

Obstetric Anesthesiology: Practice Guidelines and You

How to Avoid Surprises and Improve Outcomes

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As the speed of change seems to be increasing exponentially, we are often faced with information overload. One area that we cannot become lax about is the ever-increasing Practice Guidelines and Committee Opinions that affect the multidisciplinary area of obstetric anesthesiology. This article will review what national societies have urged upon their members, discussing new topics, as a continuation of a prior CME article in the *Bulletin*.¹ The American College of Obstetricians and Gynecologists (ACOG) has released other documents that are very informative and pertinent to obstetric anesthesiology practice. This article will also review documents by the American Society of Anesthesiologists (ASA). Both societies have important guidelines that affect your daily practice. This review is intended to help you understand changes in clinical practice and to improve patient outcomes.

Anesthesia When the Parturient Is on Antidepressants

In February 2010, ACOG released a committee opinion stating that depression is very common before, during and after pregnancy. Indeed, one in seven pre- and postpartum women is treated for depression. Practitioners should be alert to signs of depression.² Some women may be reluctant to mention a history of depression/mood disorder, especially in the presence of friends or family. Be sure to check the prenatal records or ask about this on the preanesthesia assessment. Moreover, antidepressant medications may interact with anesthetics. Commonly prescribed antidepressants in pregnancy include selective serotonin reuptake inhibitors (SSRIs), bupropion, and even tricyclic antidepressants.

Communication Counts—Medical Errors

In July 2010, ACOG reaffirmed that *communication gaps and patient handoffs are very important causes of medical errors and omissions*.³ It also suggested instituting a labor-hospitalist model (in-house, dedicated obstetrician for labor) of obstetric management, but such an approach may not be popular or feasible. However, expect more hospitals to employ a hospitalist model in obstetrics. Be sure to

get a complete report from the nurse or obstetrician prior to administering an anesthetic for labor analgesia or cesarean delivery, and to give an appropriate handoff of patients when being relieved or transferring care.

Timing of Antibiotics for Cesarean Delivery

In September 2010, ACOG changed the standard of care to giving antibiotics *before skin incision* for cesarean deliveries.⁴ Historically, pediatricians wanted to evaluate newborns for sepsis based on the infant's own blood/cerebral spinal fluid culture and sensitivity, and for decades antibiotics were given immediately after umbilical cord clamping. Changing antibiotic administration to within 60 minutes prior to skin incision reduced wound infections from 1.4 percent to 0.6 percent.⁴ The unintended effect of preincisional antibiotics is that if a newborn shows signs of suspected sepsis, then it may be treated empirically with antibiotics, as its blood cultures can be negative due to antibiotic transfer from the mother.

Laboring After Cesarean—What's Really Required?

In August 2010, ACOG again updated its practice bulletin regarding vaginal birth after cesarean (VBAC).⁵ Current terminology changed again! The term VBAC had historically been used whether successful or not. The new terminology is trial of labor after cesarean (TOLAC), which becomes VBAC if the delivery is vaginal. If a hospital will be performing TOLAC/VBAC, then resources for cesarean should be "immediately available" (see next paragraph). Some hospitals stopped offering TOLAC because they do not maintain 24/7 staffing for performing a cesarean section in-hospital. However, a woman cannot be "forced" into a cesarean if she does not want one. The risk of uterine rupture (with potentially bad outcome for mother and/or baby) is increased with use of oxytocin and prostaglandin. A valuable discussion of the risks of uterine rupture appeared in the Winter 2012 issue of the *CSA Bulletin*.⁶ Use of predictive indicators for successful VBAC may help choose or triage potential candidates.

In May 2009, ACOG updated its Optimal Goals for Anesthesia Care in Obstetrics.⁷ This opinion states that "immediately available" is a local decision. A qualified anesthesiologist is to be responsible for all anesthetics administered and should be readily available to assume that responsibility (either in person by phone). Notably, the "30-minute rule" still is promulgated in this 2009 opinion—that is, anesthesia services and surgical personnel must be available to permit the start of a cesarean within 30 minutes of the decision. However, the newer ACOG Practice Bulletin #116 (November 2010)⁸ significantly changed fetal heart rate terminology (to Category I, II, and III) and seems to have discarded a universal "30-minute rule"; this is discussed in depth in a previous *Bulletin* article.¹

Neuroprotection of the Fetus

In March 2010, ACOG set guidelines for neuroprotection of preterm babies.⁹ The delay of delivery for preterm birth now includes the administration of magnesium sulfate, not as a tocolytic, but to benefit the neonate. Recent literature has shown that maternal magnesium sulfate administration may reduce the risk of cerebral palsy in infants who have preterm birth. Note that the dose of magnesium is an initial 6-gram load (not the typical 4 grams for seizure prophylaxis), then infused at 2 grams/hour for 12 hours. This will produce a somewhat higher blood level than the anti-seizure dose given for preeclampsia. Thus, one should expect more cardiovascular interactions (e.g., hypotension) and muscle weakness with the administration of anesthetics and muscle relaxants.

Cesarean Under Local Anesthetic Infiltration

The Practice Bulletin for Obstetric Analgesia and Anesthesia, released in 2002, is an older but still important ACOG reference for obstetric anesthesiologists to know.¹⁰ ACOG notes that maternal request is sufficient reason to provide pain relief. Perhaps more noteworthy for extremely challenging clinical situations is that *ACOG clearly states that infiltration of local anesthesia can be used for cesarean delivery when adequate general or regional anesthesia is unavailable.* Just as an anesthesiologist must be willing to establish a surgical airway (e.g., cricothyrotomy) when necessary, obstetricians also must be willing to perform a cesarean section under local anesthesia infiltration when necessary. This has important medicolegal ramifications if you, the anesthesiologist, are not ready to proceed with the anesthesia, yet the obstetrician declares the need to proceed immediately with surgical delivery. For example, when you encounter a truly difficult airway, you may choose to perform an awake intubation using difficult-airway equipment (e.g., fiberoptic intubation, video laryngoscopy) rather than immediately induce general anesthesia and risk being unable to ventilate the patient. However, while the obstetrician does have the option to proceed under local infiltration if the fetus' life is deemed to be at risk, the anesthesiologist is *neither expected nor required* to put the mother's life in danger by attempting to administer an anesthetic he/she deems to be unsafe and life-threatening.

Blood Loss During Cesarean

ACOG notes that even today, hemorrhage is still one of the top three causes of maternal mortality.¹¹ Estimates of blood loss before, during and after delivery are notoriously inaccurate and usually underestimate the blood loss. Postpartum hemorrhage is fairly common, occurring in 4 to 6 percent of parturients.¹¹ For any postpartum patient with a heart rate greater than 120, consideration should be given to checking her hemoglobin. A great resource for tools regarding

obstetric hemorrhage is the California Maternal Quality Care Collaborative, www.CMQCC.org.

Parturients Having Surgery Other Than Cesarean Delivery—Fetal Heart Rate Monitoring

In February 2011, ACOG provided some reassuring guidance¹² for anesthesiologists concerned with providing anesthesia during pregnancy. ACOG reaffirms that *no* anesthetic agents have been shown to have any teratogenic effects in humans at typical concentration and common duration. Monitoring the fetal heart rate (FHR) may help in maternal management of physiologic parameters, may be useful as a check on fetal status (e.g., fluids, blood pressure, carbon dioxide), and may show the need for fetal delivery. Elective surgery should be delayed if possible until after delivery. Non-urgent surgery preferably should occur in the second trimester, as the incidence of spontaneous abortion and preterm contractions is lower than in the first or third trimesters.

My personal bias is to monitor the fetus at any gestational age, if possible, so that you can evaluate its condition and maximize the intrauterine resuscitation of the fetus should it be deemed necessary. Some obstetricians may be uncomfortable with what actions (e.g., cesarean), if any, should be performed with a very preterm fetus with abnormal FHR patterns. However, FHR monitoring is a useful tool, like the pulse oximeter, in the armamentarium of the clinician. In the majority of circumstances, the FHR readings will be normal. Monitoring FHR will draw attention to potential problems and impending calamity, and will improve the chances of instituting remedial measures without delay.

Acute-onset Hypertension in Preeclampsia

While treatment of severe hypertension in preeclampsia has always been encouraged for systolic blood pressure >160 mmHg, most clinicians did not treat until >180 mmHg or diastolic blood pressure >110 mmHg. With ACOG Committee Opinion #514, new aggressive guidelines for emergent therapy of hypertensive crises have been established.¹³ Citing the risk of intracranial hemorrhage, treatment protocols beginning soon after the detection of hypertension with hydralazine and/or labetalol have been established. The degree of systolic hypertension may be the better predictor of cerebral injury. The new recommendation is for treatment of elevated blood pressures *greater than or equal to either systolic blood pressure >160 mmHg or diastolic blood pressure >110 mmHg that persists for only 15 minutes*. Thus, anesthesiologists should expect more aggressive and earlier pharmacologic treatment of severe hypertension, which, in turn, may interact with both regional and general anesthesia, especially for imminent cesarean delivery.

Related Recommendations from the ASA

The American Society of Anesthesiologists also has guidelines that may help to improve patient outcomes.

Preventing Neuraxial Infections

Neuraxial infections due to regional anesthesia are rare, especially in obstetrical patients. The 2010 ASA Practice Advisory on Prevention of Infection prescribes wearing masks, changing masks after every case (or epidural), washing hands before and after each procedure, and removal of jewelry, including not only watches, but also rings.¹⁴ The use of sterile drapes is recommended as well as a sterile occlusive dressing at the site of epidural catheter insertion, although there is no requirement for the size of the occlusive dressing.

The use of alcohol with chlorhexidine is the preferred prep solution, providing the best antibacterial effect for the longest period of time. However, the Food and Drug Administration has not approved chlorhexidine for neuraxial anesthesia due to studies that showed intrathecal chlorhexidine produced neurotoxicity in animal models. Nonetheless, a recent retrospective study showed no difference in neurologic complications of spinal anesthesia using a chlorhexidine prep when compared to the literature (0.04 percent rate, five cases), with symptoms resolving within 30 days.¹⁵

Oral Intake During Labor and Postpartum Tubal Ligation

Guidelines covering these two situations are described on page 45, in the trio of articles on *nil per os* (NPO).

Summary

The anesthesiologist taking care of obstetrical patients should be familiar with the guidelines of not only the ASA but also ACOG. In the future, more organizations will be establishing guidelines that will change physician and nursing practices. As part of any team, knowing the ever-changing rules that the other players are following will serve to avoid surprises, decrease communication errors, and lead to improved patient care and outcomes.

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