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Get Vaccinated, or Get COVID-19

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Forget herd immunity. You have a binary choice: get vaccinated, or get COVID-19. It's not more complex than that. If you are fully vaccinated, you are unlikely to get COVID-19 and have almost no chance of dying. If you don't get vaccinated, COVID-19 will find you. When it does, you will have about a 1% chance of dying and about a 25% chance of long-term sequelae. You will also lend your body to the virus as a bioreactor for producing yet more infectious variants. Thanks a lot.

Introduction

With the emergence of new variants of SARS-CoV-2, another wave of COVID-19 is crossing the globe (asamonitor.pub/3ki9qb3). Driven by the Delta variant, new cases are surging in two of the most vaccinated countries in the world, Israel and the U.K. (asamonitor.pub/3hGdrnR). See Figure 1. The Delta variant has been rising rapidly in the United States and now accounts for more than half of the new cases of COVID-19 (asamonitor.pub/3BfRTq7). See Figure 2.

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Improving Perioperative Brain Health: Turning Knowledge Into Action

Carol J. Peden, MB, ChB, MD, FRCA, FFICM, MPH
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Most anesthesiologists are aware of the ASA Perioperative Brain Health initiative (PBHI) (asamonitor.pub/2UcqKDd) and its goals to increase awareness of perioperative delirium and perioperative neurocognitive disorders (PND) and to promote action to reduce the incidence of these conditions. The number of papers published on delirium and PND in scientific journals, as well as guidelines and systematic reviews, increases year on year. A recent important paper in *JAMA Surgery* drew attention to the economic impact of delirium and, consequently, made the business case for more investment and preventative action (*JAMA Surg* 2021;156:430-42). An accompanying

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Circle of Life or Hamster Wheel? The World of Obstetrical Anesthesia

Zachary Deutch, MD, FASA
Sharon C. Reale, MD

Hello readers, hopefully everyone enjoyed the summer and is looking forward to an academic year with a large degree of normalcy restored. Notably, most schools look to be reconvened 100% in-person, with minimal to no masking requirements and removal of plastic barriers. Can you imagine that, despite the anxiety, uncertainty, and disruptions related to the COVID pandemic, people still found the proper mindset to procreate? This is, of course, no surprise and is doubtless comforting to ***Dr. Sharon Reale****, our Expert this month. Sharon is in the business of obstetric anesthesiology, and she counts on a steady flow of new babies to safeguard her livelihood, pandemic or no pandemic…*

Welcome Sharon, can you describe your current position and responsibilities?

Thanks very much, Zach. I am an obstetric anesthesiologist at Brigham and Women's Hospital in Boston. Our labor and delivery unit performs approximately 7,000 deliveries a year, and we are a quaternary referral maternal care center. Currently, I am the director of resident education and the associate fellowship program director for the division of obstetric anesthesia. I become the fellowship program director in the fall. My research focuses on using large databases to study maternal morbidity and mortality.

Let's start with some nuts and bolts: what techniques do you favor for epidural/spinal anesthesia in terms of needles/equipment, dosing, and medications?

One of my favorite techniques for epidural analgesia is the dural puncture

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epidural (DPE), which involves making an intentional hole in the dura with a pencil-point 25 gauge spinal needle, after obtaining loss of resistance with the epidural needle, and before threading the epidural catheter. I find the DPE particularly useful in patients in whom neuraxial placement may be difficult, including those with obesity, those with spinal abnormalities (such as scoliosis), or those with a history of patchy/poorly functioning epidural. Though there has been some conflicting evidence published recently, the majority of studies show that the DPE confers a faster onset time, better sacral coverage, and less one-sided blockade when compared to the traditional epidural technique. I typically bolus my epidurals with low-dose bupivacaine (0.0625%) and utilize programmed intermittent epidural boluses (PIEB) in my pump settings. The lower-dose bupivacaine concentrations help to decrease the risk of motor block, while the PIEB settings help optimize analgesia via increased spread of local anesthetics within the epidural space.

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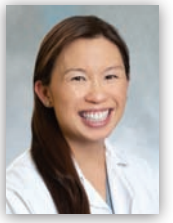

Sharon C. Reale, MD
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For spinal anesthesia for cesarean delivery, I typically use 12 mg 0.75% hyperbaric bupivacaine with 15 mcg of intrathecal fentanyl and 100 mcg of morphine. For those in whom the operative time is expected to be longer than normal, I will often perform a combined spinal-epidural (CSE). For example, I use a CSE in patients with a history of multiple prior cesarean deliveries

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Your Patient's Brain

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Society for Enhanced Recovery and Perioperative Quality Initiative Joint Consensus Statement on Postoperative Delirium Prevention (*Anesth Analg* 2020;130:1572-90), and an expert consensus review from an ASA perioperative brain health expert panel (*Br J Anaesth* 2021;126:423-32). The latter paper, published in *The BJA* in January 2021, takes a pragmatic approach, distilling key actions not from a review of the scientific literature, but from existing published guidelines. The expert panel reached consensus on a small number of actions based not only on the strength of the evidence but also on potential impact and feasibility for widespread implementation. The six actions were:

- Education and training for the multidisciplinary care team on detection and prevention of delirium and PND
- Routine, simple preoperative cognitive screening to detect at-risk patients
- Delirium screening
- Nonpharmacologic interventions such as return of hearing aids and promoting the presence of family
- Optimal pain control
- Avoidance of antipsychotics and anxiolytics unless absolutely necessary.

Anesthesiologists are well placed to act as key members of the multidisciplinary perioperative team to partner and lead with surgeons on joint quality improvement initiatives. The goal of such initiatives should be to ensure that processes of care to improve perioperative brain health become part of routine management for all older surgical patients.

A key component of any quality improvement initiative is understanding the problem. One of the first things hospital teams can do is to measure both the incidence of preoperative cognitive impairment and the incidence of postoperative delirium and PND (*Br J Anaesth* 2016;117:145-8). Administrative data captures delirium poorly, and incidence tends to go up during research projects where teams are proactively and carefully screening patients on a regular basis. Record review using surrogate markers such as use of antipsychotics may help identify cases that might otherwise be missed. Having an idea of the baseline extent of the problem provides a platform on which to launch an improvement program. For example, establishing our preoperative cognitive screening program at Keck Medicine of USC in Los Angeles allowed us to demonstrate that about 25% of our surgical inpatients over 65 years showed some degree of cognitive impairment with Mini-Cog testing (*J Am Geriatr Soc* 2020;68:2359-64). This data stimulated conversation with the wider perioperative team, including not only surgeons but also nurses, pharmacists, geriatricians, therapists, and the IT team, to build a pathway to detect at-risk patients, communicate that risk, take actions such as reducing benzodiazepine prescription, and create alerts within the EHR to flag patients who require close observation (Figure). With a true QI approach, each step of the pathway requires testing and refining before final implementation. Programs such as the Hospital Elder Life Program (HELP) developed by Sharon Inouye at Harvard have shown that simple, practical actions can reduce the incidence of delirium, and when applied to surgical patients, modified HELP programs have not only reduced delirium but also the incidence of other complications and length of stay and promoted a faster return to normal activities of daily living (*N Engl J Med* 1999;340:669-76; *JAMA Intern Med* 2020;180:17-25).

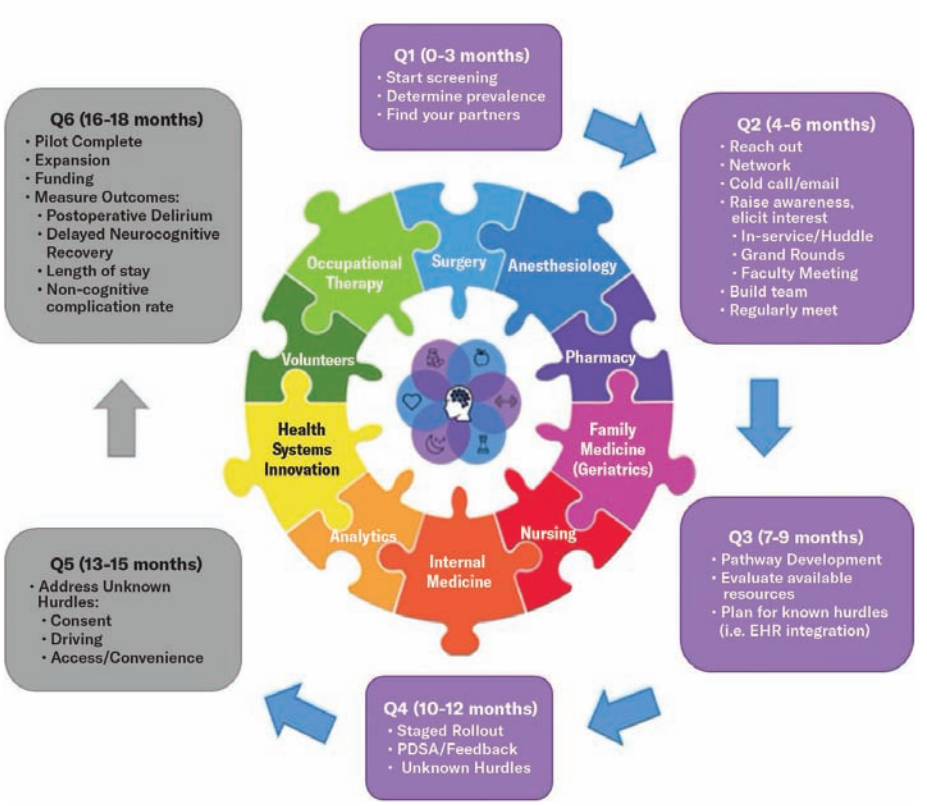

Figure: Steps and timeline in the development of a multidisciplinary perioperative care pathway. The team was designed with the older surgical patient at its center.

Reproduced with permission from Decker et al. Beyond Cognitive Screening: Establishing an Interprofessional Perioperative Brain Health Initiative. *J Am Geriatr Soc*. 2020 Oct;68(10):2359-64. (EHR=electronic health record; PDSA=plan do study act)

Anesthesiologists have rightly focused on whether the type of anesthetic given or the use of intraoperative processed EEG monitoring can reduce the incidence of delirium and PND. However, at present there are no clear answers, and these topics remain the subjects of ongoing research. In contrast, there are simple steps in the perioperative pathway (some of which have been highlighted above) and others, such as avoidance of drugs on the Beers criteria list, that have established evidence behind them (*Anesth Analg* 2018;127:1406-13; *Anesth Analg* 2020;130:1572-90; *Br J Anaesth* 2021;126:423-32). In addition, there is growing evidence that frailty and delirium are closely linked, and screening for frailty and delirium should become a routine part of preoperative assessment (*Anesthesiology* 2020;133:1164-6). A frailty screening kit designed by members of the ASA Committee of Geriatric Anesthesia will be available soon on the ASA website. There are national QI initiatives such as the Age-Friendly Health Systems Initiative, which aims to improve care for hospitalized older people, and improvement work on perioperative delirium and PND fits well into the mentation and medication pillars of this initiative (asamonitor.pub/3qDrnls). Involving patients and families in the design of a perioperative brain health pathway is also likely to increase success, as ideas can be tested and feedback elicited from the individuals who have the most to gain from improvement, and the most to lose from an episode of delirium or PND.

Despite multiple best practice guidelines, systematic reviews, and recent summaries of key actions, simple, evidence-based steps that can help reduce the incidence of delirium and PND are not always taken. Anesthesiologists as key members of the multidisciplinary perioperative team are well placed to lead, or partner with surgical colleagues, on quality improvement programs to reduce delirium and PND. Through implementation of evidence-based perioperative care pathways to protect the brain health of older surgical patients, we can turn knowledge into action. ■

Disclosure: *Dr. Peden is an advisory board member and shareholder of Somnus Scientific.*

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and/or uterine surgeries (with anticipated adhesions, scarring, and difficult surgical exposure) and patients with suspected placenta accreta spectrum disorders.

What do you find most rewarding about OB anesthesia?

In short, everything! I love being an integral team member for one of the most memorable (and hopefully the most joyful) moments in a woman's life. Of course, being able to alleviate labor pain and also providing emotional comfort during cesarean deliveries are particularly rewarding. And the best part of being so passionate about these parts of my job is that I get the opportunity to share these rewarding moments and experiences with trainees, both residents and fellows.

What do you find most challenging/most frightening?

To me, the most challenging and frightening part of obstetric anesthesia is that we take care of healthy young women who may experience significant, life-threatening complications associated with childbirth, such as postpartum hemorrhage, coagulopathy/DIC, or flash pulmonary edema from preeclampsia. It falls on us as OB anesthesiologists to shepherd them through these crises, protect their health, and allow them to return to their newborns and to focus on being a mother.

What is the craziest thing you have seen in your practice?

A very memorable case I had in fellowship was that of a woman with a history of prior deliveries complicated by postpartum cardiomyopathy, who then developed a low ejection fraction at baseline. She presented in her third trimester with volume overload and an EF <30%. She needed an urgent cesarean delivery, and this required rapid coordination between obstetric anesthesia, cardiac anesthesia (who performed intraoperative transesophageal echo), maternal/fetal medicine, the heart failure team, and finally the ECMO team, who cannulated for extracorporeal support prior to incision.

Do you see obstetrical anesthesia as a core competency, or is the field becoming complex enough that a fellowship is required?

I think it's both. It is critical that anesthesia residents be comfortable not only with the technical skills needed to perform neuraxial anesthesia, but just as importantly, they should be well versed in the management of pregnant women throughout the peripartum period. Even anesthesiologists who do not work on labor and delivery will inevitably encounter pregnant women (and recently postpartum women) undergoing surgery in the general ORs. Therefore, a clear understanding of maternal physiology and the care of the pregnant woman is certainly a core competency.

However, it is increasingly being recognized by national societies such as the American College of Obstetricians and Gynecologists (ACOG) and the Society for Maternal-Fetal Medicine (SMFM), that the most specialized birthing centers, such as level III and IV centers, should be staffed by anesthesiologists with specialized training in obstetric anesthesia. In this way, referral centers that care for women with high-risk comorbidities or high-risk surgical conditions are becoming complex enough that fellowship in obstetric anesthesia is key to functioning clinically in that setting.

Can you describe your vision for optimal anesthesia staffing of an obstetrical unit in the community and academic setting? How might this vary by number of deliveries?

As I mentioned, national societies are increasingly recognizing the importance of having anesthesiologists with specialized training in obstetric anesthesia staff units that care for women with complex medical or surgical conditions. In these types of settings (level III or IV centers), it is necessary to have an anesthesiologist physically present at all times on the obstetrical unit. Ideally this anesthesiologist should have specialized training in obstetric anesthesia.

In contrast, at level I or II centers, including smaller community hospitals, an anesthesiologist should be readily available at all times, though they may also be covering other anesthetizing locations such as the main OR. Each labor and delivery unit should carefully examine their delivery volume and operative numbers in order to delineate safe 24/7 coverage. Exact recommendations for staffing based on delivery volume is a tricky issue, and I think this would actually be a fascinating topic to study. Certainly the tighter the anesthesia provider staffing, the more likely there is to be inadequate staffing for emergent deliveries, and the longer patients have to wait after requesting an epidural. There may have to be some operational trade-offs, but maternal care should never suffer.

What is your view on more rural/isolated facilities participating in obstetrical care but doing few deliveries on a yearly basis? Is this reasonable, or not worth the risk?

There has been an increasing regionalization of maternal care, and we know that women at high risk for maternal morbidity, including those with cardiac disease, or women at significant risk for postpartum hemorrhage, should deliver at level III or IV hospitals. Of course, smaller or more rural facilities, such as level I or II centers, may be participating in obstetric care, but it is critical that appropriate prenatal risk stratification of parturients occurs at these locations, ensuring that women at elevated risk for maternal morbidity deliver at centers well equipped to manage their conditions.

What advice do you have for new graduates entering a practice where they will potentially be covering OB units on their own, nights and weekends?

My advice is to take advantage of residency training while you can. Ask your attendings not just what they do, but more importantly, why, so when you are the one who has to make split-second life-or-death decisions, you will be able to reason quickly, even under stress. And don't forget, a lifeline is just a phone call away; don't hesitate to call your colleagues or former attendings when you are covering OB units and a question comes up. We get many such phone calls from former residents to our OB anesthesia workroom!

What do you do for enjoyment/wellness?

This question makes me laugh because I have two boys, who are 2 and 4, so I wish I had time for wellness! However, in my spare moments, I enjoy cycling classes on my Peloton.

Any parting thoughts for our readers?

I feel truly fortunate to be able to practice obstetric anesthesia with the best colleagues and mentors I could ask for at Brigham and Women's, and to have the opportunity to advance maternal care in both clinical practice and the research realm. Thank you so much for the opportunity to share my love for obstetric anesthesia in this column! ■