Controversies in Ambulatory Anesthesia

Meena S. Desai, MD
Managing Partner
Nova Anesthesia Professionals

Disclosure
- No disclosures
- No conflict of interest

Speaker Background
Nova Anesthesia Professionals
President and CEO: Managing Partner
Operate Anesthesia Services for 45,000 cases yearly
ASC, OBA and Small Hospital
Vice-President of Society of Ambulatory Anesthesia (SAMBA)
AAAHC liaison from the American Society of Anesthesia (ASA)
Secretary of the BOD of AAAHC
Vice-Chair of Standards and Procedures Comm

Objectives
- Learn how to risk stratify the risk of Obesity: How big is too big for my center?
- Learn how to deal with OSA patients: Which ones do I do if at all?
- Learn the latest in AICD and pacemaker management for your ASC
- Learn how to risk stratify and deal with the Renal patient on dialysis

Prevalence
- Obesity worldwide increase
- Morbid obesity poses challenges
  - Technical challenges
  - Impacts healthcare personnel
  - Medical challenges
  - 60-70% of surgical procedures ambulatory
- If you are in an ASC you will meet this patient population
Measuring weight
- Body Mass Index
- BMI: Correlates with body fat
- BMI: Predictor of development of health problems
- BMI: WT (kg) divided by HT (m²)

BMI Classifications
- National Institutes of Health: BMI > 30
- Class I: BMI 30 - 34.9 ------ Obese
- Class II: BMI 35-39.9 ------ Morbid Obesity
- Class III: BMI > 40.0 ------ Extreme Obesity

Weighty Influence
- BMI > 30 = $1429 per person extra cost (41%)
- Payor Mix and Obesity Mix Prevalence
  - 36% Medicare
  - 47% Medicaid
  - 58% Private

Legal implications
- Laws: There is no federal OSHA ergonomics standard. The state OSHA programs in California and Washington have their own standards on ergonomics
- Litigation ramifications
Material Implications
- Higher BMI Capital Equipment
  - Stretchers and Chairs
  - Positioning Devices
  - Lifts
- Higher BMI Disposable Equipment
  - Airway Equipment
  - Positioning Items
  - Large gowns, cuffs etc

Clinical Implications
- Co-Morbidity associated with Obesity
  - Obstructive Sleep Apnea (OSA)
  - Hypertension (HTN)
  - Stroke (CVA)
  - Diabetes (Type II)
  - Depression

OSA
- 2006 ASA statement that was restrictive of airway and upper abdominal procedures
- 2011 SAMBA Review from the Clinical Guidelines Committee

Clinical Implications
- OSA patients may have the following:
  - Cardiac:
    - Systemic Hypertension
    - Coronary Artery Disease
    - Dysrhythmia’s
    - Cardiomyopathy
    - Congestive Heart Failure

Clinical Implications
- OSA has Higher incidence of:
  - Difficult intubation
  - Oxygen Desaturation and Hypoxemia
  - Increased use of Vasoactive drugs
  - Post operative Hypoxemia
- Not an increased incidence of:
  - Ventilatory assistance
  - Re-intubation
  - Unanticipated admission
Clinical Implications
- OSA is undiagnosed in 60-70% patients
- Failure to recognize OSA: Major cause of perioperative complications
- Screening for OSA is a MUST

OSA Screening
- STOP
  - S: Snoring. Loudly heard through doors
  - T: Tiredness. Fatigue and daytime sleepiness
  - O: Observed Apnea. Do you stop breathing in your sleep
  - P: Pressure. Hypertension

- BANG
  - B: BMI > 35 kg/m²
  - A: Age > 50 yrs
  - N: Neck circumference > 40 cm (16” women, 17” men)
  - G: Male Gender

OSA
- OSA risk high - presume OSA
- STOP BANG Score of >3 vs >6
- Unclear if sleep study improves outcome
- CPAP devices to ASC on day of procedure
- Discuss options of admission for monitoring if discharge criteria are not met

CPAP and BiPAP
- Optimal duration of peri-operative therapy pre-procedure ie hours of use for effects
- Severity of OSA based on Apnea Hypopnea Index or AHI
- Patients ability to comply with nighttime CPAP
- Vigilant Nighttime Companion

OSA Implications
- No sedation ----------------Deep Sedation/ GA
- OSA patients more sensitive to sedative hypnotics and opioids
- Dose dependent upper airway collapse
- Depression of Respiration
- Reduced drives of hypoxia and hypercapnia
- Which is the best drug?

OSA Implications
- Pain Management Plan
  - Minimize opioid related sedation
  - Local anesthetic field blocks
  - Consider Regional Block Anesthesia
  - Anesthetic adjuncts
    - Corticosteroids
    - Ketamine
  - Pre-op blocks for pain control
    - Interscalene, popliteal, femoral etc.
OSA Implications
- Enhanced Post Operative Considerations
- Appropriate polices for discharge and observation
  - Consider CPAP or BiPAP
  - Automatic CPAP/BiPAP
- ASA-OSA guidelines recommend observation for 3 hours longer than non OSA patients
- Pain Management Strategy
- Care after Discharge; Education and Plan

OSA Implications
- Low Risk Stratification will involve no additional sleep apnea considerations
- High Risk Stratification will involve the following strategy:
  1. Minimally Invasive Procedures
     - No narcotics
     - Minimal Sedatives
     - Prolonged PACU observation and specific discharge criteria

OSA Policy
2. Moderately Invasive Procedures
   - Those that cannot be treated with a moderate amount of peri-operative narcotics (less than 5ug/kg) are recommended to undergo sleep studies to triage the severity of their disease.
   - Those that can be managed with minimal parenteral narcotics in PACU are observed for 2-3hrs until specific discharge criteria are met.
   - If at any time discharge criteria cannot be met in the mod-high risk sleep apnea population they are transferred to a hospital for overnight monitored stay.

OSA Implications
- Uncertainty remains
- The more complicated the patient the greater chance of problems
- Reports of ambulatory patients with BMI 35-50
- Range is due to complexity of patient, resources of the center, skill of surgeon

Implanted Cardiac Devices

CIED (cardiovascular implantable electronic device)

Oversensing
- Biggest concern with EMI (electromagnetic interference)
- Variable by model and manufacturer
- Application of magnet may permanently turn functions off
- Upper chest implants less likely to have interference below umbilicus and lower extremities
- Apply magnet if significant inhibition is observed
- Always have a magnet available

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### Interrogation post-procedure

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Note-to-electrocautery</td>
<td>CIED evaluated within 1 month from procedure unless Table 9 criteria are fulfilled</td>
</tr>
<tr>
<td>External cardioversion</td>
<td>CIED evaluated prior to discharge or transfer from cardiac telemetry</td>
</tr>
<tr>
<td>Radiofrequency ablation</td>
<td>CIED evaluated prior to discharge or transfer from cardiac telemetry</td>
</tr>
<tr>
<td>Electrocardiography</td>
<td>CIED evaluated within 1 month from procedure unless fulfilling Table 9 criteria</td>
</tr>
<tr>
<td>Vascular studies (BMS)</td>
<td>No additional CIED evaluation beyond routine</td>
</tr>
<tr>
<td>Local procedures</td>
<td>No additional CIED evaluation beyond routine</td>
</tr>
<tr>
<td>Therapeutic radiation</td>
<td>CIED evaluated prior to discharge or transfer from cardiac telemetry; some instances may indicate interrogation after treatment (see bed)</td>
</tr>
</tbody>
</table>

### Interrogation of CIED

<table>
<thead>
<tr>
<th>Table 9 Interrogation of CIEDs prior to patient discharge or transfer from a cardiac telemetry environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients with CIEDs reprogrammed prior to the procedure that left the device nonfunctional such as disabling tachycardia detection on an ICD</td>
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<tr>
<td>Patients with CIEDs in challenging surgeries such as cardiac surgery or significant vascular surgery (e.g., abdominal aortic aneurysm repair)</td>
</tr>
<tr>
<td>Patients with CIEDs who experienced significant intraoperative events including cardiac arrest requiring resuscitation and those who required extracorporeal membrane oxygenation and those who required extracorporeal membrane oxygenation</td>
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<tr>
<td>Emergent surgery when the site of ICD exposure was above the umbilicus</td>
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<tr>
<td>Cardiovascular surgery</td>
</tr>
<tr>
<td>Patients who underwent certain types of procedures (Table 8) that meet BMI with a greater probability of affecting device function</td>
</tr>
<tr>
<td>Patients with CIEDs who have logistical limitations that would prevent reliable device evaluation within one month from their procedure</td>
</tr>
</tbody>
</table>

* CIED = Cardiac implantable electrical device.

### CIED Summary
- Pacemaker and AICD reports
- Team approach is recommended
- Review on Surgical Safety Checklist
- CIED Report: Verify and place on chart
- Check underlying rhythm
- Make sure discharge instructions include information on follow-up

### Renal Disease
- Acute Renal Disease
- Chronic Renal Disease
- End Stage Renal Disease
- Renal Transplant Patient
### Renal Disease Screening

**Perioperative Evaluation for Renal Patients**

**Renal History**

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
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**Present Medical History**

- **Type of Dialysis:**
  - Peritoneal
  - Catheter
  - Fistula

- **Dry Weight:**
  - _____ CHF HX
  - _____ Graft
  - _____ Peritoneal

- **Do you urinate?**
  - Yes
  - No

- **TB HX:**
  - Yes
  - No

- **Dialysis Schedule:**
  - Yes
  - No

- **Last Dialysis Date:**
  - _____

**Sleeping Patterns**

- **Insomnia:**
  - Yes
  - No

- **Number of Pillows Used:**
  - _____

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### References


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### Questions?

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