

Meeting report

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At the Annual Meeting of the American Society of Anesthesiologists held in Dallas, TX, on October 11th, the Society for Ambulatory Anesthesia presented a Breakfast Panel Discussion featuring ‘State of the Art and Future Perspective in Ambulatory Anesthesia.’ Following introductory remarks by Richard A. Kemp, M.D., President of the Society for Ambulatory Anesthesia, Kathryn E. McGoldrick, M.D., Professor of Anesthesiology at Yale University School of Medicine and Medical Director of Ambulatory Surgery at Yale-New Haven Hospital, moderated the session.

Barbara S. Gold, M.D. (Assistant Professor, University of Minnesota, Minneapolis, MN) presented an overview of ‘The Sleep Apnea Patient for Outpatient Surgery.’ Sleep apnea is defined as episodes of cessation of respiration for at least 10 s, occurring a minimum of 11 times per h during sleep. Sleep apnea can be central, obstructive, or mixed in etiology. Of the millions of people who snore, only a small portion have sleep apnea. Although obstructive sleep apnea (OSA) affects between 1 and 4% of middle-aged adults, the overwhelming majority of those with OSA go undiagnosed. There is, moreover, a propensity for OSA to occur in males. Screening evaluation should include questions about sleep habits, excessive daytime sleepiness, use of alcohol or other depressants, and the snoring pattern. Characteristically, the patient is unaware of the snoring, but his or her partner will typically describe extremely loud snoring with repetitive pauses in breathing from 10 s to 2 min in duration, accompanied by sudden gasps and choking noises as breathing resumes. Because it is awakening that permits breathing, the snorer will experience minimal or no REM sleep and, therefore, remains fatigued throughout the day.

Central sleep apnea is also known as Ondine’s curse, reflecting the mythological man who was condemned by his rejected lover, a mermaid, to stay awake in order to breathe. Respiratory efforts temporarily stop in central sleep apnea, an entity considerably less common than OSA. A diagnosis of central sleep apnea is established with polysomnography, whereby the patient spends the night in a sleep laboratory and all phases of sleep, including REM, are observed during extensive monitoring. Central sleep apnea is confirmed if episodes of absent airflow, resulting from cessation of respiratory efforts, are detected.

OSA is the most common sleep disorder and is the variety of apnea that is frequently associated with severe, loud snoring. Factors that affect upper airway anatomy, such as micrognathia, acromegaly, obesity, or adenotonsillar hypertrophy, or airway muscle tone (myotonic dystrophy and certain neuromuscular diseases) predispose to OSA. Use of sedatives, neurologic disease, and primary pulmonary disease may exacerbate the effects of the obstruction. With prolonged apnea, the resultant hypoxemia and hypercarbia produce increased systemic and pulmonary artery pressures as well as increased likelihood of dysrhythmias. Cor pulmonale, polycythemia, and congestive heart failure can develop. As with central sleep apnea, the diagnosis is confirmed by polysomnography. In contradistinction to central sleep apnea, however, the episodes of apnea and hypoxemia coincide with paradoxical movements of the rib cage and abdomen that produce little or no air movement. (Although polysomnography is the diagnostic gold standard, it is extremely expensive and, in these days of medical fiscal restraint, diagnosis is often based on history.)

The anesthetic implications of sleep apnea depend to a large extent on the anatomy of the airway as well as the presence or absence of such associated conditions as

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obesity, congestive heart failure, neuromuscular disorders, pulmonary disease, and hypertension. The feasibility of intubation (and extubation) must be carefully assessed; the patient should be extubated only if he is wide awake, strong, and fully reversed. Postoperative pain relief should be provided with non-narcotic analgesics because these patients are exquisitely sensitive to the respiratory depressant effects of narcotics. Moreover, whenever possible, monitored anesthesia care (MAC) or regional anesthesia may offer several advantages over general anesthesia.

Are these patients with sleep apnea appropriate candidates for outpatient surgery? Dr Gold emphasized that here we are traversing uncharted waters. Whether to admit these patients after surgery should be based on the type and duration of the anesthetic, the site and nature of the surgical procedure, the drugs necessary to afford postoperative analgesia, and the severity of the patient's apnea and associated conditions. Clearly, sleep apnea patients should be observed carefully for apnea in the postoperative period with continuous pulse oximetry for an extended period. Even if same-day discharge is deemed feasible, it may be prudent to observe the patient for 12 h in the postanesthesia care unit (PACU).

Lydia Conlay, M.D., Ph.D., M.B.A. (Professor and Chair of Anesthesiology, Temple University Health Sciences Center, Philadelphia, PA) discussed 'Optimal Fast-Tracking Techniques.' Fast-tracking is defined as the ability to bypass the Phase I recovery unit and go directly from the operating room to the Phase II recovery area. Dr Conlay emphasized that new drugs, new instrumentation, and effective postoperative pain management have contributed enormously to our success in providing a smoother, more truncated recovery course for ambulatory patients. Indeed, some studies have suggested that currently we are able to fast-track as many as 40% of patients having general anesthesia and 80% of patients having MAC or regional anesthesia.

Propofol, a relatively short-acting drug with antiemetic properties, has been a valuable addition to our anesthetic armamentarium. Propofol can be used to induce and maintain general anesthesia or, in lower doses, to provide sedation during MAC. It affords a smooth, rapid, clear-headed emergence, typically with minimal postoperative nausea and vomiting (PONV). Similarly, the inhalation agents, desflurane and sevoflurane, also facilitate rapid emergence from general anesthesia owing to their extremely low blood–gas partition coefficients.

Use of a laryngeal mask airway instead of an endotracheal tube in appropriate patients who are not at risk for gastroesophageal reflux permits the anesthesiologist to use a lighter level of anesthesia than is required with endotracheal intubation, thereby facilitating more rapid emergence. Likewise, bispectral index (BIS) moni-

toring enhances assessment of anesthetic depth and favors speedy emergence.

The use of antiemetic prophylaxis in selected high-risk patients is often helpful in decreasing length of PACU stay, as is effective pain management. The latter typically consists of a pre-emptive, multimodal approach to analgesia, incorporating opioids, local anesthetics, and other adjunctive therapy such as nonsteroidal anti-inflammatory drugs or α_2 agonists. Moreover, although desflurane and sevoflurane provide rapid emergence from anesthesia, to date their use has not been associated with faster discharge from the ambulatory unit than is seen with isoflurane. Whether this reflects lack of a true difference among the inhalation agents or merely inertia in the system remains to be determined. In this context, Dr Conlay emphasized the importance of organizational 'buy-in' if we are to expedite the postoperative course of ambulatory patients.

Himat Vaghadia, M.D. (Associate Professor, University of British Columbia, Vancouver, Canada) spoke on 'Walking Spinal is an Art.' During the past 5 years, Dr Vaghadia has investigated the use of low-dose subarachnoid lidocaine for intraoperative anesthetic management of patients undergoing laparoscopic surgery, the seventh most common operative procedure performed world-wide. Dr Vaghadia believes this technique is associated with minimal PONV, negligible postdural puncture headache (PDPH), and efficient discharge from the PACU. Although conventional doses of spinal bupivacaine or tetracaine may delay discharge for more than 5 h owing to urinary retention, Dr Vaghadia's method typically allows for discharge home in approximately 2 h or less.

The technique, described as selective spinal anesthesia, provides pin-prick analgesia only and no motor blockade. With the patient in the sitting position, a 27-gauge spinal needle is inserted into the lumbar subarachnoid space; the needle orifice is pointed cephalad and 10 mg of 1% lidocaine with 10 μ g sufentanil is injected. The reverse Trendelenburg position is used owing to the hypobaric nature of the local anesthetic solution. The patient is, however, placed flat during the 3-l gas insufflation period. Patients are characteristically quite comfortable during the procedure; midazolam 1–2 mg i.v. is given as needed and 250 μ g alfentanil i.v. is administered for shoulder pain. Analgesia to a T₈ level is typically reported. Recovery is characteristically rapid and uneventful, unencumbered by PONV, urinary retention, motor weakness, PDPH, or transient neurologic symptoms.

The final panelist was Janet Pavlin, M.D. (Associate Professor, University of Washington School of Medicine, Seattle, WA) who addressed the question of 'How Can We Prevent Prolonged Stay in the Ambulatory Surgical Unit?' Dr Pavlin began her discussion by

noting that discharge time is affected by a plethora of factors, including the type and duration of surgery, the anesthetic technique selected, and the quality of PACU nursing care. Such complications as pain, drowsiness, PONV, and urinary retention frequently retard discharge. System factors, however, may also be responsible; the prototypical example of the latter is the unavailable escort!

Although MAC and administration of peripheral nerve blocks are often associated with faster discharge, there is no guaranteed magic bullet. However, the anesthesiologist should be aware that certain types of anesthesia, surgery, opioids and other analgesics, anticholinergics, and underlying medical conditions may predispose to postoperative urinary retention. Urinary retention is not uncommon after gynecologic surgery (4%) and is indeed frequent after hernia (18%) or anal (25%) surgery. High risk patients, therefore, include those having spinal or epidural anesthesia, those with a history of postoperative urinary retention, or those having hernia or anal surgery.

Dr Pavlin has done studies monitoring bladder volumes by ultrasound. Interestingly, the majority of patients with bladder volumes exceeding 600 ml were unaware of having a very distended bladder. Although Dr Pavlin does not believe that low-risk ambulatory

patients should be required to void before discharge, she strongly believes that high-risk patients should be required to urinate or be catheterized before discharge to avoid prolonged overdistention of the bladder after discharge. Moreover, patients in all risk categories should receive fluid in judicious amounts to avoid overdistending the bladder. Excessive fluid administration does not appear to hasten the onset of voiding, but rather increases bladder volume so that retention may be more likely. Anesthesiologists should be aware that animal studies suggest that overdistention persisting for as few as 4–24 h can be associated with a reduction in the number of cholinergic receptors in the bladder wall and subsequent impairment of contractile function. Therefore, all patients should be cautioned to return to a medical facility if unable to void within 8–12 h of discharge.

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