SEE 35A Overview
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Host: Welcome to the SEE Podcast, presented by the American Society of Anesthesiologists. SEE, translating emerging anesthetic knowledge for your daily practice.

Natalie F. Holt, M.D., M.P.H.: Hello, welcome to Volume 35A of the SEE program. My name is Natalie Holt, and I am one of the members of the SEE editorial board. I am also an Assistant Professor in the Department of Anesthesiology at Yale School of Medicine and a staff anesthesiologist at the West Haven VA Medical Center.

For those of you who aren’t familiar with the program, SEE is a continuing medical education product offered by the American Society of Anesthesiologists. SEE is intended to keep readers informed about emerging knowledge in the scientific literature and how it might impact the practice of anesthesiology. In each edition, we highlight 100 articles from over 30 leading professional journals, with the goal of highlighting emerging knowledge in our specialty. Today, I would like to give you a preview of a few of the articles from this latest edition.

At my hospital, and I imagine at many of yours, surgical attire has recently become a matter of hot debate. Specifically, many centers have mandated the use of disposable bouffant-style headgear rather than reusable cloth hats or disposable surgical skull caps based on national guidelines suggesting that this practice may reduce surgical site infections. In this edition, we review a study...
comparing the effects of different types of headgear on several environmental quality indicators that found no benefit to the use of bouffant-style hats.

For any of you who take call, hip fracture repair is one of the most common urgent surgical procedures to make it to the add-on case list. Many of these patients are older and have multiple comorbidities, and the fitness of these patients to undergo surgery is sometimes questioned. Recently, authors from the United Kingdom used information from the National Hip Fracture Database to study the in-hospital mortality rates of patients following hip fracture repair. Not too surprisingly, they found that mortality increased with increasing ASA physical status. However, the mortality of ASA IV and V patients was still about half that of the mortality of patients who were not operated on at all, which was about 50%. This study challenges us to consider not only the risks associated with surgery but also the potential consequences of deeming patients too sick to undergo operative correction of their hip fractures.

Speaking of orthopedic surgery, regional anesthesia is now widely used as part of a multimodal analgesic regimen, not only to improve pain control and minimize reliance on opioids, but also to facilitate early mobilization and hospital discharge. However, nerve blocks and catheters take time to place and introduce the potential risk of injury or infection. A recent randomized trial compared three anesthetic regimens for postoperative analgesia in patients undergoing total knee arthroplasty: 1) peripheral nerve block with femoral nerve catheter placement using local anesthetic; 2) periarticular injection of ropivacaine with epinephrine and ketorolac; and 3) periarticular injection of liposomal bupivacaine with epinephrine, ketorolac, and bupivacaine. The results showed minimal differences in pain score or opioid consumption among the groups. The results suggest that peripheral nerve blocks may produce significantly better analgesia than periarticular blocks. They also suggest little benefit to the use of liposomal bupivacaine compared to ropivacaine.
Another common debate in the regional anesthesia literature is the relative value of various additives to local anesthetic. Dexmedetomidine is an alpha-adrenergic receptor agonist that has been advocated as an adjunct to local anesthetic capable of prolonging block duration. However, dexmedetomidine may produce serious side effects, including bradycardia and hypotension. In this edition, we summarize the results of a recent systematic review and meta-analysis that investigated the effect of dexmedetomidine as an adjuvant to local anesthetic for brachial plexus blockade. Eighteen studies involving over 1,000 patients were included in the review. Although there was considerable variability in study design, the net results provide compelling evidence that dexmedetomidine added to local anesthetic reduces both motor and sensory onset times and prolongs the duration of analgesia. Furthermore, there were no reports of significant adverse side effects.

When placing an epidural, do you use the loss-of-resistance technique with air or saline? I was taught to use air, but the original technique for finding the epidural space was described using saline. An interesting article in this edition of SEE explores the impact of the two techniques on the onset of labor epidural analgesia. Four hundred patients requesting labor epidurals were randomized to identification of the epidural space by loss of resistance using either air or saline. The authors found no difference between groups in terms of pain scores, degree of motor block, or rate of procedural complications. So current evidence suggests whether you are using saline or air, you can go ahead doing what works for you.

Those of you who spend a lot of time on the labor and delivery floor probably perform more neuraxial anesthetic techniques than anyone. And at times, you may be asked to provide spinal anesthesia for external cephalic version, which is a technique to turn a fetus from breech to vertex position using manual
rotation prior to delivery. While previous studies have shown that spinal anesthesia improves success rates, controversy exists as to the optimal local anesthetic dose to use during these procedures. A randomized, double-blind trial involving over 200 parturients sought to explore this question. Patients were randomized to receive spinal anesthesia in the form of 0.5% bupivacaine at doses of 2.5 mg, 5 mg, 7.5 mg, or 10 mg. The success of the procedure was not different among the groups, nor was obstetricians’ assessment of abdominal wall relaxation. Patient satisfaction scores also did not differ, although patients who received higher doses of bupivacaine reported lower pain scores than those who received lower doses. Furthermore, patients who received higher doses of bupivacaine had a greater risk of hypotension requiring treatment. Although this study does not identify an optimal bupivacaine dose, it does show that higher doses are not correlated with better patient outcomes.

Any of you who work in a trauma center understand the challenges of massive resuscitation, particularly when blood typing to determine ABO group is not available and given the fact that type AB plasma, the universal donor, is a scarce resource. We review the results of a multicenter trial conducted at 17 trauma centers comparing the outcomes of patients with group A blood or group B or AB blood who received group A plasma during resuscitation. The results showed no difference in in-hospital or early mortality between groups, suggesting group A plasma is a safe option for resuscitation in trauma patients whose blood type is unknown.

Preoperative fasting before elective surgery is one of the hallmarks of the guidelines of both the American Society of Anesthesiologists and the European Society of Anaesthesiology designed to minimize the risk of aspiration under anesthesia. Especially in the pediatric population, though, fasting can be a significant source of patient discomfort and dissatisfaction. A recent cross-
sectional study that used gastric ultrasound on healthy children suggests that the gastric emptying times of apple juice and milk may not be any different.

And have you ever found a patient chewing gum in the preop area and wondered whether it is still safe to proceed with surgery? A recent randomized study among healthy adult volunteers used gastric ultrasound to calculate the effect of chewing gum on gastric fluid volumes. They found that chewing gum had no significant effect on gastric fluid volume or gastric emptying.

Intravenous fluid is probably the most ubiquitous therapeutic we use as anesthesiologists. Yet, ironically, none of the commonly used IV fluids has been scientifically validated in the manner of a new medication or medical device. Normal saline and balanced crystalloids such as lactated Ringer’s are the most commonly used types of IV fluids. A recent prospective trial attempted to determine whether there is any evidence favoring the use of one fluid over another. Patients presenting to the emergency department were randomized to receive either normal saline or balanced crystalloid as their primary resuscitative fluid. Only patients who received at least 500 cc of fluid were included. Over 13,000 patients were enrolled in the study. The choice of fluid resulted in significant perturbations of serum electrolyte values in both groups. Median hospital-free days and mortality were not different between groups. However, major adverse kidney events were more common in the group who received normal saline. The results of this study and the growing literature in enhanced recovery after surgery suggest an ever-decreasing role for normal saline in fluid resuscitation or maintenance.

I hope you’ve enjoyed these highlights from Volume 35A of the SEE program. If you don’t already subscribe to SEE, you can do so by going to the ASA website, asahq.org, then navigating to Shop ASA and filtering for “SEE” in the
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