SEE 34A Overview

2018

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

Robert L. Hsiung, M.D.: This is Robert Hsiung, one of the editors of SEE and welcome to this latest SEE podcast. We are joined by one of our question writers, Dr. Michael Kushelev from the Ohio State University where he is a Director of Regional Anesthesia and Acute Management Fellowship.

But first, I’m going to have our Editor-in-Chief, Regina Fragneto, highlight this latest issue. Regina.

Regina Fragneto, M.D.: Thanks, Rob. The first volume of SEE 2018 was just recently released and it includes lots of content that will be important to your practice. I surveyed the members of our editorial board as we were putting this issue together and asked them what they found most interesting and clinically relevant to them.

I wanted to highlight just a few of those items. We have all expanded the use of ultrasound in our practices and in this new issue we report on its novel use as a way to distinguish between tracheal and bronchial intubation. This further supports my belief that one day it will be our hand-held ultrasound machines instead of our stethoscopes that will be the essential tool for every physician.
We also discussed the impact of anesthesia provider handoff on patient outcomes. This is a topic many of your colleagues, and perhaps even your patients, may be asking you about in light of the recent *JAMA* article, which I assure you we will be discussing in a future SEE issue.

Have you ever mixed drugs in a single syringe when providing TIVA? I think many of us have. Well, based on an article we report on in this volume, you might want to reconsider that practice. When mixing remifentanil and propofol in the same syringe, these investigators found that the measured concentrations of both drugs varied throughout the syringe.

Now, I’m an obstetric anesthesiologist and I’m always searching SEE for information that might change my practice. As is common across the US, most of my post-caesarean patients receive neuraxial morphine for postoperative analgesia.

We report on the meta-analysis that found the quality of pain relief was similar for low-dose—which meant no more than 100 mcg of intrathecal morphine—and high-dose morphine, but those bothersome side effects of pruritus and nausea and vomiting were more common in the high-dose group. This has caused me to decrease the dose of duramorph I use routinely.

Finally, I practice in one of the states that decided to opt out of the requirement for physician supervision of nurse anesthetists. As much of my state is rural, the rationale for this decision was that removing this requirement would improve access for patients.

I was intrigued, therefore, to learn about an article covered in this volume of SEE that suggested patient access to surgical care has not improved in those states that did opt out.
Robert L. Hsiung, M.D.: Thank you for that summary. As we hope to release two podcasts per issue, I’d like to remind our readers that our writers come from all backgrounds—private practice and academic—and articles are selected by the editors and sometimes question writers based on their relevance to anesthesiologists.

We do keep basic science and rat anesthesia to the minimum; however, once in a while the basic science may be interesting enough that we do think you should want to hear about it.

The specific question from the current issue of SEE that we are going to discuss actually comes from the journal *The Lancet*; definitely a respectable publication and one that I would not have come across normally, but this is definitely one of the strengths of SEE: you can learn from many sources without having to read through them yourself.

Now, onto our question. According to a recent study comparing brachial plexus blockade (BPB) to local anesthetic infiltration for primary arteriovenous fistula (AVF) creation, which of the following statements is most likely true:

A. Patients in the brachial plexus blockade (BPB) group did not have any significant postsurgical vascular dilatation;
B. Primary patency of the arteriovenous fistula (AVF) three months after surgery was higher in the brachial plexus blockade (BPB) group;
C. Pain scores were higher in the local anesthesia group; or,
D. Patients in the local anesthesia group were more likely to require a conversion to general anesthesia?
So, the correct answer is B. I’m going to ask Dr. Kushelev to speak a little about how they did the study and what he found was most interesting about the paper.

Michael Kushelev, M.D.: Thanks, Rob. The study attempted to identify whether the anesthetic technique would alter the primary patency of radiocephalic and brachiocephalic fistulas at three months postoperatively.

The study was conducted in three academic medical centers in the United Kingdom and randomized 126 patients to either receive a brachial plexus block (BPB) compared to local anesthesia infiltration by the surgeon.

Patients that received a brachial plexus block (BPB) did have significant arterial and venous vasodilation that was not seen in patients that received local infiltration. In fact, several patients were able to receive a more favorable distal fistula than previously planned following the brachial plexus block (BPB) secondary to the vasodilation achieved.

Surprisingly, there was no difference in pain scores with all participants reporting a pain score of zero intraoperatively, as well as no pain one hour postoperatively. There was a small but statistically significant improvement in patient satisfaction for patients receiving brachial plexus blocks (BPB). No patients in either group required a conversion to general anesthesia.

One patient in the brachial plexus block (BPB) group did require supplemental, targeted axillary block while another required conversion to local infiltration by the surgeon.
Robert L. Hsiung, M.D.: So, was this vasodilation long lived? This sounds like a wonderful thing that we should offer for our patients if it means that there is greater patency and perhaps a higher likelihood for a successful operation.

Michael Kushelev, M.D.: Sure. More patients in the brachial plexus block (BPB) group were noted to have a significantly higher brachial artery flow three months postoperatively, which partially explains the improvement in primary graft patency at three months which the authors defined as the presence of a thrill or a bruit.

Functional patency, defined as the ability for the graft to be clinically used for dialysis, was also improved for more distal radiocephalic fistulas, but was not significantly different for proximal brachiocephalic fistulas.

Therefore, certainly receiving a brachial plexus block (BPB) can be especially beneficial for patients receiving more distal fistulas and also potentially allow for a fistula to be created more distally than originally planned by a pre-block ultrasound examination.

Robert L. Hsiung, M.D.: Did it matter what kind of brachial plexus block (BPB) or specific type of local anesthetic was used? Or was that not studied?

Michael Kushelev, M.D.: In this study, patients that received a brachial plexus block (BPB) had a supraclavicular approach to the brachial plexus unless there was a contraindication in which case they received an axillary block.

The local anesthetic used for the block was a 1:1 mixture of 0.5% bupivacaine and 1.5% lidocaine with epinephrine with a mean volume of 23.7mL injected. The study did not attempt to identify any specific regional technique or local anesthetic that would be most effective.
Robert L. Hsiung, M.D.: Great. So, the next time I’m taking care of a patient who is having an arteriovenous fistula (AVF) procedure for the first time, I should suggest to the patient and the surgeon that we perform a brachial plexus block (BPB).

Thank you, Drs. Fragneto and Kushelev for joining me on the SEE podcast. Thanks for tuning in and until next time, signing off.

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