

Perioperative Management of Patients with Obstructive Sleep Apnea

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Objectives.

- ❑ Describe the preoperative evaluation for patients with suspected OSA
 - ❑ Identify the effects of anesthetic medication in patients with OSA
 - ❑ Discuss the guidelines for intraoperative and postoperative management in patients with OSA
 - ❑ Explain the concept of teamwork in successful management of patients with OSA in the perioperative phase
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GIBBLETOONS

By Dan Gibson



Unfortunately your HMO doesn't cover anesthesia so we're going to have to use our low-budget procedure to put you out.

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- Obstructive sleep apnea can be a complicating factor in the administration of general anesthesia.
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- When the **anesthesiologist is aware of sleep apnea in the patient undergoing surgery** and takes appropriate measures to maintain the airway, **the risks of administering anesthesia to people with sleep apnea can be minimized.**
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Perioperative Management of Obstructive Sleep apnea.

- Preoperative Management.
 - Intraoperative Monitoring.
 - Postoperative management.
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■ SPECIAL ARTICLES

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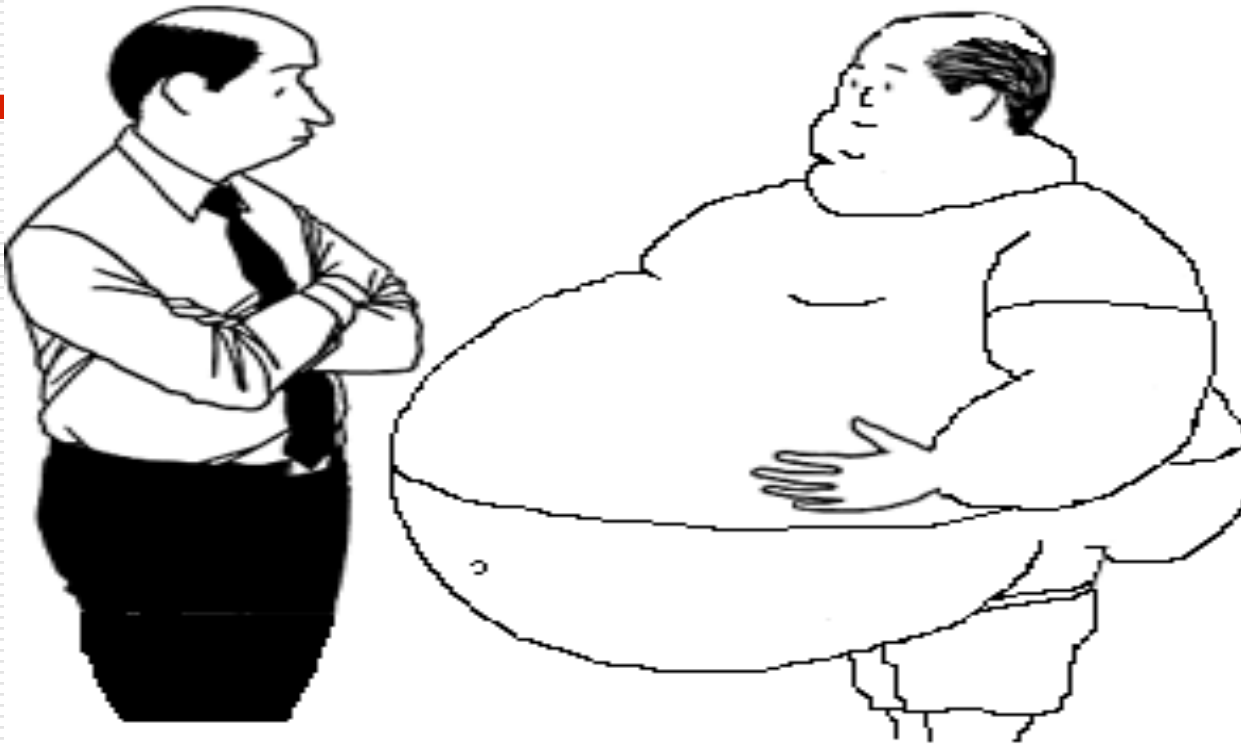
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Practice Guidelines for the Perioperative Management of Patients with Obstructive Sleep Apnea

A Report by the American Society of Anesthesiologists Task Force on Perioperative Management of Patients with Obstructive Sleep Apnea

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- ❑ **The overwhelming majority of sleep apnea cases have not been identified.**
 - ❑ Thus it is not sufficient simply to ask if a patient has sleep apnea.
 - ❑ Health care professionals must ask proper screening questions of their patients, especially those individuals at risk for sleep apnea .
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**Physician :Do you have sleep apnea?
Patient: I don't know. I don't think so.
Resp Therapist: Duh..Yeah Right!!!**



Preoperative evaluation

- a. Medical records review
 - b. Patient and family interview
 - c. Screening questionnaire
 - d. Focused physical examination
 - e. Sleep study
-

Preoperative Assessment

- ❑ Thorough history and physical examination.
 - ❑ As the vast majority of sleep apnea patients are undiagnosed, it is not sufficient to simply ask if the patient has sleep apnea or disturbance.
 - ❑ **Typical patient with sleep apnea is male, overweight, and over the age of 40.**
 - ❑ **But sleep apnea does occur in both sexes, in thin individuals, and in all age categories. Children, particularly those with tonsillar hypertrophy, can also be at risk.**
-

Once the presence of sleep apnea is suspected.....

- ❑ The anesthesiologist should ascertain whether the patient has had a previous sleep study and, if so, review the results.
 - ❑ If no sleep study has ever been conducted - or if one has been conducted before significant weight gain or another current potentially associated factor - a sleep study may be warranted.
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Once the presence of sleep apnea is suspected.....

- ❑ The severity of OSA may be learned by questioning the patient regarding the degree of nighttime sleep disruption and daytime sleepiness, but often patients are not aware of their sleepiness or the extent of their nighttime disruption.
 - ❑ Previous history of anesthesia or surgery.
 - ❑ Records should be reviewed for information pertaining to the anesthetic technique employed or any adverse intraoperative or postoperative events.
 - ❑ A history of cardiac or pulmonary disease should be noted.
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Physical Examination

- ❑ Obesity, particularly upper body obesity which places the patient at risk for OSA, should be noted.
 - ❑ The presence of a large neck circumference, even in the non-obese, increases the risk for sleep apnea and should be noted.
 - ❑ Examination of the heart and lungs focuses on the presence of physical findings suggestive of systemic or pulmonary hypertension, heart failure or impaired oxygenation.
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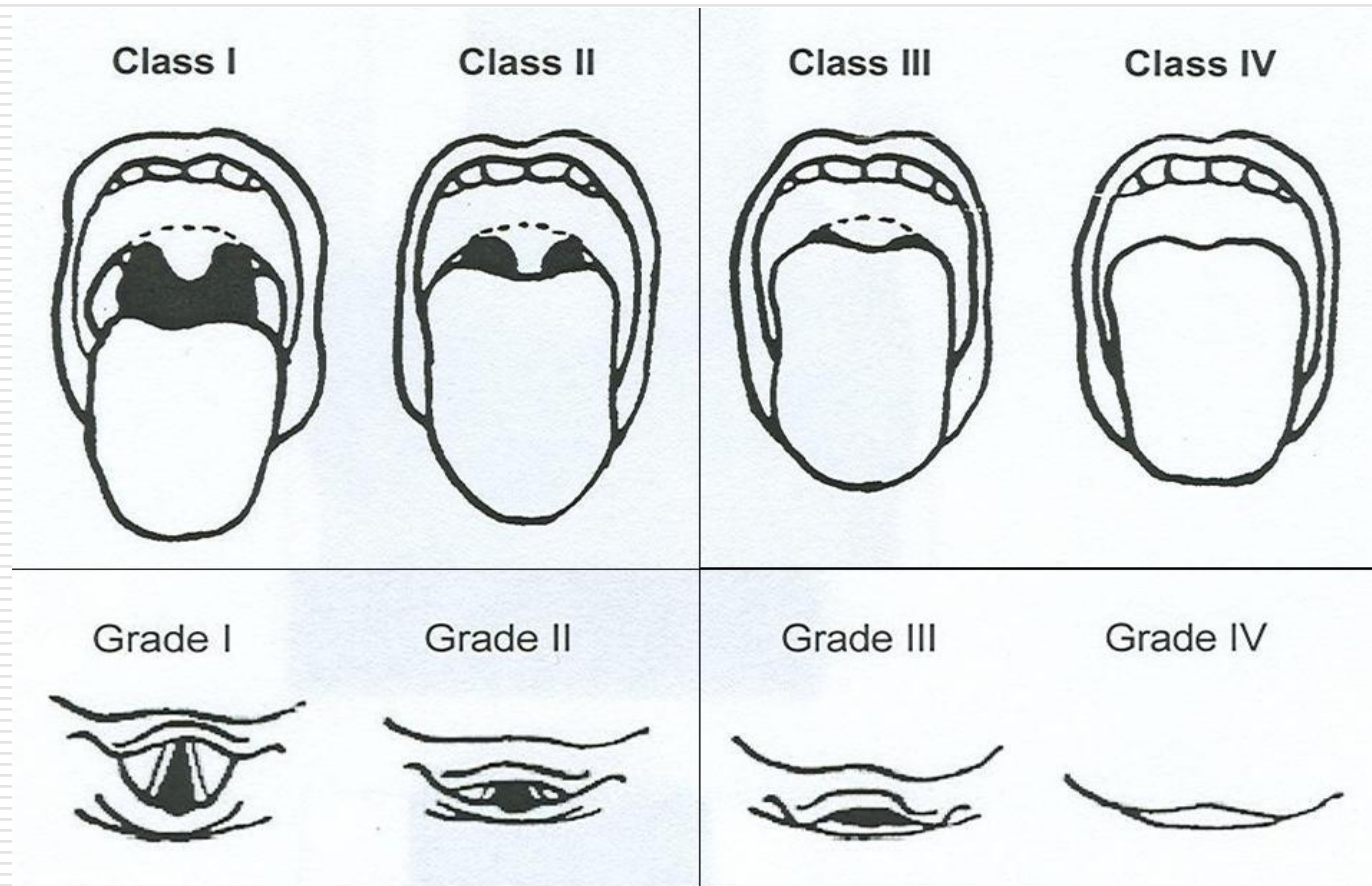
Physical Examination

- A formal assessment for the potential difficulty of endotracheal intubation is essential and is usually accomplished utilizing the Mallampati classification of difficult airways.
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Mallampati classification



Mallampati classification



Is this patient at risk for airway complications???



Skeletal Deformity

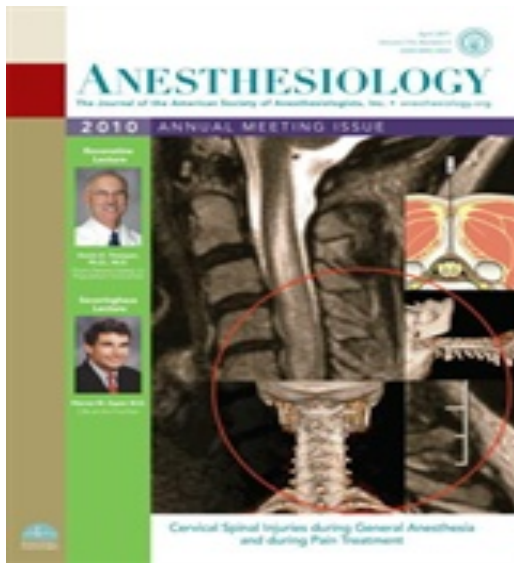


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Retrognathia



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- A general rule is that patients with OSA should not undergo elective procedures until after a thorough preoperative assessment.
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STOP Questionnaire

A Tool to Screen Patients for Obstructive Sleep Apnea

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STOP-Bang Scoring Model

1. Snoring
2. Tired
3. Observed Apneas
4. Blood pressure
5. BMI (BMI more than 35kg/m²)
6. Age (age over 50 years old)
7. Neck circumference (neck circumference greater than 40)
8. Gender

High risk of OSA: answering yes to three or more items

Low risk of OSA: answering yes to less than three items

Preoperative preparation

Preoperative preparation

- ❑ Preoperative treatment/optimization for OSA (*e.g.*, CPAP, NIPPV, mandibular appliances, medical treatment)
 - ❑ Consult the American Society of Anesthesiologists “Practice Guidelines for Management of the Difficult Airway”
 - ❑ Limit procedures to facilities with full hospital services
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Intraoperative Management

Intraoperative Management

- Anesthetic technique
 - Monitoring
 - Extubation
-

Intraoperative management

□ Anesthetic technique

- (i) Local or regional anesthesia versus general anesthesia
 - (ii) Combined regional and general anesthesia versus general anesthesia
 - (iii) Sedation versus general anesthesia
-

Monitoring

- ❑ (i) Continuously monitor the respiratory depressant effects of sedatives and/or opioids (*e.g.*, level of consciousness, pulmonary ventilation, oxygenation, automated apnea monitoring)
 - ❑ (ii) Special intraoperative monitoring techniques (arterial line, pulmonary artery catheter)
-

Extubation

- (i) Verify the full reversal of neuromuscular block before extubation
 - (ii) Extubate patients after they are fully awake (*vs.* asleep or partially awake)
 - (iii) Extubate patients in the semiupright, lateral, or prone positions (*vs.* supine)
-

Postoperative management

a. Analgesic use

- (i) Regional analgesic techniques without neuraxial opioids *versus* systemic opioids
 - (ii) Neuraxial opioids *versus* systemic opioids
 - (iii) Oral analgesics *versus* parenteral opioids
 - (iv) PCA without a background infusion *versus* PCA with a background infusion
 - (v) Titration or lower dosage levels of systemic opioids
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Oxygenation

- (i) Supplemental oxygen *versus* no supplemental oxygen
 - (ii) CPAP *versus* no CPAP (oxygen or room air)
 - (iii) CPAP for patients who had previously been on CPAP *versus* CPAP for patients not previously on CPAP
 - (iv) NIPPV *versus* no NIPPV (CPAP, oxygen, or room air)
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POSITIONING

- Positioning patients in the lateral, prone, or tonsil position *versus* the supine position
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POSITIONING

Supine position should be avoided when possible during the recovery from anesthesia.

MONITORING

- ❑ Telemetry monitoring systems *versus* no telemetry monitoring systems.
 - ❑ Monitored settings *versus* routine hospital wards.
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MONITORING

- ❑ Continuous oximetry in a stepdown unit or by telemetry reduces the likelihood of perioperative complications among patients who they believe are at increased perioperative risk from OSA.
 - ❑ The consultants agree that pulse oximetry should be continuously monitored while these patients are in bed.
 - ❑ Pulse oximetry should be continuously monitored until these patients are no longer receiving parenteral narcotics.
 - ❑ Pulse oximetry should be applied until room air oxygen saturation remains above 90% during sleep.
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Inpatient versus Outpatient Surgery and Criteria for Discharge to Unmonitored Settings

When patients at increased perioperative risk from OSA are anesthetized as outpatients, the facility should have

- ❑ emergency difficult airway equipment,
- ❑ availability of respiratory care equipment (nebulizers, CPAP equipment, ventilators)
- ❑ radiology facilities (for portable chest x-ray),
- ❑ clinical laboratory facilities (blood gases, electrolytes).
- ❑ transfer arrangement with an inpatient facility should be in place.

The Task Force believes that patients who are at significantly increased risk of perioperative complications are generally not good candidates for surgery in a freestanding outpatient facility.

Duration of Stay

- Extended stay in PACU *versus* no extended stay in PACU
 - Hospital admission *versus* discharge home
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Duration of Stay

Patients with OSA should be monitored for a median of 3 h longer than their non-OSA counterparts before discharge from the facility.

Monitoring of patients with OSA should continue for a median of 7 h after the last episode of airway obstruction or hypoxemia while breathing room air in an unstimulating environment.

RECAP

- ❑ OSA is very common.
 - ❑ OSA is often undiagnosed.
 - ❑ Talk to your patients about awareness of obstructive sleep apnea.
 - ❑ Make Surgery safer for patients with obstructive sleep apnea.
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TEAM WORK FOR SUCCESS

