Practice Guidelines for the Perioperative Management of Patients with Obstructive Sleep Apnea: An Updated Report

American Society of Anesthesiologists

Bibliography by Section

I. Preoperative Evaluation

Medical records review (including patient characteristics likely found in medical records).

Obesity:

Nonrandomized comparative studies: OSA versus non-OSA patients


Nonrandomized comparative studies: obese versus non-obese patients

17. Coté CJ, Posner KL, Domino KB: Death or neurologic injury after tonsillectomy in children with a focus on Obstructive Sleep Apnea: Houston, We Have a Problem! Anesth Analg 2013; Jul 10. [Epub ahead of print]

Observational studies, case reports, or non-pertinent comparison groups

16. Lorch DG, Sahn SA: Post-extubation pulmonary edema following anesthesia induced by upper airway obstruction. Are certain patients at increased risk? Chest 1986; 90:802-805

**Patient history of cardiac arrhythmia, hypertension or stroke:**

**Nonrandomized comparative studies: OSA versus non-OSA patients**


Nonrandomized comparative studies: patient history of cardiac arrhythmia, hypertension or stroke versus no history of cardiac arrhythmia, hypertension or stroke


Observational studies, case reports, or non-pertinent comparison groups


**Other patient conditions:**

**Nonrandomized comparative studies:**


Observational studies, case reports, or non-pertinent comparison groups


Cephalometric measurement:

Nonrandomized comparative studies:

9. Biddle C: Orocephalometry and airway control in obese sleep-disordered breathers, obese normals, and matched controls undergoing general anesthesia. CRNA 1994; 5:97-103

Observational studies, case reports, or non-pertinent comparison groups

Sleep studies:

Observational studies, case reports, or non-pertinent comparison groups:


Patient/family interview and screening protocol.

Patient interview:

Observational studies, case reports, or comparisons without pertinent control groups


Family interview:

Observational studies, case reports, or non-pertinent comparison groups


Screening questionnaire or protocol:

Nonrandomized comparative studies:


Observational studies, case reports, or comparisons without pertinent control groups


22. Weatherwax KJ, Lin X, Marzec ML, Malow BA: Obstructive sleep apnea in epilepsy patients: the Sleep Apnea scale of the Sleep Disorders Questionnaire (SA-SDQ) is a useful screening instrument for obstructive sleep apnea in a disease-specific population. Sleep Med 2003; 4:517-521


**Focused physical examination.**

*Physical characteristics of patient (neck circumference, tonsil size, tongue volume):*

*Nonrandomized comparative studies*


*Observational studies, case reports, or non-pertinent comparison groups*


Characteristics of the airway:

Nonrandomized comparative studies

2. Biddle C: Orocephalometry and airway control in obese sleep-disordered breathers, obese normals, and matched controls undergoing general anesthesia. CRNA 1994; 5:97-103
Observational studies, case reports, or comparisons without pertinent control groups


Laryngoscopic assessment:

Nonrandomized comparative studies


Observational studies, case reports, or comparisons without pertinent control groups

II. Preoperative Preparation

Preoperative treatment/optimization for OSA (e.g., CPAP, BIPAP, mandibular appliances, medical treatment).

Preoperative CPAP vs no CPAP:

Nonrandomized comparative studies

Observational studies, case reports, or non-pertinent comparison groups


CPAP vs no CPAP (non- perioperative studies):

Randomized controlled trials


Observational studies, case reports, or non-pertinent comparison groups


**Noninvasive bilevel positive pressure ventilation versus no noninvasive bilevel positive pressure ventilation (non-perioperative studies):**

*Observational studies, case reports, or non-pertinent comparison groups*


**Mandibular appliance vs no mandibular appliance (non-perioperative studies):**

*Randomized controlled trials*


Observational studies, case reports, or non-pertinent comparison groups
CPAP vs mandibular appliance (non- perioperative studies):

**Randomized controlled trials**


**Other preoperative treatment (non- perioperative studies):**

**Randomized controlled trials**


**ASA algorithm:**

**Observational studies, case reports, or non-pertinent comparison groups**

2. Biddle C: Orocephalometry and airway control in obese sleep-disordered breathers, obese normals, and matched controls undergoing general anesthesia. CRNA 1994; 5:97-103

III. Intraoperative Management

Anesthetic technique.

Local or regional anesthesia versus general anesthesia:

Observational studies, case reports, or comparisons without pertinent control groups


Intraoperative Monitoring.

Continuously monitor the respiratory depressant effects of sedatives and/or opioids (e.g., level of consciousness, pulmonary ventilation, oxygenation, automated apnea monitoring):

Observational studies, case reports, or comparisons without pertinent control groups


Extubation.

Awake vs asleep extubation:

Observational studies, case reports, or comparisons without pertinent control groups


IV. Postoperative Management

Analgesic use.

Regional (central or peripheral) analgesic techniques without neuraxial opioids versus systemic (im, sc, iv, oral, rectal) opioids:

Observational studies, case reports, or comparisons without pertinent control groups

Neuraxial (spinal & epidural) opioids versus systemic (im, sc, iv, oral, rectal) opioids:

Observational studies, case reports, or comparisons without pertinent control groups


Oral analgesics (opioids/NSAIDs) versus parenteral (im, sc, iv) opioids:

Observational studies, case reports, or comparisons without pertinent control groups


PCA without a basal infusion versus PCA with a basal infusion:

Observational studies, case reports, or comparisons without pertinent control groups


Lower dosages versus higher dosages:

Randomized controlled trials


Observational studies, case reports, or comparisons without pertinent control groups

1. Brown KA, Laferriere A, Moss IR: Recurrent hypoxemia in young children with obstructive sleep apnea is associated with reduced opioid requirement for analgesia. Anesthesiology 2004; 100:806-810

Oxygenation.

Supplemental oxygen versus no supplemental oxygen:

Observational studies, case reports, or comparisons without pertinent control groups

**Postoperative CPAP versus no CPAP (oxygen or room air):**

**Randomized controlled trials**


**Nonrandomized comparative studies**


**Observational studies, case reports, or comparisons without pertinent control groups**


**Postoperative noninvasive bilevel positive pressure ventilation versus CPAP:**

**Randomized controlled trials**


**Postoperative noninvasive bilevel positive pressure ventilation versus oxygen or room air:**

**Randomized controlled trials**


Positioning patients in the lateral, prone, or tonsil position versus the supine position.

*Randomized controlled trials*


*Nonrandomized comparative studies*

5. George CF, Millar TW, Kryger MH: Sleep apnea and body position during sleep. Sleep 1988; 11:90-99
12. Penzel T, Moller M, Becker HF, Knaack L, Peter JH: Effect of sleep position and sleep stage on the collapsibility of the upper airways in patients with sleep apnea. Sleep 2001; 24:90-95

**Observational studies, case reports, or non-pertinent comparison groups**


**Postoperative Monitoring.**

*Telemetry monitoring systems (pulse oximetry, ECG, or ventilation) versus no telemetry monitoring systems:*

**Observational studies, case reports, or non-pertinent comparison groups**


**Monitored settings (observational, stepdown, ICU) versus routine hospital wards:**

*Observational studies, case reports, or non-pertinent comparison groups*


**V. Discharge Criteria**

**Hospital admission versus discharge home.**

*Observational studies, case reports, or comparisons without pertinent control groups*