Welcome to the SEE Podcast, presented by the American Society of Anesthesiologists. SEE, translating emerging anesthesia knowledge for your daily practice.

Hello, welcome to Volume 36A of the SEE Program. My name is Natalie Holt, and I am one of the members of the SEE Editorial Board.

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 items from this latest edition.

As anesthesia providers, we sometimes focus our attention on intraoperative complications. However, a substantial fraction of patients suffer postoperative complications that have a significant impact on morbidity, mortality, and quality of life.

Surgical site infections are one of those categories of complications. Although evidence-based interventions such as preincision antibiotic administration and the maintenance of normoglycemia have been shown to have a positive effect on SSI rates, the impact of surgical attire is more controversial. In 2015, the Association of Perioperative Registered Nurses (AORN) identified operating room attire as a
significant factor affecting SSI risk. They made several recommendations, including the exclusive use of bouffant caps and long sleeves for all operating room personnel. The publication of this guideline was met with significant resistance, owing to lack of evidence linking surgical attire to SSI rates. Physicians at New York-Presbyterian Hospital evaluated the effect of implementation of the 2015 AORN surgical attire guidelines on SSI rates in their hospital system. They found that the policy had no impact on the surgical site infection rate, but did result in a 10- to 20-fold increase in surgical attire cost per person. Owing to studies like this, AORN published revised guidelines in July 2019. Among other things, the new policy removes the recommendation for long sleeves and specification on type of hair cover.

Chronic postsurgical pain—defined as pain that persists for more than 2 months after surgery—is also an underappreciated postsurgical problem. High preoperative pain scores and uncontrolled acute postoperative pain have been identified as risk factors, but the details of these associations are not well understood. Investigators in Germany sought to explore the relevance of perioperative pain trajectories on the risk of chronic postsurgical pain. They found that the rate of pain resolution rather than the intensity of initial pain was a better predictor of chronic postsurgical pain. The early identification of high-risk patients will hopefully be a first step in developing better treatment approaches.

Visual loss is one of the most catastrophic complications of prone spine surgery, occurring in about 0.2% of cases. In 2019, the American Society of Anesthesiologists, in association with the North American Neuro-Ophthalmology Society, and the Society for Neuroscience in Anesthesiology and Critical Care, issued an updated practice advisory on this topic. Although the evidence is weak, there is general consensus that prolonged surgery and large-volume blood loss are among the most important procedure-related risk factors. Likely patient risk factors include low hemoglobin and preexisting vascular disease. Neither choice of
anesthetic nor fluid appear to have an impact. The most widely agreed-upon
guidance includes avoidance of direct pressure on the eyes, maintaining
normotension, and keeping the head at a neutral position or slightly elevated from
the body. Preoperative patient counseling and early postoperative visual evaluation
are also emphasized, with a specific mention of the risk of visual loss being
appropriate in high-risk patients.

As health care providers, we all learn the motto “first, do no harm.” Yet many of
the interventions we perform every day have a poor basis in evidence. Among them
is the use of the intra-aortic balloon pump, or IABP. Over 70,000 IABPs are
inserted annually in the United States for the treatment of patients in cardiogenic
shock. The IABP-SHOCK II trial was designed to help establish this evidence base.
This was a multicenter trial involving 600 patients with cardiogenic shock after
acute myocardial infarction. All patients underwent early revascularization with
either percutaneous coronary intervention (PCI) or coronary artery bypass graft
(CABG) surgery. One group was randomized to receive IABP and the other group
received no IABP. At 6-year follow-up, there was no difference in outcomes
between groups. The study supports the conclusion that IABPs are probably not
beneficial in the routine management of acute myocardial infarction. This
conclusion is supported in current North American and European guidelines.

In this edition we also present several articles on the management of critically ill
patients.

Patients in the intensive care unit face a multitude of physiologic perturbations. The
stress of critical illness not only affects the physical but also the psychological well-
being of the patient and their social unit. The Society for Critical Care Medicine’s
Intensive Care Unit Liberation Collaborative was created to establish a
multidisciplinary team-based approach to critical care that would better address the
whole patient. Additional goals were to avoid oversedation and keep medications
to a minimum. The components of this model are summarized in the acronym ABCDEF, which stands for: A – assess, prevent, and manage pain; B – both spontaneous awakening and breathing trials; C – choice of analgesia and sedation; D – delirium assessment, prevention, and management; E – early mobility and exercise; and F – family engagement and empowerment. A recently published study examined the impact of using this model on both clinical and financial outcomes. They found that use of the ABCDEF approach was associated with measurable improvement in nearly all outcomes, including the occurrence of delirium, ICU readmission rate, and mortality.

Meeting the nutritional requirements of critically ill patients is also an important element to achieving optimal outcomes in this population. Although the American Society for Parenteral and Enteral Nutrition (ASPEN) recommends maintaining a neutral energy balance, this is often a challenge due to poor gastrointestinal absorption and frequent interruptions of nutrition for surgeries and other invasive procedures. A multicenter, randomized trial among nearly 4,000 intensive care unit patients was conducted to determine whether there is a benefit to providing patients with energy-dense rather than routine enteral nutrition. Although the provision of energy-dense enteral nutrition more often achieved ideal daily caloric intake, it had no impact on ICU or hospital length of stay or 90-day mortality.

We also have a few interesting articles in this edition from the obstetrics literature.

Hypotension is a common side effect of spinal anesthesia administered for cesarean delivery. Although phenylephrine is widely considered the drug of choice in this situation, its use may cause bradycardia, which can negatively impact cardiac output and, hence, fetal blood supply. Norepinephrine has recently been suggested as an alternative to phenylephrine. Because of its combination alpha and weak beta [agonist] properties, norepinephrine is typically associated with less cardiac depression. In this edition, we review a double-blind, randomized trial among
nonlaboring, term parturients that compared the effects of intermittent, equipotent doses of norepinephrine versus phenylephrine for the treatment of spinal-induced hypotension during elective cesarean delivery. Although the frequency of bradycardia was less in the norepinephrine group, there were no differences in umbilical cord blood gas results, Apgar scores, rates of nausea or hypotension. What this study did not address is whether norepinephrine may be preferred in a subset of pregnant women, such as those with maternal cardiac disease or known placental insufficiency.

On the subject of maternal cardiac disease, it is widely recognized that complications such as gestational hypertension or preeclampsia have significant impact on pregnancy and prenatal health. However, less widely acknowledged is the impact of pregnancy complications on a woman’s long-term health. The results of a review article in this edition present evidence in support of this association. Over a median follow-up of 7.5 years, women with a history of placental abruption had an 82% higher risk of cardiovascular morbidity and mortality compared to women without a history of abruption. Women with a history of preterm birth, stillbirth, gestational diabetes, and gestational hypertension also were at increased risk. Interestingly, there was no evidence to support a connection between miscarriage and cardiovascular disease. This review underscores the importance of considering pregnancy history during preanesthetic evaluation to identify patients at potentially higher risk of cardiovascular complications.

Being aware of the unique needs of patients is important in establishing an effective doctor–patient relationship, which often begins at the time of the preanesthetic interview. Traditionally, the terms gender and sex have been used interchangeably. However, in recent years, the distinction between the two has been appreciated. While sex is the assignment of male or female based on physical characteristics and chromosomal makeup, gender is a social construct that deals with personal, societal, and cultural perceptions of sexuality. Especially in hospitals that perform
gender reassignment surgeries, it is important that clinicians are mindful of the unique needs of these patients. An article in this edition offers background on this topic and a thoughtful approach to the treatment of transgender patients. The perioperative period is stressful and anxiety provoking for all patients. It is important for us as anesthesia providers to be respectful and reduce anxiety in all of our patients.

Another interesting development affecting the doctor–patient relationship is the medicalization of marijuana. Marijuana is now legal for specific medical conditions in 33 states and the District of Columbia. However, according to the U.S. Drug Enforcement Administration, marijuana is still classified as a Schedule I drug, and there is still little evidence supporting its health benefits. This has set up a complex set of rules governing the production, prescription, and distribution of the drug. In this edition, you’ll find an article on the topic of marijuana, including a review of its various chemical components and their purported health effects. The authors also underscore the potential risks of marijuana use, especially in younger patients, given how little we know about the effects of marijuana on the developing brain.

I hope you’ve enjoyed these highlights from Volume 36A of the SEE Program. If you are not already a SEE subscriber, you can join by going to the ASA website at ASAHQ.org, then navigating to shop-asa and filtering for SEE in the Category dropdown. Thank you for listening, and on behalf of the SEE Editorial Board, we hope you enjoy this edition of SEE.

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