Sleep apnea: Identifying patients at risk in the ASC

With obesity increasing across the country, it is not surprising that obstructive sleep apnea (OSA) also is on the rise. For ambulatory surgery centers (ASCs), obesity offers a major—but not the only—one—clue that a patient may have, or be at risk for, OSA.

A common health risk of obesity, OSA disrupts sleep by constricting the airway and causing the sufferer to stop breathing briefly. The implications for surgery under anesthesia are that the patient is at risk for oxygen deprivation during and after the procedure.

If the condition is serious enough, the patient should not undergo outpatient surgery, according to anesthesiology guidelines.

New tools have emerged that have proved to be reliable as predictors of OSA. One, with the memorable name of STOP-BANG, is gaining acceptance as a way of identifying high-risk patients. In place of an expensive and time-consuming clinical diagnosis, it combines screening questions and observation (sidebar, p 27).

At the same time, the anesthesia community is developing clinical guidelines designed to offer the best strategies to manage that risk, allowing more patients to experience the benefits of ASC procedures.

Who has sleep apnea?

“Identifying patients with OSA is the first step in preventing postoperative complications due to OSA,” says Frances Chung, MD, medical director of the Ambulatory Surgical Unit, Toronto (Ontario) Western Hospital. The condition results when a person stops breathing involuntarily and for long enough to deprive the brain of oxygen. Symptoms include snoring, daytime fatigue, and blood oxygen desaturation.

Central sleep apnea (CSA) is less common than OSA and may be caused by stroke, congestive heart failure, narcotic use, or high altitude, where brain impulses that control breathing are disturbed.

OSA is much more prevalent, and more likely to be encountered in ambulatory surgery patients. Dr Chung estimates that between 2% and 26% of the general population have OSA. The frequency and severity vary greatly depending on other characteristics, such as age, sex, and how the condition is defined. Chung has found that for bariatric surgery in particular, 7 in 10 patients will have OSA.

Which patients?

The question for surgery centers is, “Which ones?” The only sure way to identify OSA is through polysomnography, an overnight sleep lab procedure. Few prospective patients are willing to do this, Dr Chung and other researchers have found. Another alternative is pulse oximetry in the patient’s home prior to surgery. Again, compliance cannot be assured. Chung estimates that 80% of men and 93% of women with moderate or severe OSA have not been diagnosed.

The challenge for ASCs is to identify those individuals and then to assess the severity of their condition, which will determine if they can safely undergo surgery outside of a hospital with emergency facilities.
Fortunately, there are clues. Obesity is the most obvious. According to Mia Zaharna, MD, in a presentation for the Stanford Center for Sleep Sciences and Medicine, 70% of persons with OSA are obese, while 40% of the obese population has OSA. Dr Zaharna speculates that OSA may contribute to obesity by lowering energy levels and increasing appetite.

Another study found 75% of subjects with a body mass index (BMI) over 40 had OSA. For those with a BMI of 30, the OSA rate was 56%. In Dr Chung’s study, the high-risk group had a BMI of 31 or more.

Related to weight is neck circumference: 40 cm or more indicates a high risk, according to Dr Chung’s study.

Regardless of the patient’s weight, other risk factors include blood pressure higher than 142 over 83; male gender, though some say the gender difference is declining; and age, with a high risk at age 58 and over. Children may have sleep apnea as well; it may be related to enlarged tonsils and is one reason for many tonsillectomies.

Loud snoring is another symptom, defined as audible from another room. Daytime sleepiness, memory loss, depression, and low energy combine to create a reduced quality of life. Finally, a strong signal is observation by another person that the patient stops breathing while asleep.

**STOP-BANG scoring model for OSA**

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<th>BANG observations</th>
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The need to screen

None of the above symptoms alone is a sure sign of OSA. Research has shown, however, that as more are present, the likelihood of OSA increases.

In 2008, Dr Chung and a team of researchers tested a checklist made up of the above symptoms against results of polysomnography in a group of preoperative patients. They found a strong correlation between the apnea-hypopnea index (AHI) and the number of items from the checklist that applied to each patient.

From those results, they developed the questionnaire named STOP-BANG (sidebar).
STOP-BANG is not the only screening tool. Many ASCs use a questionnaire issued by the American Society of Anesthesiologists (ASA).

At the Algonquin Road Surgery Center in Lake in the Hills, Illinois, the ASA questionnaire forms part of an overall policy for managing OSA. Algonquin Road is a multispecialty center, but 40% of its volume is orthopedic procedures.

“You really don’t want to transfer a patient,” says director Lori Callahan, CASC. “It costs the patient more, and lower reimbursement is coming.”

The questionnaire used by Algonquin Road Surgery Center is an algorithm, where a patient’s answer to one question prompts another. For instance:

- Ask if the patient has been officially diagnosed with sleep apnea.
- If the answer is “Yes,” the patient requires clearance from the medical director or anesthesiologist.
- If the answer is “No,” but BANG observations are affirmative, ask the STOP questions, along with several additional ones, such as past respiratory problems after surgery and the availability of a responsible adult during the first 24 hours after the upcoming surgery.

Educating surgeons
At the multispecialty Surgery Center of Fairbanks, Alaska, screening is the responsibility of the anesthesiologists, who meet with each patient 1 or 2 days prior to the scheduled surgery. Administrator Russell Uhrmacher, RN, CNOR, credits the policy with the center’s strong track record for avoiding complications.

It is important to make surgeons aware of screening procedures and policies, Algonquin Road’s Callahan notes.

“Surgeons may not think about sleep apnea risk because they may be used to working at hospitals,” she says. “At an ASC, we have a higher screening process.”

Educating the physicians has helped reduce the number of patients rejected at the time of screening.

“On a recent day,” Callahan recalls, “we cancelled 3 cases because the BMI was too high or there was a history of apnea. That’s only 1% or 2% of the caseload. If we did not educate our surgeons, it would be a lot more.”

Heightened risk
OSA results from a compromised airway, whether from excess fat or swollen or collapsed soft tissue.

According to Meena S. Desai, MD, managing partner at Nova Anesthesia Professionals in Villanova, Pennsylvania, patients with OSA are more sensitive to sedatives, which can lead to upper airway collapse. Both midazolam and propofol may cause upper airway obstruction, Desai warns, but recovery from propofol is more rapid.

Sometimes, obese patients who showed no previous signs of sleep apnea develop airway obstruction during sedation. Therefore, Dr Desai recommends treating all obese patients as potentially having sleep apnea.

Stress of surgery
The stress of surgery itself may increase the risk or severity of apnea.

As Girish P. Joshi, MD, professor of anesthesiology and pain management at University of Texas Southwestern Medical Center in Dallas, explains, “OSA, particularly unrecognized OSA, not obesity, is more likely to cause problems.” Dr Joshi advises ASCs to screen all patients for signs of OSA.

Where screening indicates the presence of OSA, he recommends using the ASA’s follow-up questions to further pinpoint risk based on 3 criteria:
• estimated severity of the OSA
• invasiveness of the procedure
• need for opioids following the surgery.

Score each criterion on a scale of 0 to 3. Consider a score of 5 or higher to indicate significant risk for difficult intubation, hospital admission, and postoperative complications.

“Admit the patient when in doubt,” he adds.

Patients ineligible for ASC procedures are those:
• with OSA and uncontrolled (nonoptimized) comorbidity
• who cannot substitute analgesics for opioids or regional anesthetics
• who cannot follow postdischarge instructions
• who refuse to use continuous positive airway pressure (CPAP) at night
• who live alone.

Fewer drugs, more monitoring
The presence (or strong suspicion) of OSA requires efforts to minimize the risk of airway collapse. The ASA recommendations and the advice of OSA specialists include reducing use of opioids and sedatives during surgery because they will continue to depress respiration after surgery.

“To alert all health care providers to the risks of sedatives and opioids in the patient with known or suspected OSA, the charts of these patients will be flagged with ‘OSA Precautions,’” the ASA advises.

Among other recommendations are:
• In selecting anesthetics, where possible, use local anesthesia or peripheral nerve blocks or regional anesthesia.
• If a patient is given sedation, monitor ventilation with capnography (CO₂ measurement).
• Consider using nonsteroidal anti-inflammatory medications to reduce the need for opioids.
• In the recovery room, keep OSA patients fully or partially upright if possible.
• Monitor continuously with pulse oximetry following surgery.
• Give supplemental oxygen continuously until the patient can maintain baseline oxygen saturation while breathing room air; do not depend on traditional measures of respiratory rate to detect hypoxemia.
• If the patient repeatedly experiences airway obstruction or hypoxemia, consider transferring the patient to an inpatient facility for observation.
• CPAP before and after surgery may also reduce OSA risks. Clinicians report, however, that some patients who find CPAP uncomfortable refuse to use it even when informed of the medical benefits.
• Prescribe postdischarge narcotics in smaller-than-normal doses.

Postop care
It is essential to monitor ventilation, Dr Desai says, and to administer CPAP during moderate sedation. For patients already diagnosed with sleep apnea, general anesthesia may be preferable, she notes.

Postoperatively, she warns of complications such as airway obstruction, oxygen desaturation, systemic hypertension, cardiac arrhythmia, and the need for reintubation. She recommends keeping such patients in a semi-upright position in the PACU.

During recovery at home, she has found that despite the risk of oxygen desaturation in apnea patients, continued CPAP protects against further complications.

Still, she warns, “The risk of respiratory complications may last for several days after surgery because postoperative surgical stress response, anxiety, pain, and
opioid use cause sleep deprivation and fragmentation, which may reduce REM sleep and exacerbate sleep disorders.” It is important, she adds, that home caregivers be informed about how to recognize and treat complications.

Postop instructions
Before an OSA patient is discharged, an adult caregiver or family member will need special instructions for managing the postsurgical risks. Dr Joshi offers these instructions:

• Explain the dangers of opioids and the need to limit their use.
• Advise the patient to avoid sleeping in the supine position.
• Advise patients with CPAP equipment to use it at home.
• Suggest a sleep study for those patients who are believed to have OSA based on the STOP-BANG or other questionnaire.

A group effort
Finally, as Callahan notes, learn to use the growing number of tools and technologies to manage the risk.

“To make it work, you need to have a good anesthesia group that follows your guidelines,” Callahan says. “It’s a group effort, with surgeons, anesthesia, and staff.”

Screening helps pinpoint the risks.

Sleep apnea is on the increase, so there really is not a choice, she adds: “Over time we’re starting to see more and more of it, and that’s why we created a policy. I think a surgery center wants every case it can get but not if it’s at risk to a patient.”

—Paula DeJohn

References

