Estimation of Postoperative Risk of Complications from Sleep Apnea

Vancouver Acute Department of Anesthesia and Perioperative Care - January 2014

1. Preanesthesia Evaluation: Prediction of *Baseline Risk*

Severity of OSA[1]

OSA screening:[2,3]
- high probability of moderate-severe OSA if STOP-BANG score ≥ 5

OSA diagnosis:[4] sleep medicine consult
- sleep study: polysomnography, or multichannel portable, or overnight oximetry
- severity: AHI or daytime somnolence

AHI 5-15:	mild
AHI 15-30:	moderate
AHI > 30:	severe

• in context of baseline risk estimation, OSA can be regarded as 1 level "less severe" if compliant with PAP therapy preoperatively, & appliance used consistently postoperatively[1]

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Severity of Comorbid Disease[5,6]

Morbid obesity
Respiratory failure
OLD/RLD
Heart failure
IHD
Significant dysrhythmia
Refractory systemic HTN
Pulmonary HTN
CVA or TIA
(Pregnancy)

• SpO_2 < 94% &/or $PaCO_2$ > 50 mmHg may indicate severe OSA / sleep hypoventilation syndrome[7,1]

• HCO_3 > 27 may indicate ↑ $PaCO_2$[8]

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Impact of Surgery & Anesthesia[1]

Surgery: airway or major* > peripheral or superficial
*e.g. major intracavitary/spine

Anesthesia: GA > sedation > no sedation

• ? postoperative airway edema
- surgical/IV fluids/position

• ↓ lung volumes → ↓ longitudinal traction on pharynx[9]

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Postoperative Opioid Requirement[1]

Higher risk: > low dose PO[7], parenteral[1], neuraxial[1]

Lower risk: low dose PO opioid[1] ≤ codeine 30-60 mg PO Q4H, or equivalent[7]

• safest to avoid opioids, if possible

• delayed respiratory depression possible with neuraxial bolus of long-acting opioid[10]

- If a patient is at ↑ **baseline risk** of postoperative complications from sleep apnea, and the patient is **not on sleep apnea treatment**, then a preoperative ***sleep medicine consultation*** is strongly recommended, and deferral of elective surgery may be required.
- ***PAP therapy*** should be established preoperatively[4] to ↑ chances of postoperative compliance, and to potentially improve comorbidities secondary to sleep apnea. Patients unable or unwilling to use PAP therapy should be considered for alternative treatment modalities prior to surgery.

2. PACU: Observation for *Postoperative Indicators* of risk

- **recurrent respiratory events**[11] (apneas ≥ 10 s, or bradypneas < 8/min, or desaturations < 90%, or airway obstruction interventions)**, or**
- **newly required PAP therapy**[12]**, or**
- **respiratory failure**[1] (baseline room air SpO_2 < 90%, or increasing FiO_2 requirement, or $PaCO_2$ > 50 mmHg) **, or**
- **significant risk of myocardial ischemia or dysrhythmia**[4] (cardiac monitoring indicated) **, or**
- **opioid or sedative requirement not stabilized** (including uncontrolled pain/delirium) **, or**
- **pain-sedation mismatch**[11] (high pain & sedation scores concurrently)

- If a patient with sleep apnea is at ↑ **baseline risk** of postoperative complications from sleep apnea, **or** if there are any **postoperative indicators** of risk, then ongoing care in a ***monitored bed*** should be considered (i.e. continuous oximetry monitoring & possibility of early nursing intervention), e.g. PACU, SDU, other Critical Care Unit, or remote oximetry by telemetry on surgical ward[1,7]. Also consider cardiac monitoring if patient at ↑ risk of myocardial ischemia or dysrhythmia[4].
- A ***Respirology consult*** is indicated if **PAP therapy is newly required postoperatively**, **or** if a patient with sleep apnea is in **respiratory failure.**
- ***Supplemental O_2* may prolong apneas, exacerbate hypercapnia, & hinder detection of respiratory deterioration by SpO_2**[1]

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