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Enhanced Recovery for Cesarean Deliveries in the United States: Perspectives From the Front Lines – Part 2

Editors from *Contemporary OB/GYN*® previously spoke with Elizabeth Cherot, MBA, MD, FACOG, obstetrician-gynecologist and chief medical officer at Axia Women's Health in New Jersey; and Cynthia English, DO, an obstetrician-gynecologist practicing at Fort Worth OBGYN in Texas, to learn the latest on enhanced recovery protocols for cesarean deliveries in the United States (see [Enhanced Recovery for Cesarean Deliveries in the United States: Perspectives From the Front Lines – Part 1](#)).¹

In this article, *Contemporary OB/GYN*® editors spoke with Stephen Garber, MD, an obstetric anesthesiologist at Saddleback Memorial Medical Center, a Society for Obstetric Anesthesia and Perinatology (SOAP) Center of Excellence in Laguna Hills, California. Garber explains the value of regional analgesia and transversus abdominis plane (TAP) blocks for cesarean delivery as part of an enhanced recovery protocol.

Disclosure: Dr Garber has a consulting relationship with Pacira BioSciences, Inc, the manufacturer of EXPAREL® (bupivacaine liposome injectable suspension).

Contemporary OB/GYN®: How does one undertake setting up a regional analgesia program in obstetrics?



Garber: Cesarean delivery is the most common surgical procedure in the United States, with [approximately] 1.2 million cesarean deliveries performed each year.² It is a routine procedure. And with the introduction of enhanced recovery after surgery (ERAS) protocols following cesarean deliveries, there is now a way to substantially reduce the amount of opioids that women receive after this major surgery.³ One of the ways to deliver regional analgesia as part of an ERAS protocol is by using TAP blocks for postsurgical pain management, which is the approach our institution has taken.

Prior to launching an ERAS program at Saddleback, many staff thought that because women were safely getting through surgery, the program we already had was a good program and it was working. However, after reviewing the results of other obstetric anesthesia programs [that utilized ERAS], we determined it made sense to initiate such a program at our hospital.

Consistent with guidelines from the American College of Obstetricians and Gynecologists (ACOG) and SOAP,^{4,5} we looked at ways we could enhance our multimodal pain management protocol. In addition, we looked for ways ▶

to incorporate the use of regional anesthesia into these protocols. To initiate the [TAP] program, our anesthesiology team decided to specifically look at patients who were undergoing repeat cesarean deliveries, to begin performing TAP blocks with a long-lasting agent, bupivacaine liposome injectable suspension (EXPAREL®),⁶ as an adjunct to our existing multimodal pain protocol.

The TAP block is performed under ultrasound guidance in the operating room immediately after the cesarean delivery has been completed. Because the spinal anesthetic is still active, performing the TAP block immediately after delivery is painless for the patient. We have found that with the combination of the TAP block and ERAS protocol, reduction of opioid use has been substantial, and we have seen earlier ambulation and more rapid diet progression.

Because most of these patients were at our same institution [for their prior cesarean delivery], we could see the difference between this [new experience] and their previous experience. A formal multimodal protocol, which includes around-the-clock administration of acetaminophen and ibuprofen (or equivalent), was not in place for their first delivery. At that time, the protocol was to administer narcotics and nonsteroidal anti-inflammatory drugs as needed. Now we have a multimodal protocol that includes the TAP block with liposomal bupivacaine. With the liposomal bupivacaine TAP block, many patients [undergoing a repeat cesarean] had minimal to no narcotics postoperatively.

The result was absolutely transformational. [By] reducing the amount of narcotics, patients had increased ability for the bowels to function, [reduced] nausea and vomiting, and greater ease in breastfeeding, which is consistent with the current practice and the results of current data.⁷ Historically, in my practice, when patients were given narcotics, they were not left alone with their baby out of fear of the mother falling asleep. Now patients who had not received opioids were able to have their newborns remain in the room with them.

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Contemporary OB/GYN®: Are there any challenges in setting up a TAP or regional anesthesia program in obstetrics?

Garber: There can be a few challenges trying to convince the institution to implement a TAP program.

The first big challenge is introducing something new into practice, that the anesthesiologists may not be familiar with, and telling them that they are going to see some real changes. At our institution, we needed to consider who was going to do the TAP blocks, how we were going to provide education, and then any additional staffing needs that may be required. Fortunately, at Saddleback, as a center of excellence for obstetric anesthesia, there was interest in advancing anesthetic care into the future with this regional analgesia approach, as well as exploring how liposomal bupivacaine (EXPAREL) could benefit our patients.

An additional challenge may be securing pharmacy department buy-in specifically for long-lasting local anesthetics like liposomal bupivacaine because pharmacy considers the drug expensive. It is important to have a dialogue with pharmacy early on about your goals for enhanced recovery, the specific use of EXPAREL and why it is differentiated from other local anesthetics, and how you expect your results from regional anesthesia to be improved vs your current standard of care. For Saddleback, there is tangible return on investment. For example, at our institution, after implementing TAP blocks in patients who were repeat cesarean delivery patients, we saw results consistent with recently published data regarding a decrease in narcotics* and a decrease in length of stay^{2,8} [when] we compared the use of narcotics from their first cesarean delivery—without the use of bupivacaine liposome injectable suspension [EXPAREL] and multimodal pain protocol⁶—with their current experience.

[Overall], it took 8 months to develop the TAP block program at Saddleback. The program started small, with 10 patients who were scheduled for elective, repeat cesarean deliveries. The use of EXPAREL was discussed with both the obstetrician-gynecologists and their patients. We chose patients who were undergoing repeat cesarean deliveries to compare this [new] experience with the previous cesarean delivery. These patients were chosen because initially, we were only going to try the TAP block with EXPAREL on 10 patients. We were not performing a formal study. Instead, we wanted to learn whether the use of the TAP block with EXPAREL was going to be successful at our institution and felt the best feedback would come from patients who had not received a TAP block with EXPAREL with their previous cesarean delivery.

The pain management and opioid reduction results spoke for themselves. After those patients experienced the procedure, we did not even have to get through 10 patients: Those patients who had undergone the procedure were already able to speak about the difference between their first deliveries and their most recent

*The clinical benefit of the decrease in opioid consumption was not demonstrated in the pivotal trials.

experience with the multimodal approach including the TAP block with liposomal bupivacaine. It was remarkable. Obstetrician-gynecologists at Saddleback saw the results and the value of TAP blocks with liposomal bupivacaine and are now requesting them for their patients who are undergoing cesarean sections. The program has been one of the most rewarding of my career.

Although there can be a few challenges at the outset, it will be worth it in the end.

Contemporary OB/GYN®: What advice would you give a colleague who is considering pursuing a TAP program in obstetrics at their institution?

Garber: There are several key elements to setting up the TAP program, and my suggestion is to be meticulous. Pick the right patients and be sure to provide education. For example, at our institution, a team from Pacira [the manufacturer of EXPAREL®] came to give a lecture on the product, and they also attended the first day of surgeries [performed with the medicine]. They were in the operating room along with nursing support. [The Pacira team] also guided us through the setup in our electronic health records [because] order sets needed to be updated as well. By focusing on these details at the beginning, the process will go smoothly.

If someone is interested in setting up a program, I would love to speak with them about the results we have seen and share with them the excitement and the passion for something that has transformed postoperative obstetric care in patients at our institution. Then I would share the beginning steps in the process, such as bringing in people who they know will accept this technology and this practice, and demonstrating it to not only the obstetricians, but also other anesthesiologists, pharmacists, and nurses.

Some of the obstetricians at our institution were used to seeing the TAP blocks used in patients who were having other surgeries and the patients did well, although they did not have long-lasting pain relief with only bupivacaine HCl, and so education about liposomal bupivacaine was needed. Onsite support at our institution was secured from an obstetric anesthesiologist who was already using EXPAREL as part of a multimodal protocol.

It is important to bring in pharmacists and the pharmacy and therapeutics committee early. It is also important to bring in nursing and nursing management because they will be the ones instituting the changes in regard to patient postoperative management. The nursing staff needs to understand the changes they will be seeing in patient care and what to expect with the ERAS and TAP block protocols. For example, at our institution, prior to the ERAS program, postoperative care for patients who had undergone a cesarean delivery was predictable, particularly in terms of treating pain. Patients received spinal anesthetic with local anesthetic and morphine. The spinal portion wore off about 2 hours postoperatively, and at that time, the patient may have needed some additional pain medications. In addition, the spinal morphine may have produced itching, nausea, and/or vomiting. Having experienced this same course time after time, the nursing staff may anticipate and start treating patients early with both pain medications and anti-nausea

medications to prevent excessive pain and nausea. A nurse with several patients to treat who are postoperative may routinely time the delivery of pain medications in advance.

With the use of the TAP block with EXPAREL, everything changed. For example, patients may be hungry and wish to eat postoperatively, and at this time, we encourage patients to eat early if they feel up to it. In addition, we may see patients wanting to be active very early. These changes [from previous pain management therapies] may be disconcerting to nurses who are not made aware of what to expect. It is extremely important to ensure nursing staff are aware of the positive changes they may see postoperatively.

Contemporary OB/GYN®: What impact has the use of EXPAREL in your TAP program had on your patients?

Garber: I can share a patient experience. One of the first patients who received the procedure at our institution had a negative experience with her first cesarean delivery, and so she was concerned about having another child because she knew she would need to have another cesarean delivery. After this [latest] cesarean delivery, with the TAP block, I called her a few days after the surgery when she had already gone home [from the hospital], and she asked me, "When am I going to start feeling pain?" I explained to her that typically the worst pain after surgery is during the first 1 to 2 days and that is why we use EXPAREL to effectively manage the pain postpartum, [which has shown to significantly reduce mean pain scores for up to 72 hours ($P < .001$)].^{2,8} The patient was so thankful and appreciative that her pain was well managed through those first few days and that she was able to participate in the program. It was touching [and] unbelievable and changed her whole postoperative course.

TAP blocks with EXPAREL are part of the armamentarium in obstetric anesthesiology at our institution now, and it has been transformational and remarkable. It has changed the entire landscape of postoperative care for cesarean deliveries. Using this program, fewer narcotics are being dispensed postoperatively. Therefore, there are no leftover narcotics in the cabinet, something that is important because of the risk of serious opioid-related events,⁹ as well as opioid addiction that may occur after receiving opioids for cesarean delivery.⁴ I recently had 2 patients I did TAP blocks on with liposomal bupivacaine, and neither patient required any postoperative narcotics during their entire hospital stay. This is extremely rewarding as an anesthesiologist.

Contemporary OB/GYN®: How do you see enhanced recovery evolving in obstetrics over time?

Garber: That is an excellent question. I think we are going to see small changes right now because [obstetrics] is just diving into the pool of enhanced recovery. We are using the protocols with NSAIDs and acetaminophen, regardless of whether patients undergo a TAP block. All patients, after a cesarean delivery, are receiving those medications. We are going to see the results they have with those medicines and then [we] will be adding incremental changes, like the incorporation of liposomal bupivacaine. It is a very exciting time, from an obstetric anesthesiologist's perspective. ■

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Indication

EXPAREL® (bupivacaine liposome injectable suspension) is indicated for single-dose infiltration in adults to produce postsurgical local analgesia and as an interscalene brachial plexus nerve block to produce postsurgical regional analgesia. Safety and efficacy have not been established in other nerve blocks.

Important Safety Information

- EXPAREL is contraindicated in obstetrical paracervical block anesthesia
- Adverse reactions reported with an incidence greater than or equal to 10% following EXPAREL administration via infiltration were nausea, constipation, and vomiting; adverse reactions reported with an incidence greater than or equal to 10% following EXPAREL administration via interscalene brachial plexus nerve block were nausea, pyrexia, and constipation
- If EXPAREL and other non-bupivacaine local anesthetics, including lidocaine, are administered at the same site, there may be an immediate release of bupivacaine from EXPAREL. Therefore, EXPAREL may be administered to the same site 20 minutes after injecting lidocaine
- EXPAREL is not recommended to be used in the following patient population: patients <18 years old and/or pregnant patients
- Because amide-type local anesthetics, such as bupivacaine, are metabolized by the liver, EXPAREL should be used cautiously in patients with hepatic disease

Warnings and Precautions Specific to EXPAREL

- Avoid additional use of local anesthetics within 96 hours following administration of EXPAREL
- EXPAREL is not recommended for the following types or routes of administration: epidural, intrathecal, regional nerve blocks other than interscalene brachial plexus nerve block, or intravascular or intra-articular use
- The potential sensory and/or motor loss with EXPAREL is temporary and varies in degree and duration depending on the site of injection and dosage administered and may last for up to 5 days, as seen in clinical trials

Warnings and Precautions for Bupivacaine-Containing Products

- **Central Nervous System (CNS) Reactions:** There have been reports of adverse neurologic reactions with the use of local anesthetics. These include persistent anesthesia and paresthesia. CNS reactions are characterized by excitation and/or depression
- **Cardiovascular System Reactions:** Toxic blood concentrations depress cardiac conductivity and excitability which may lead to dysrhythmias, sometimes leading to death
- **Allergic Reactions:** Allergic-type reactions (eg, anaphylaxis and angioedema) are rare and may occur as a result of hypersensitivity to the local anesthetic or to other formulation ingredients
- **Chondrolysis:** There have been reports of chondrolysis (mostly in the shoulder joint) following intra-articular infusion of local anesthetics, which is an unapproved use
- **Methemoglobinemia:** Cases of methemoglobinemia have been reported with local anesthetic use

Please refer to full **Prescribing Information**, which is available at www.EXPAREL.com.