

CHAPTER 19**Obstetric Anesthesiology****Paloma Toledo, M.D.**

Instructor in Anesthesiology

Northwestern University Medical Center

Obstetric anesthesiology is the body of anesthesiology knowledge and practice that relates to the anesthetic care of women during pregnancy. Obstetric anesthesiologists are specialized anesthesiologists who have expertise in maternal and neonatal physiology, as well as in regional anesthesia. These anesthesiologists are involved in the care of parturients during the entire duration of their pregnancy. Obstetric anesthesiologists are involved with in vitro fertilization, anesthesia for cerclage placements, nonobstetric surgery for the pregnant patient, fetal surgery, postpartum procedures, and of course, anesthesia for labor and cesarean deliveries.

Obstetric anesthesia is one of the newer subspecialties of anesthesiology. Anesthesia for deliveries has only recently become a well-accepted practice of medicine. In the mid-1800s, it was commonly believed among Western practitioners that uterine pain was inseparable from contractions; therefore, any medication that removed pain would interfere with contractions and the progress of labor. This belief originated from the Bible when God punished Eve for her disobedience in the Garden of Eden. Pain was seen as a punishment for sins; therefore, people believed that it was wrong to avoid the “divine punishment” of labor pain.¹

This belief was ultimately challenged by James Simpson, the inventor of the Simpson forceps, who used diethyl ether to anesthetize a woman with a deformed pelvis for delivery. This sparked a huge controversy in the medical field, and for years physicians debated the use of anesthesia for delivery. It was ultimately public demand for labor analgesia, and the development of safe techniques, that led to acceptance of pain relief for labor.² Obstetric anesthesia primarily relied on inhalation agents and narcotics until the 1950s when regional anesthesia began being used in obstetric settings. Over the last 50 years, anesthesiologists have engaged in research that not only refined the techniques of regional anesthesia, but have also made the delivery of anesthetics safer for both the mother and her baby. General anesthesia is associated with a seven times greater incidence of a failed intubation in pregnant patients when compared to nonpregnant patients due to increased swelling in the maternal airway and difficulty in properly positioning these patients.³ Advances in regional anesthesia have led to a decline in the need for general anesthesia in obstetrics. Accordingly, the number of deaths associated with anesthesia in pregnant patients has decreased.⁴

The increasing use of anesthesia for obstetric purposes, combined with advances in the understanding of the physiologic and pharmacologic differences between pregnant and nonpregnant patients, led to the development of the subspecialty of obstetric anesthesia.

Our obstetric colleagues have recognized the benefits of epidural analgesia. An American College of Obstetrics and Gynecology (ACOG) statement says, “Of the various pharmacological methods used for pain relief during labor and delivery, the lumbar epidural block is the most effective and least depressant, allowing for an alert, participating mother.” An additional benefit of advances in epidural analgesia has been that labor has become more of a “family” event. In the past, fathers were not allowed in delivery rooms, particularly during cesarean deliveries, and instead were forced to pace the halls until their spouse or partner gave birth. Improvements in epidural and spinal anesthesia have permitted the expectant father to enter the labor and delivery suite and become a true partner in the birthing process. Labor epidural catheter placement and anesthesia for cesarean deliveries are the two most common procedures performed by the obstetric anesthesiologist; however, even these common procedures are not without challenges. Medical management of patients with diseases such as preeclampsia, complex cardiac lesions, or neurological processes require not only knowledge of the disease state, but also of the physiologic changes that we cause with our anesthetics.

Training to become an obstetric anesthesiologist generally involves a 1- to 2-year fellowship after completion of an anesthesia residency program. Obstetric anesthesia Fellows learn the skills and techniques necessary to manage high-risk as well as low-risk pregnancies preoperatively, intraoperatively, and postoperatively, as well as the skills necessary to teach and conduct research in the field of obstetric anesthesiology.

There are many exciting developments on the horizon for obstetric anesthesia. New techniques such as ultrasound for epidural placement, new medications, and better understanding of the relationship between our anesthetics and the effect on the parturient, hold promise for greater research opportunities and ultimately advancements in the quality of care for our patients.

References:

1. Canton D. The History of Obstetric Anesthesia. In Chestnut DH, ed. *Obstetric Anesthesia*, 3rd ed. Philadelphia, PA: Elsevier Mosby. 2004:3-11.
2. Eltzschig HK, Lieberman ES, Camman WR. *Regional Anesthesia and Analgesia for Labor and Delivery*. NEJM. 2003;348(4):319-332.
3. Lyons G. Failed intubation: Six years' experience in a teaching maternity unit. *Anaesthesia*. 1985;40(8):759-62.
4. Hawkins JL. Anesthesia related maternal mortality. *Clin Obstet Gynecol*. 2003;46(3):679-87.