MedStar Georgetown University Hospital

Department of Anesthesia	
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Sleep Apnea Syndrome (Adults)	9111
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POLICY:

Patients with diagnosed or suspected obstructive sleep apnea (OSA) have an increased perioperative risk, especially in the postoperative period. It is the policy of MedStar Georgetown University Hospital to screen adult patients for obstructive sleep apnea and to provide individualized monitoring based on the results of the screening, type of procedure and pain management requirements. (See Hospital Policy #147)

Our practice is intended to be consistent with the American Society of Anesthesiologists Practice Guideline for the Perioperative Management of Patients with Obstructive Sleep Apnea (published in Anesthesiology 2006; 104:1081-93 and on the ASA website). Portions of the Guideline are incorporated verbatim in this policy.

DEFINITIONS:

Apnea is defined as the absence of airflow at the nose and mouth for longer than 10 seconds.

Obstructive Sleep Apnea (OSA) is the occurrence of more than 30 episodes of apnea in 7 hours. The obstruction is due to the collapse of the upper airway. It is estimated that 2-9% of women and 4-24% of men ages 30-60 have OSA. Although OSA may be suspected based on history and physical exam, polysomnography is usually required for a definitive diagnosis.

Suspected OSA

OSA may be suspected based on a score of 48 points or more on the screening tool (see below) or based on other findings on history and/or physical exam.

Historical factors associated with OSA are:

- Witnessed episodes of apnea
- Nighttime choking or gasping
- Snoring (loud enough to be heard through a closed door)
- Daytime sleepiness
- Chronic nasal obstruction
- Morning headaches
- Congestive heart failure
- Decreased libido
- Depression
- Lethargy
- Memory loss
- Personality changes
- Unexplained nocturia

Physical findings associated with OSA are:

- Obesity (especially morbid obesity)
- Large neck circumference
- Hypertension
- Narrowing of posterior pharynx
- Enlarged tonsils, uvula or palatal structures
- Skeletal deformities (e.g. micrognathia)
- Neuromuscular disease

PROCEDURE:

I. **Screening**

A. On admission, all adult inpatients will be asked for a history of sleep apnea and (if negative for history) will be screened for sleep apnea using the following screen:
   1. Neck circumference measured in centimeters and convert to points.
   2. Positive history of hypertension (add 4 points)
   3. Positive history of snoring (add 3 points)
   4. Positive night-time choking or gasping (add 3 points)

B. The score will be tallied and placed on the Patient Admission Database. (A score of 48 points or more is considered high risk for OSA.)

C. For those patients expected to receive anesthesia, anesthesia providers will review the results of the sleep apnea screen and obtain additional history as indicated. This information will be recorded on the Pre-Anesthesia Evaluation form.

D. Sleep Medicine referral should be obtained if sleep-disordered breathing is suspected. The decision to defer sleep evaluation until the postoperative period should be made jointly by the attending surgeon and consultant anesthesiologist. A preoperative sleep evaluation may lead to treatment (such as CPAP) which will decrease the risk of apnea in the postoperative period.

II. **Pre-Operative Preparation of the Patient with OSA**

A. The patient and his or her family as well as the surgeon should be informed of the potential implications of OSA on the patient's perioperative course.

B. Treatment of OSA (e.g. CPAP, oral appliance, weight loss) should begin in the preoperative period. Continuation of this treatment in the postoperative period should be planned (unless contraindicated by the surgical procedure).

C. Possible difficult airway should be anticipated.

III. **Intraoperative Management of the Patient with OSA**

A. Patients at increased perioperative risk from OSA are especially susceptible to the respiratory depressant and airway effects of sedatives, opioids, and inhaled anesthetics; therefore, in selecting intraoperative medications, the potential for postoperative respiratory compromise should be considered.

B. The use of local anesthesia or peripheral nerve blocks rather than general anesthesia may improve outcomes in patients undergoing peripheral surgery. The use of major conduction anesthesia (*i.e.*, spinal or epidural) rather than general anesthesia may improve outcomes for peripheral surgery.

C. Patients at increased perioperative risk from OSA should be extubated when fully awake, and full reversal of neuromuscular blockade should be verified before extubation. These patients should be placed in the semiupright position for extubation and recovery. Prophylactic insertion of a nasal trumpet prior to extubation may decrease the likelihood of apnea in the early postoperative period.

D. Respiratory carbon dioxide monitoring should be used during moderate or deep sedation in these patients.
E. A secured airway is often preferable to moderate or deep sedation for patients with OSA undergoing procedures involving the upper airway (*e.g.*, upper endoscopy, bronchoscopy, uvulopalatopharyngoplasty).
F. One should consider administering CPAP or using an oral appliance during sedation for patients previously treated with these modalities.
G. Regional analgesic techniques should be considered to reduce or eliminate the requirement for systemic opioids in patients at increased perioperative risk from OSA. Nonsteroidal anti-inflammatory agents and other modalities (*e.g.*, ice, transcutaneous electrical nerve stimulation) should be considered if appropriate to reduce opioid requirements. Likewise, consideration should be given to reducing or eliminating opioids from neuraxial solutions given for anesthesia or post-operative analgesia.

IV. **Postoperative Management of the Patient with OSA**

A. Continuous pulse oximetry is required for all OSA patients receiving IV PCA or epidural PCA opioids (with or without a basal rate). ICU admission is required for all OSA patients receiving IV or epidural PCA opioids with a continuous component (i.e. basal rate).
B. Supplemental oxygen should be administered continuously to all patients who are at increased perioperative risk from OSA until they are able to maintain their baseline oxygen saturation while breathing room air (without stimulation).
C. These patients should not be discharged from the recovery area to an unmonitored setting (*i.e.*, home or unmonitored hospital bed) until they are no longer at risk for postoperative respiratory depression. Because of their propensity to develop airway obstruction or central respiratory depression, this may require a longer stay as compared with non-OSA patients undergoing similar procedures. Adequacy of postoperative respiratory function may be documented by observing patients in an unstimulated environment, preferably while they seem to be asleep, to establish that they are able to maintain their baseline oxygen saturation while breathing room air.
D. It is not appropriate to discharge a patient with OSA from a monitored setting to an unmonitored setting when the use of narcotic analgesics is increasing. A stable analgesic regimen should be established or, weaning of narcotics should begin prior to discontinuing pulse oximetry.
E. The anesthesiologist will advise the surgical service that OSA patients receiving general anesthesia should be admitted overnight with continuous pulse oximetry even if they are scheduled as "SDS"). Exceptions can be made for superficial, non-invasive or semi-invasive procedures provided that narcotic doses are low, there is little or no postoperative pain, and respiratory recovery is complete (as described above). Examples of the types of procedures that might be excepted from overnight admission are inguinal hernia repair (without laparoscopy), diagnostic and interventional radiologic procedures and endoscopic procedures.
F. The anesthesiologist or anesthesia care team should do the following:
    - Inform PACU nurses of presumptive/definitive diagnosis of OSA
    - Inform surgical service of presumptive/definitive diagnosis of OSA and need for additional monitoring.
    - Consider order for CPAP and/or Respiratory Therapy Consult.
    - Advise surgical service to refer patient for Sleep Medicine consult, if definitive diagnosis not already established.

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