

# Episode 90: OSA

On this episode: Dr. Jed Wolpaw

In this episode, episode 90, I discuss best practices for preoperative management of adults with Obstructive Sleep Apnea (OSA).

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## Prevalence

- Prevalence 10% to 18% in adults
- Prevalence 70% in bariatric surgery

## Apnea Hypopnea Index

- Apnea hypopnea index (AHI) is used for diagnosis of OSA and grading of severity → number of apnea and hypopnea episodes per hour
  - o < 5 is normal
  - o 5 to 14 is mild
  - o 15 to 29 is moderate
  - o ≥ 30 is severe
- Hypopnea = respiratory flow drop of ≥ 30% or saturation drop ≥ 4% compared to baseline for at least 10 seconds
- Apnea = respiratory flow drop of ≥ 90% compared to baseline for at least 10 seconds

## STOP-Bang Score

- STOP-Bang score for screening most widely used and validated → yes = 1 point
  - o S = snore loudly
  - o T = tired
  - o O = observed → observed stopping breathing or choking/gasping during sleep
  - o P = pressure → high blood pressure
  - o B = BMI > 35
  - o A = age > 50
  - o N = neck circumference > 43cm in men and 41cm in women
  - o G = male gender
- [Chung and colleagues](#) first published score in 2016, used cut off of 3 for mild OSA
  - o Sensitivity 83.6%; specificity 56.4%
- Most places use cut-off of 4 to balance sensitivity and specificity
- No modifications are well validated

## Comorbidities

- Obesity
- Hypertension
- History of stroke
- History of myocardial infarction
- Diabetes
- Downs syndrome
- Neuromuscular diseases
- Associated with difficult airway management

## Screening

- Ideal is polysomnography (sleep study; gold standard for screening) at clinic
  - History:
    - o Look at past records
    - o Ask STOP-Bang score
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- Ask about morning headaches which are associated with OSA
  - Physical exam:
    - Craniofacial abnormalities
    - Airway
    - Anatomical nasal obstruction
    - Neck circumference
    - Tonsil size
    - Tongue size

## Pediatric Associated Risk Factors

- Intermittent vocalization at night
- Restless sleep
- Night terror
- Sleeping in unusual positions
- New onset enuresis
- Daytime somnolence
- Falling asleep when not stimulated eg. sitting in car
- Easily distracted
- Overly aggressive
- Irritable
- Difficult concentrating
- Difficult to arouse

## Management

- In-patient vs. out-patient surgery → discuss with surgeon; depends on:
  - Severity of OSA
  - Intensity of surgery
  - How much post-op opioid required
- Avoid opioids with multimodal analgesia (eg. regional blocks, IV lidocaine, IV ketamine, IV magnesium, Tylenol, NSAIDs, pre-operative gabapentin)
  - If have to use opioids, try to use short-acting opioids (eg. remifentanyl)
- Careful with heavy sedation → secure airway if using deep sedation
- Use mandibular advancement device or CPAP if they use it at home and not intubated
- If using neuromuscular blockade, ensure fully reversed
- Extubate awake
- When waking, have patient in lateral or semi-upright position
- Higher risk for being at difficult airway with mask ventilation and intubation → have back-up plan (eg. Glidescope or C-MAC in room)
- Higher risk for coronary events → careful monitoring of blood pressure
- Consider doing surgery in semi-upright position or on RAMP
  - RAMP prevents pharyngeal closure, increases total lung volume, better visualization during intubation

## Post-operative Management

- Consider keeping patient on monitoring for longer post-operatively because higher risk for post-operative respiratory complications
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- Higher risk post-operative respiratory depression
  - Opioids, sedatives, invasiveness of procedure increases potential of apnea on post-op day 3 and 4 → higher risk of obstruction during REM sleep
    - o REM rebound on post-op day 3 and 4
  - Post-operative use of home CPAP → CPAP splints open airway, decreases inflammation and edema in airway
    - o Shown to have ↓perioperative cardiac morbidity and ↓admission to ICU
  - Have patient sleep prone, lateral, or sitting
  - Stay on O<sub>2</sub> in monitored setting until patient able to maintain baseline saturation on room air

## Summary

- OSA has high prevalence
- Lots of comorbidities and associated risks
- Screen patients with STOP-Bang
- Intra-operatively do multimodal analgesia to avoid opioids
- Secure airway in patients with deep sedation
- Limit opioids post-operatively
- Consider prolonged monitoring

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## References

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