

## Controversies in Ambulatory Anesthesia

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### Disclosure

- No disclosures
- No conflict of interest

### Speaker Background

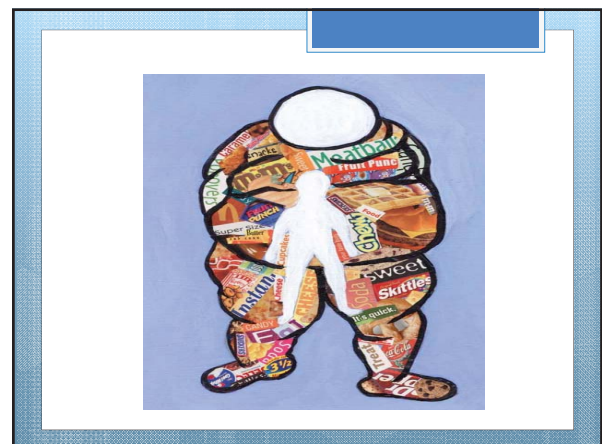
Nova Anesthesia Professionals  
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Operate Anesthesia Services for 45,000 cases yearly  
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### Objectives

- 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 (m<sup>2</sup>)

### 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

### Weighty Influence

- Cost to Center
- Technical Items
- Capital items
- Patient care Items
- Staff Items



### 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 11)
  - 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

- Respiratory
  - Restrictive Lung Disease
  - Asthma
  - Pulmonary Hypertension
- Metabolic Syndrome

## 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/m<sup>2</sup>
- **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
- Analgesic adjuncts
  - Corticosteroids
  - Ketamine
- Pre-op blocks for pain control
  - Interscalene, popliteal, femoral etc.



## OSA Implications

- Enhanced Post Operative Considerations
- Appropriate policies 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

### The Heart Rhythm Society (HRS)/American Society of Anesthesiologists (ASA) Expert Consensus Statement on the Perioperative Management of Patients with Implantable Defibrillators, Pacemakers and Arrhythmia Monitors: Facilities and Patient Management

*This document was developed as a joint project with the American Society of Anesthesiologists (ASA), and in collaboration with the American Heart Association (AHA), and the Society of Thoracic Surgeons (STS)*

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## CIED<sup>(cardiovascular implantable electronic device)</sup> Oversensing

- Biggest concern with EMI <sup>(electromagnetic interference)</sup>
- 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

## Interrogation post-procedure

Table 8 Specific procedures and writing committee recommendations on postoperative CIED evaluation

Procedure	Recommendation
Monopolar electrosurgery	CIED evaluated# within 1 month from procedure unless Table 9 criteria are fulfilled
External cardioversion	CIED evaluated# prior to discharge or transfer from cardiac telemetry
Radiofrequency ablation	CIED evaluated# prior to discharge or transfer from cardiac telemetry
Electroconvulsive therapy	CIED evaluated# within 1 month from procedure unless fulfilling Table 9 criteria
Nerve conduction studies (EMG)	No additional CIED evaluation beyond routine
Ocular procedures	No additional CIED evaluation beyond routine
Therapeutic radiation	CIED evaluated prior to discharge or transfer from cardiac telemetry; remote monitoring optimal; some instances may indicate interrogation after each treatment (see text)

## Interrogation post-procedure

TUNA/TURP	No additional CIED evaluation beyond routine
Hysteroscopic ablation	No additional CIED evaluation beyond routine
Lithotripsy	CIED evaluated# within 1 month from procedure unless fulfilling Table 9 criteria
Endoscopy	No additional CIED evaluation beyond routine
Iontophoresis	No additional CIED evaluation beyond routine
Photodynamic therapy	No additional CIED evaluation beyond routine
Xray/CT scans/mammography	No additional CIED evaluation beyond routine

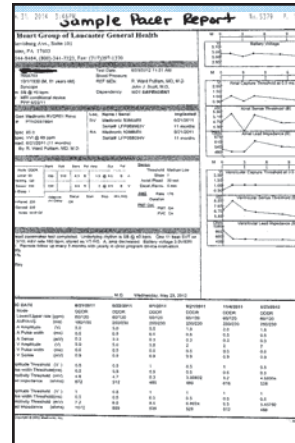
## Interrogation of CIED

Table 9 Indications for the interrogation of CIEDs prior to patient discharge or transfer from a cardiac telemetry environment

- Patients with CIEDs reprogrammed prior to the procedure that left the device nonfunctional such as disabling tachycardia detection in an ICD.
- Patients with CIEDs who underwent hemodynamically challenging surgeries such as cardiac surgery or significant vascular surgery (e.g., abdominal aortic aneurysm repair).
- Patients with CIEDs who experienced significant intraoperative events including cardiac arrest requiring temporary pacing or cardiopulmonary resuscitation and those who required external electrical cardioversion.\*
- Emergent surgery where the site of EMI exposure was above the umbilicus.
- Cardio-thoracic surgery
- Patients with CIEDs who underwent certain types of procedures (Table 8) that emit EMI with a greater probability of affecting device function.
- Patients with CIEDs who have logistical limitations that would prevent reliable device evaluation within one month from their procedure.†

CIED = Cardiac implantable electrical device.

\*The general purpose of this interrogation is to assure that reset did not occur. In these cases a full evaluation including threshold evaluations is suggested.



Pacer dependency  
Underlying rhythm  
Ability to rescue with external pacing

## 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  
Name \_\_\_\_\_ Date \_\_\_\_\_

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PRESENT MEDICAL HISTORY

FISTULA _____ DRY WEIGHT _____ PERITONEAL _____ DO YOU URINATE? YES _____ OUTPUT _____ TB HX _____ SCHEDULE _____ SLEEPING PATTERNS _____ INSOMNIA YES _____ NO _____ USED _____	TYPE OF DIALYSIS _____ CATHETER _____ GRAFT _____ CHF HX _____ DAILY URINE _____ DIALYSIS _____ LAST DIALYSIS DATE _____ NUMBER OF PILLOWS _____
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