

*Alan Jay Schwartz, M.D., M.S. Ed., Editor*

**Anesthesia and the Fetus.** Edited by Yehuda Ginosar, B.Sc., M.B.B.S., Felicity Reynolds, M.D., F.R.C.A., Stephen H. Halpern, M.D., M.Sc., Carl P. Weiner, M.B.B.S., M.B.A., F.A.C.O.G. Chichester, United Kingdom, Wiley-Blackwell, 2013. Pages: 418. Price: Hardcover—\$149.95, E-book—\$119.99.

As the title suggests, *Anesthesia and the Fetus* is the first textbook focused specifically on anesthetic implications for the fetus. Editors Yehuda Ginosar, Felicity Reynolds, Stephen Halpern, and Carl Weiner recruited an international and internationally renowned group of anesthesiologists, obstetricians, neonatologists, pharmacologists, toxicologists, teratologists, and ethicists to distill and integrate an extensive and far-reaching body of evidence into a concise and clinically relevant resource.

The book is divided into six sections. The first section reviews basic physiology and pharmacology of the pregnant woman, the developing fetus, and the perinatal transition to extra-uterine life. The chapters are generally focused, brief and well organized.

*Anesthesia and the Fetus* distinguishes itself in Section 2, which details the assessment of fetal well-being and neonatal outcome, achieving a depth and breadth not seen in most anesthesiology textbooks. Comprehensive knowledge of cardiocography and intrapartum fetal assessment can be a powerful tool to improve intraprofessional collaboration and care on the labor and delivery unit.

One striking conclusion from reading this book is how little is known about the long-term impact of many anesthetic interventions on the child the fetus will later become. Chapter 8 explores the validity of endpoint measurement and questions the usage of surrogate outcomes, such as umbilical arterial blood gas measurements. Although imploring obstetric and fetal anesthesia researchers to focus their efforts on clinically meaningful outcome measures, the chapter could go further by specifically advocating for long-term measures of neonatal and childhood development, or even school and workforce performance.

While longitudinal research after anesthetic exposure will be logistically difficult and expensive, its necessity is highlighted in Section 3. Chapters on neuraxial analgesia and anesthesia are largely reassuring. But unanswered questions about fetal safety remain. Together, Chapters 21 and 22 thoroughly explore both the hypothesized mechanisms and the clinical implications of anesthesia-induced neuroapoptosis on the developing brain. This body of evidence was generated largely in animal models, leading some to question the relevance for human fetuses. The authors of Chapter 22

instead call for research in neuroprotective strategies, and anesthetic protocols (e.g., maternal neuraxial anesthesia) that limit fetal and neonatal exposure to general anesthetics.

Likewise, Chapter 30 delves into the fetal and neonatal effects of fever attributed to neuraxial analgesia. In itself, hyperthermia might be considered to be benign. The authors acknowledge the possibility that only fever due to infection may lead to cerebral palsy. But they cite additional evidence that “pyrexia on its own exacerbates damage due to hypoxia and ischemia without any involvement of an infectious process.” (p. 280) The second half of the chapter describes strategies to limit epidural-related fever and concludes with the possibility that maternal neck warmers could be used to heat blood flowing to the maternal hypothalamic temperature receptors, thereby attenuating any hyperthermic effects of neuraxial analgesia.

Almost every fetal therapy is administered *via* maternal interventions. The exception may be drugs and fluids administered directly to the fetus during an *in utero* intervention. We had hoped this book would contain a chapter on the pharmacokinetics of drugs and fluids administered directly to the fetus—intramuscularly by spinal needle through the maternal abdomen, intravascularly through the umbilical artery, or through a peripheral intravenous line inserted during an *ex utero intrapartum treatment* procedure. Neonatal dosing guidelines may be insufficient for the fetus, when dosages and volumes are selected based on estimated body weight. This lesson was driven home while observing our pediatric anesthesiologists struggle to resuscitate a distressed fetus during an *in utero* sacrococcygeal teratoma resection. Multiple fluid boluses of 10 ml/kg failed to fill the tiny quivering heart, likely because fetal blood also perfuses the placenta.

Section 4 surveys the interactions between anesthetic interventions and multiple gestation and preeclampsia. Section 5 reviews resuscitation guidelines for trauma, and for maternal, fetal, and neonatal resuscitation.

Tucked in the final section of the book are two excellent chapters on medical ethics, research, and the law. The authors navigate this controversial terrain with expertise, drawing on fundamental ethical principles to clearly delineate working principles to balance obligations to the maternal and fetal patients. International perspectives are offered in exploring wide variation in the definitions of fetal rights. Chervenak and McCullough conclude in Chapter 40 that “ethically as well as clinically the fetus is not a separate patient.” And yet, the fetus remains central to the care of any pregnant woman, and one finishes the book with the acute awareness that more research, more knowledge, and more awareness about clinically significant fetal effects are needed to ensure that any therapies administered to the mother will appropriately balance fetal beneficence with maternal beneficence and autonomy.

The book demonstrates characteristics of a first edition, with some redundancy noted within a few of the chapters. Nevertheless, this is an extremely useful resource for

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anesthesiologists who wish to quickly discern what is known and what is not yet known about the fetal effects of anesthesia. In at least a half dozen of the chapters, the authors have undertaken a systematic review and present tables of relevant randomized studies in addition to summarizing and synthesizing their findings. For the busy clinician, the chapter conclusions are a rapid way to systematically sample the content of each chapter throughout the entire book.

Expertly administered anesthesia offers tremendous potential to improve the comfort of childbirth and obstetric surgery while preserving both fetal and maternal well-being. Increasingly, pregnant women face a barrage of well-meaning advice to limit environmental and pharmacologic exposures for their growing fetus. Consequently, to be effective, anesthesiologists need to do more than simply administer safe anesthesia; we must serve as ambassadors and educators with comprehensive knowledge of the effects of our interventions on both the mother and fetus. For clinicians who seek to fulfil this obligation, *Anesthesia and the Fetus* will be an excellent resource.

**Baskar Rajala, M.B.B.S., F.R.C.A., Jill M. Mhyre, M.D.**  
University of Arkansas for Medical Sciences, Little Rock, Arkansas (J.M.M). jmmhyre@uams.edu

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### **Shnider and Levinson's Anesthesia for Obstetrics, Fifth Edition.**

Edited by Maya S. Suresh, M.D., B. Scott Segal, M.D., M.H.C.M., Roanne L. Preston, M.D., F.R.C.P.C., Roshan Fernando, M.B., B.Ch., F.R.C.A., C. LaToya Mason., M.D. Philadelphia, Lippincott Williams & Wilkins, 2013. Pages: 902. Price: \$232.99.

Most practicing physician anesthesiologists in community hospitals and teaching hospitals are obliged to cover obstetrical anesthesia during the work day and call coverage, which may be the most stressful part of a practice. Keeping up with the literature specific to obstetric anesthesia may be a challenge to the busy practitioner. The revised and updated 5th edition of *Shnider and Levinson's Anesthesia for Obstetrics* will significantly help with this.

It has been 11 yr since the 4th edition of *Shnider and Levinson's Anesthesia for Obstetrics* was released. There have been advances in the field of obstetric anesthesiology since then, focusing on neonatal resuscitation and management of neonatal neurologic injury. The editors in the new edition were eager to improve the content by providing the most up-to-date information, while preserving the original quality of the text as they did in the 4th edition.

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The updated edition is divided into 11 parts. The first section reviews physiology and pharmacology. The initial topic focuses on the areas of uteroplacental circulation, physiological changes of pregnancy, and placental transfer of drugs. The second, third, and fourth parts cover assessment of fetus, labor analgesia, and anesthesia for cesarean delivery. This goes in depth looking at intrapartum fetal monitoring as well as regional anesthesia techniques. The fifth, sixth, and seventh portions cover neonatal concepts of wellbeing, anesthetic considerations for obstetric complications, and management of anesthetic complications. There is in depth look at abnormal fetal positions, obstetric hemorrhage, NPO controversies, and postdural puncture headaches management.

The latter sections cover anesthetic management of parturients, ethical challenges, maternal morbidity and mortality. Very difficult topics we face are covered, including the Jehovah's Witness patient, trauma resuscitation, and the global perspective of obstetric anesthesia. Some detail is provided for *in vitro* fertilization and nonobstetric surgery during pregnancy. Fortunately, given its emergence and growing popularity, the newer, *ex utero* intrapartum therapy surgical procedure is discussed.

The appendix has updated guidelines for neuraxial anesthesia and practice guidelines for obstetric anesthesia along with intrapartum fetal heart rate monitoring.

Shnider and Levinson's chapters are well organized, contain excellent depth, and are informative. The online access offers a full version site with full images to view.

What sets this text apart is the detail in each of its chapters. For those of us who cover obstetric anesthesiology regularly while on call, a review of it is a must. This is an excellent resource for the clinician in training, such as residency or fellowship, or in practice. The chapters are detailed, with complete images, and online access make this a must own reference. The only area for future improvement would be adding ultrasound-guided neuraxial techniques, given the trend in anesthesiology.

I strongly recommend this book as a priceless addition to the library of any well-rounded anesthesiologist who covers obstetrics full time or part time.

**Abed Rahman M.D., M.S.**, Oak Forest Health Center and Stroger Hospital Cook County and Rush University Medical College, Chicago, Illinois. arahman2@cookcountyhhs.org

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