled hypertension, heart failure, and premature death.³ It has long been recognized that anesthesia and airway manipulation in the patient with OSA can present unique challenges with respect to mask ventilation, tracheal intubation, and

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postextubation ventilation.⁴ Increased airway collapsibility and sensitivity to central nervous system depressants add to the complexity encountered in the perioperative management of the OSA patient. When the patient with a formal diagnosis of OSA presents for an elective surgical procedure, there is sufficient time to prepare for the possibility of a difficult airway, and to discuss with the surgeon and patient a perioperative plan tailored to mitigate the risk of adverse cardiorespiratory events. However, it is known that most patients with OSA have not yet received a formal diagnosis. In some studies, it is suggested that 80% to 90% of patients with OSA remain undiagnosed.⁵

There is growing evidence that early identification of patients at risk for OSA and implementation of strategies to decrease perioperative respiratory depression may alter outcomes.⁶ This article examines the available literature as well as current opinion and recommendations for the perioperative management of the patient at risk of OSA.

SYMPTOMS

OSA is characterized by the repetitive partial or complete collapse of the upper airway during sleep.⁷ These obstructive events may be accompanied by decreases in oxyhemoglobin saturation and subsequently lead to brief arousals and sleep fragmentation. Patients with OSA may admit to snoring, awaking gasping or choking, and excessive daytime fatigue or sleepiness. Bed partners will often report witnessing the patient's apnea, as well as his or her intermittent snoring and restless sleep. Although the chief complaint of the OSA patient who presents to a sleep disorder clinic is frequently excessive daytime somnolence, the visit may also be at the insistence of the bed partner whose sleep may be equally disrupted by the patient's loud snoring. OSA syndrome (OSAS) is the combination of the presence of OSA coupled with reported clinical sequelae of daytime fatigue.

EPIDEMIOLOGY

Relatively rare in young women, OSAS occurs more commonly in middle-aged men than women with a 3 to 1 or 4 to 1 ratio.¹ This ratio changes, for reasons poorly understood, with hormonal changes that occur when women reach postmenopausal age. With increases in testosterone and decreases in estrogen and progesterone, the risk of OSA for women after menopause becomes equal to that of men.⁸ Furthermore, the incidence of OSA increases substantially with age regardless of gender.⁹ Reports of familial predisposition to OSA or clustering of symptoms has been described not only with regard to craniofacial morphology and syndromic facies, but also in those with isolated polysomnographic evidence of sleep-related breathing disorders.¹⁰

African Americans younger than 30 years old, and south Asians have also been shown in some studies to be more prone to OSA than their Caucasian age- and body mass index (BMI)-matched counterparts.^{11,12}

RISK FACTORS

Obesity is the most consistently recognized predisposing factor for OSA. The prevalence of OSA in the morbidly obese population has been reported to be as high as 70%.¹³ Increased neck circumference has been associated with OSA, as has increased waist hip ratio and central truncal obesity, which is frequently seen in patients suffering from metabolic syndrome.¹⁴⁻¹⁶ Men characteristically have android fat deposition; however, it is prominent in women with polycystic ovarian disease,

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