Ambulatory Surgery for the Bariatric Patient

Kathryn Lauer, MD
Vice Chair, Clinical Affairs
Department of Anesthesiology
Medical College of Wisconsin
Milwaukee, WI

Outline

• Obesity in the US and Wisconsin
• Concerns with Adult Obese patient for Ambulatory surgery
• What are the strategies for screening and management?
• Froedtert Health story and strategy
  • Disclaimer: Not an ambulatory anesthesiologist primarily
Demographic in the US

Graph showing the percentage of adults who are obese in the US in 1991 and the 2006-2008 average. The graph is divided by state and color-coded to show the percentage of adults who are obese in each category: less than 20%, 20% to 29.9%, 30% to 39.9%, and 40% or more.

Us vs. the world

Graph comparing the obesity rates among adults in the US and the world. The graph is divided by age group and shows the percentage of obese adults in each group.
Where is WI in this?

Obesity is getting younger
Obesity is more expensive

OSA: Major Medical Problem
- Linked to: HTN, AMI, A-Fib, CVA, DM, MVA and Death
- Life span of untreated OSA is 58 years
- JHU: severe OSA increases risk of dying by 46%
- Worsened by ETOH, Narcotics, and Sedatives

Diseases Associated with OSA
- Hypertension 35%
- Abid Flabibilation 45%
- Facemakers 35%
- DM 32%
- Congestive Heart Failure 76%
- Obseity 37%
- Drug Resistant Hypertension 82%
- Night Time Heart Attacks 11%
Nocturnal pattern in sudden death


Respiratory Risk
### Table 1: Age adjusted odds ratios of sleep-disordered breathing in the General Population Study, according to logistic regression from step 1.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Odds Ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male vs. Female</td>
</tr>
<tr>
<td>Age (years)</td>
<td>1.02 (1.01 - 1.04)</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>1.00 (1.00 - 1.00)</td>
</tr>
<tr>
<td>Pack-years of smoking</td>
<td>1.00 (0.99 - 1.01)</td>
</tr>
<tr>
<td>Alcohol consumption</td>
<td>1.00 (0.92 - 1.09)</td>
</tr>
<tr>
<td>Physical activity</td>
<td>1.00 (0.98 - 1.03)</td>
</tr>
<tr>
<td>Family history of snoring</td>
<td>1.00 (0.67 - 1.50)</td>
</tr>
</tbody>
</table>

### Table 2: Nationwide use and outcomes of ambulatory surgery in morbidly obese patients in the United States.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Nationwide study 2013 (%)</th>
<th>Nationwide study 2015 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastric bypass</td>
<td>50.0</td>
<td>50.0</td>
</tr>
<tr>
<td>sleeve</td>
<td>25.0</td>
<td>25.0</td>
</tr>
<tr>
<td>Vertical</td>
<td>15.0</td>
<td>15.0</td>
</tr>
<tr>
<td>Other</td>
<td>10.0</td>
<td>10.0</td>
</tr>
</tbody>
</table>

*Note: The table above represents a significant decrease in sleeve procedures from 2013 to 2015.*
Screening questionnaires

Berlin

STOP Bang

Sensitivity of STOP Bang ≥ 3 to detect mod-severe OSA = 93% and severe OSA = 100%

Chung et al
CHEST 2016

SAMBA

Table 1: Concerns with Obstructive Sleep Apnea Patients Undergoing Ambulatory Surgery

Intraoperative
- Difficult/slow mask ventilation and/or tracheal intubation
- Difficulty maintaining adequate oxygen saturation
- Delayed extubation

Immediate postoperative
- Obstruction and/or desaturation after extubation
- Postobstructive pulmonary edema
- Need for tracheal intubation
- Excrecence of cardiac complications: hypertension, arrhythmias, myocardial ischemia and infarction, pulmonary hypertension, iatrogenic

Cerebrovascular disorders (e.g., stroke)
- Prolonged postanesthesia care unit stay
- Delayed discharge home
- Unanticipated hospital admission
- Readmission after discharge
- Hepatic/brain death and death
Observation for events

2. PACU: Observation for Postoperative Indicators of risk

- recurrent respiratory events
- newly required PAP therapy
- significant risk of myocardial ischemia or dysrhythmia
- opioid or sedative requirement not stabilized
- pain medication intolerance

Froedtert Health Story

- Patient underwent GA for surgery
- OSA risk → bad outcome
- Insurer asked our risk management for a plan or our premiums would increase
- Risk asked Department of Anesthesiology for help
Change Management (Kotter)

Step 1: Establish a sense of urgency
Step 2: Create a guiding coalition
  - Assemble a group with enough power to lead the change effort, and encourage the group to work as a team
Step 3: Developing a Change Vision
Step 4: Communicating the Vision for Buy in
Step 5: Empowering Broad Based Action
  - Remove obstacles to change, change systems or structures that seriously undermine the vision, and encourage risk-taking and nontraditional ideas, activities, and actions
Step 6: Generating Short term wins
  - Plan for achievements that can easily be made visible, follow-through with those achievements and recognize and reward employees who were involved
Step 7: Never letting up
  - Use increased credibility to change systems, structures, and policies that don’t fit the vision
Step 8: Incorporating changes into the culture

Tasks

- Identify who could and couldn’t go home after surgery
- Identify a method to stratify patients across the 3 hospital platform
- Enhance monitoring for those who were admitted
Outcome (5 months) preliminary data
Need to translate to outpatients
• Decide who can go home safely
• Strategize this for procedures as well as surgery
• Who will do this? RNs? MDs? APPs?
• How do we standardize this?
  • RESPIRATORY RISK SCREEN

Scoring System for the Management of Outpatients with OSA

<table>
<thead>
<tr>
<th>Patient Factors</th>
<th>Procedure Factors</th>
<th>Baseline Risk Score</th>
<th>Postoperative Risk</th>
<th>Minimum Observation Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Known OSA</td>
<td></td>
<td>5-6</td>
<td>Increased risk</td>
<td>Overnight observation + admission</td>
</tr>
<tr>
<td>Suspected OSA (Sleep Study)</td>
<td></td>
<td>4</td>
<td>May be at increased risk</td>
<td>Prolonged monitoring</td>
</tr>
<tr>
<td>Unknown</td>
<td></td>
<td>2-3</td>
<td>Probably no increased risk</td>
<td>Home</td>
</tr>
</tbody>
</table>

Baseline Risk Score
- 5-6: Increased risk
- 4: May be at increased risk
- 2-3: Probably no increased risk

Postoperative Risk
- Increased risk
- May be at increased risk
- Probably no increased risk

Minimum Observation Level
- Overnight observation + admission
- Prolonged monitoring
- Home
Implementation is ongoing

- Hospital outpatient areas
- Procedural areas (all with different navigators and workflows)
- RN assessments that dictate
- MD involvement for those considered highest risk

This is complex.
EHR can be a tool to make this work

Thank You