

Importance

- Obstructive sleep apnea (OSA) is the most common breathing disorder occurring during sleep. It is characterized by partial or complete obstruction of the upper airway during sleep despite continuing ventilatory efforts. ^[1]
- Approximately 20% of adults may suffer from OSA, with nearly 7% exhibiting moderate-to-severe OSA. However, up to 80% of patients with OSA are undiagnosed and thus untreated.
- Patients with OSA are at a higher risk of peri-procedure complications such as respiratory depression and decreased pharyngeal muscle tone, which may exacerbate airway obstruction, leading to hypoxia, hypercarbia, arrhythmias, and ultimately, cardiopulmonary arrest.
- Unrecognized (or diagnosed) OSA is one of the major causes of peri-procedure complications. ^[2,3,4]

OSA and Ambulatory Surgery

- Use of sedatives and anesthetics, muscle relaxants and opioids, may worsen or trigger upper airway obstruction and apnea.
- These drugs also decrease the natural responses to low oxygen and high carbon dioxide levels in the blood.
- The stress of surgery (depending on its length and invasiveness) itself can cause an exacerbation of OSA symptoms, which typically occur several days after surgery.^[1]

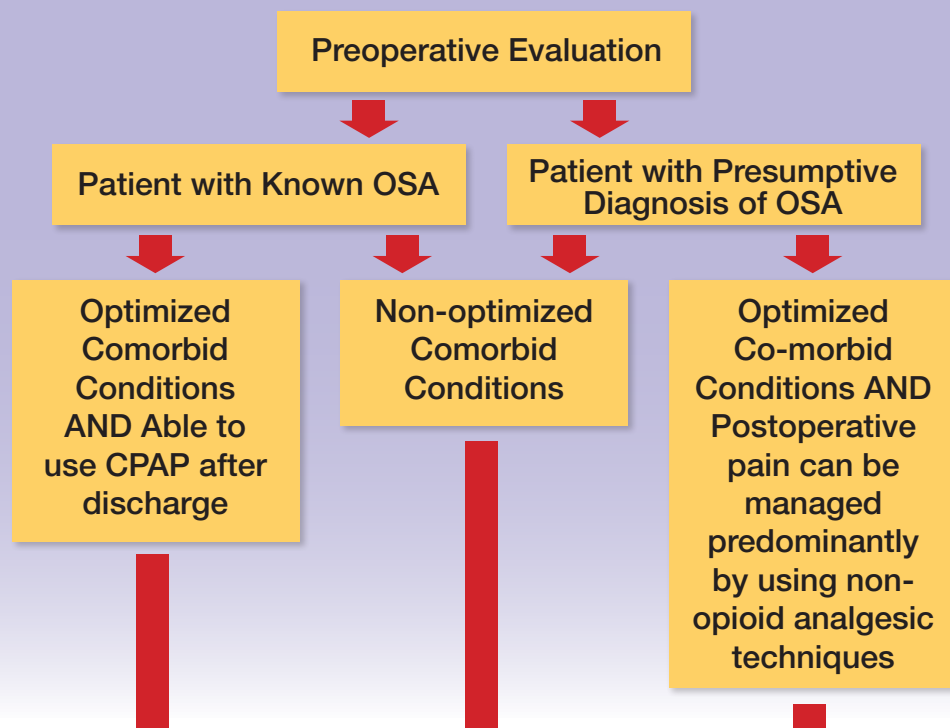
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Patient Safety Toolkit: Ambulatory Surgery and Obstructive Sleep Apnea

Patient Safety Toolkit: Ambulatory Surgery and Obstructive Sleep Apnea (OSA)

PREOPERATIVE CONSIDERATIONS



Pre-Procedure Screening and Preparedness

Assess the existence/severity of OSA pre-procedure to ensure that patient selection is appropriate for the type of procedure and anesthesia planned.

The Society for Ambulatory Anesthesia (SAMBA) recommends **STOP-BANG** criteria along with patient comorbidities (e.g., arrhythmias, CHF, cerebrovascular disease, and metabolic syndrome). The American Society of Anesthesiologists (ASA) suggests that positive sleep studies or clinical indicators (e.g., STOP-BANG criteria) be considered, along with

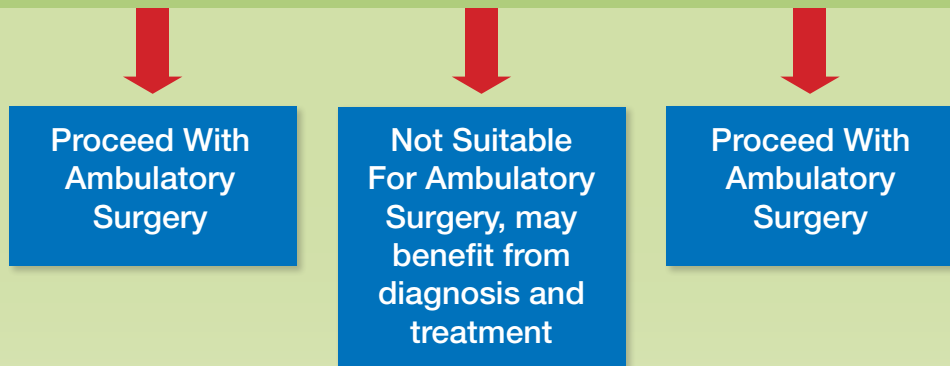
- the level of invasiveness of surgery and anesthesia.
- the potential need for post-procedure opioids.

Pre-procedure patient and family education should encourage continued use of CPAP (continuous positive airway pressure therapy), sleeping in a semi-upright position postoperatively, and warning about the dangers of/need to avoid opiates.

STOP-BANG screening tool for OSA risk

Snoring	Do you snore loudly (louder than talking or loud enough to be heard through closed doors)?	Yes No
Tiredness	Do you often feel tired, fatigued, or sleepy during the daytime?	Yes No
Observed apnea	Has anyone observed you stop breathing during your sleep?	Yes No
Pressure	Do you have or are you being treated for high blood pressure?	Yes No
BMI	BMI > 35 kg/m ²	Yes No
Age	> 50 years	Yes No
Neck circumference	> 40 cm	Yes No
Gender	male	Yes No
Fewer than 3 Yes = low risk of OSA; 3 or more Yes = high risk of OSA; 5-8 Yes = high probability of moderate-to-severe OSA		

INTRAOPERATIVE CONSIDERATIONS



Use non-opioid analgesic techniques, when possible.

Anesthesia

- *Local or regional anesthesia* is preferred and should be used whenever possible.
- If *moderate sedation* is required, continuous capnography should be used during the procedure.
- If *general anesthesia* is planned, providers should preferably use a technique that allows early emergence.
- If *opioids* are required, use short-acting ones, when possible.
- Consider non-opioid multimodal analgesia approach (e.g., local/regional analgesia, non-steroidal anti-inflammatory drugs, and acetaminophen.)

Recovery

Facilities should be prepared for respiratory care and have transfer agreements with inpatient facilities.

- Place patients in a semi-upright position.
- Observe patients for oxygen desaturation and/or apneic episodes.
- If oxygen desaturation occurs while on supplemental oxygen therapy or on preoperative CPAP, use non-invasive ventilation (i.e., CPAP or BiPAP).
- Avoid systemic opioids, if possible. If necessary, titrate to the lowest dose that works for long acting opioids (e.g., morphine and hydromorphone).
- Patients who are noted to easily obstruct their airway when drowsy should receive extra vigilance.

POSTOPERATIVE CONSIDERATIONS

Exercise caution in OSA patients who develop prolonged and frequent severe respiratory events (e.g., sedation analgesic mismatch with opioids, desaturation, and apneic episodes) in the postoperative period.

Significant Respiratory Depression

- Appropriate resuscitation should be initiated—this may include noninvasive positive-pressure ventilation or tracheal intubation as well as appropriate use of opioid reversal agents, if necessary.
- Consider transfer to an inpatient facility for additional monitoring.

Post Discharge

- Patients who are suspected of having OSA based on clinical criteria should be encouraged to follow up with their primary care physicians to consider a sleep study.
- Post-discharge patient/family education should include a recommendation to continue use of CPAP (while sleeping, day or night) and a warning about the dangers of/need to avoid opiates.