

Perioperative Management of Obstructive Sleep Apnea

Immunologic Teaching · CA-1

THE QUESTION

Where the evidence disagrees

This topic was selected because an evidence synthesis beats a textbook on it: the trials disagree, or the guidance has moved recently.

THE EVIDENCE

What each source contributes, and how strong it is

Study design first — a cohort and a randomised trial do not carry the same weight.

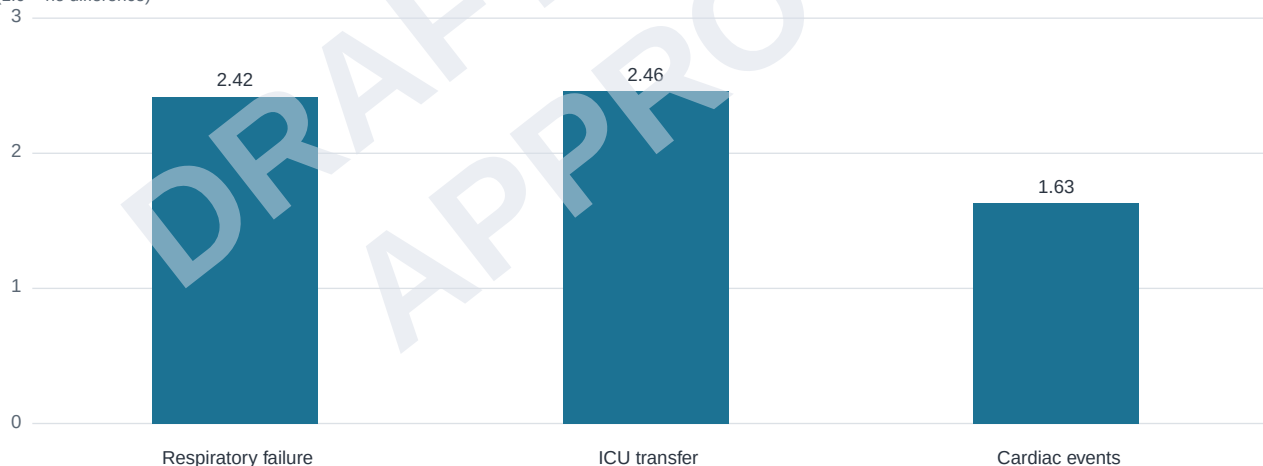
Design	Year	Journal	What it found
Other	2018	Minerva anesthesiologica	OSA increases OR ventilation/intubation difficulty
Other	2021	Anesthesia and analgesia	Anesthetics/Sedatives worsen airway collapse, depress respiration
Other	2017	Surgery for obesity and related di	Monitor OSA patients post-bariatric surgery with pulse oximetry
Other	2016	Anesthesia and analgesia	Airway management difficult post-op in OSA patients

4 resolved citations behind this deck; every point above traces to one of them.

THE NUMBERS

The excess risk is respiratory first, cardiac second

odds ratio (1.0 = no difference)



Roughly a doubling of respiratory failure and unplanned ICU transfer. The plan that follows is about ventilation and monitoring, not about cancelling the case.

Kaw et al., J Clin Anesth 2014 (meta-analysis, 17 studies) · PMID 25439403

IN PRACTICE

What the cohorts and reviews add

4 findings, each on the slide that follows.

OSA increases OR ventilation/intubation difficulty

OSA patients have a higher risk of both difficult ventilation and intubation in the operating room.

Anesthetics/Sedatives worsen airway collapse, depress respiration

Anesthetic and sedative drug agents worsen upper airway collapsibility and depress central respiratory activity.

Monitor OSA patients post-bariatric surgery with pulse oximetry

OSA patients undergoing bariatric surgery should be continuously monitored with pulse oximetry in the early postoperative period.

Airway management difficult post-op in OSA patients

Difficulty in airway management is a common complication in OSA patients undergoing surgery, occurring intraoperatively, in the PACU, or on surgical...

IN PRACTICE

OSA increases OR ventilation/intubation difficulty

Other · Minerva anestesiologica

OSA patients have a higher risk of both difficult ventilation and intubation in the operating room.

Perioperative management of obstructive sleep apnea: a systematic review, Minerva anestesiologica 2018 · PMID 28402089

IN PRACTICE

Anesthetics/Sedatives worsen airway collapse, depress respiration

Other · Anesthesia and analgesia

Anesthetic and sedative drug agents worsen upper airway collapsibility and depress central respiratory activity.

Perioperative Management of the Patient With Obstructive Sleep Apnea: A Narrative Review, Anesthesia and analgesia 2021 · PMID 33857965

IN PRACTICE

Monitor OSA patients post-bariatric surgery with pulse oximetry

Other · Surgery for obesity and related di

OSA patients undergoing bariatric surgery should be continuously monitored with pulse oximetry in the early postoperative period.

Perioperative management of obstructive sleep apnea in bariatric surgery: a consensus guideline, Surgery for obesity and related diseases : official journal of the American Society for Bariatric Surgery 2017 · PMID 28666588

IN PRACTICE

Airway management difficult post-op in OSA patients

Other · Anesthesia and analgesia

Difficulty in airway management is a common complication in OSA patients undergoing surgery, occurring intraoperatively, in the PACU, or on surgical floors.

Perioperative Complications in Obstructive Sleep Apnea Patients Undergoing Surgery: A Review of the Legal Literature, Anesthesia and analgesia 2016 · PMID 26111263

IN THE ROOM

What this changes about the next case

Colour is the strength of the evidence behind each step, not the urgency.

- 1**
OSA patients have a higher risk of both difficult ventilation and intubation in the operating room.
- 2**
Anesthetic and sedative drug agents worsen upper airway collapsibility and depress central respiratory activity.
- 3**
OSA patients undergoing bariatric surgery should be continuously monitored with pulse oximetry in the early postoperative period.
- 4**
Difficulty in airway management is a common complication in OSA patients undergoing surgery, occurring intraoperatively, in the PACU, or on surgical floors.

KEY TAKEAWAYS

What to carry into the next case

OSA increases OR ventilation/intubation difficulty

Minerva anesthesiologica 2018

Anesthetics/Sedatives worsen airway collapse, depress respiration

Anesthesia and analgesia 2021

Monitor OSA patients post-bariatric surgery with pulse oximetry

Airway management difficult post-op in OSA patients

Anesthesia and analgesia 2016

OSA patients face higher risks for difficult airways and respiratory depression during and after anesthesia; monitor closely.

QUESTIONS I'LL ASK YOU IN THE ROOM

1. How does OSA impact airway management during induction?
2. What are the specific risks associated with postoperative respiratory depression in OSA patients?
3. How might preoperative CPAP use affect anesthetic requirements?
4. What monitoring strategies are particularly important for OSA patients intraoperatively?

ORAL BOARDS STEM

A 52-year-old with a BMI of 44 and untreated obstructive sleep apnea presents for laparoscopic cholecystectomy and will need postoperative opioids.

BOARD QUESTIONS

1. In a meta-analysis of 17 studies and 7,162 surgical patients, what was the odds ratio for postoperative respiratory failure in patients with obstructive sleep apnoea compared with those without?
 - A. 2.42
 - B. 1.63
 - C. 5.10
 - D. 1.05
2. Given that OSA roughly doubles the odds of postoperative respiratory failure and unplanned ICU transfer, what does that evidence actually justify doing, and what does it not justify?
3. Heterogeneity was low in this meta-analysis for respiratory failure and cardiac events, with I^2 values of 5% and 0%. Why does that matter when you quote these odds ratios?

ANSWER KEY

1. A. 2.42

Respiratory failure OR 2.42, ICU transfer OR 2.46, cardiac events OR 1.63. The excess risk is respiratory first and cardiac second, which is what shapes the monitoring plan.

Kaw et al., Postoperative complications in patients with obstructive sleep apnea: a meta-analysis, J Clin Anesth 2014 · PMID 25439403

2. It justifies planning for a respiratory risk that is roughly doubled: anticipating airway and ventilation problems, and monitoring accordingly. It does not justify cancelling or deferring surgery on the basis of an OSA diagnosis alone — the meta-analysis measured associations with complications among patients who had surgery, and says nothing about the outcomes of postponement.

An odds ratio for a complication tells you how to prepare, not whether to proceed.

Kaw et al., Postoperative complications in patients with obstructive sleep apnea: a meta-analysis, J Clin Anesth 2014 · PMID 25439403

3. Low I^2 means the included studies produced relatively consistent effect estimates rather than disagreeing with one another, so the pooled odds ratio is summarising a coherent set of results rather than averaging conflicting ones. It says nothing about risk of bias within those studies, which still matters. The authors also report that results did not materially change in sensitivity analyses across different inclusion criteria.

Consistency between studies and quality of studies are different questions. I^2 answers only the first.

Kaw et al., Postoperative complications in patients with obstructive sleep apnea: a meta-analysis, J Clin Anesth 2014 · PMID 25439403

OSA patients face higher risks for difficult airways and respiratory depression during and after anesthesia; monitor closely.

SOURCES

- [1] Perioperative management of obstructive sleep apnea: a systematic review, Minerva anesthesiologica 2018 · PMID 28402089
- [2] Perioperative Management of the Patient With Obstructive Sleep Apnea: A Narrative Review, Anesthesia and analgesia 2021 · PMID 33857965
- [3] Perioperative management of obstructive sleep apnea in bariatric surgery: a consensus guideline, Surgery for obesity and related diseases : official journal of the American Society for Bariatric Surgery 2017 · PMID 28666588
- [4] Perioperative Complications in Obstructive Sleep Apnea Patients Undergoing Surgery: A Review of the Legal Literature, Anesthesia and analgesia 2016 · PMID 26111263

DRAFT — NOT
APPROVED