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Pediatric Anesthesia: The Requisites in Anesthesiology.

By Ronald S. Litman, D.O. Philadelphia, Elsevier-Mosby, 2004. ISBN: 0-323-02216-2. Pages: 361. Price: \$79.95.

Pediatric Anesthesia: The Requisites in Anesthesiology is the newest addition to the *Requisites* series edited by Roberta L. Hines. This volume is edited and largely authored by Ronald S. Litman, D.O. He draws from his extensive experience as a pediatrician and anesthesiologist at the University of Rochester (Rochester, New York) and Children's Hospital of Philadelphia (Philadelphia, Pennsylvania). He has designed the text to be a stand-alone reference for anesthesia residents during their core rotation in pediatric anesthesia, as well as an aid in preparation for written, oral, and recertification examinations.

The book is 361 pages in length, with 38 chapters, in eight sections, covering essential topics in pediatric anesthesia. Section I focuses on the physiology of healthy pediatric patients. There is particular attention paid to fetal and infant development, underscoring their unique differences from older children and adults. Section II focuses on pediatric diseases and is organized by organ system. The congenital heart disease chapter offers helpful diagrams for visualizing some important lesions, as well as a useful case discussion regarding the care of an emergency patient with a single ventricle. The respiratory chapter discusses the contentious topic of anesthetizing a child with an upper respiratory infection both by reviewing a frequently cited article on the topic and by providing a case discussion. The chapter also necessarily covers lower respiratory tract diseases. There is special focus on asthma, and further coverage of status asthmaticus in section VIII, the critical care chapter. The oncology chapter provides a clear outline of the principles for anesthetizing a child with an anterior mediastinal mass, in addition to reviewing key articles and providing a case discussion. Rounding out section II are well-written chapters on diseases affecting premature and formerly premature infants. Section III reviews preoperative assessment and preparation. It was curious that the discussion on premedication with midazolam included every route except intramuscular. Although no one really likes to give shots, it can be the most reliable route for premedicating a spirited toddler coming from home.

Section IV covers intraoperative management. There is a wonderfully clear discussion of the dreaded topic of pediatric breathing circuits. There are two chapters on pediatric airway management. The difficult airway chapter, one of the longer chapters in the book, reviews strategies for managing children with either an anticipated or an unanticipated difficult intubation or ventilation. It is well organized and stresses the importance of having multiple backup plans with experienced personnel on hand. In addition to algorithms, there is a clear step-by-step protocol for epiglottitis management, which will aid both practitioners and those preparing for oral examinations. The malignant hyperthermia chapter similarly offers a clear step-by-step protocol for managing suspected malignant hyperthermia patients, as well as highlighting the indications for muscle biopsy testing. Section V briefly reviews a few postoperative considerations. These include: discharge criteria, postoperative nausea and vomiting, stridor, and emergence delirium. In section VI, Drs. Logan and Rose cover the evolving field of pediatric pain management in five chapters of varying depth. Each chapter includes an interesting case discussion, as well as a review of a historically relevant article. The chapters cover pain assessment, analgesia pharmacology, local anesthetics, and adjuvant analgesics, as well as acute pain management and diagnosis and a brief chapter on treatment of complex regional pain syndrome type I in children. The final sections (VII and VIII) cover pediatric surgical procedures, critical care topics, and pediatric anesthesia in nonoperating room locations.

As a whole, the book offers a number of unique features. Most of the chapters have not only an illustrative case discussion for the chapter,

but also a review of an "Article to Know" that has shaped pediatric anesthetic practice. Those preparing for oral board examinations will find these features valuable. Visually, these sections are set aside in shadowed boxes to highlight their importance and enhance readability. In addition, the text offers sections titled "Additional Articles to Know." These are not so-called suggested readings; rather, the authors provide a brief listing of articles that have shaped pediatric anesthesia practice. Interestingly, the text itself is not heavily referenced. This seems to be clearly a stylistic choice, but perhaps future editions might make a complete bibliography available at least on-line.

Like all first editions, *Pediatric Anesthesia: The Requisites in Anesthesiology* is a work in progress. Dr. Litman's authorship of a number of the chapters gives the book stylistic consistency and enhances its readability. The text succeeds in being a concise, tightly focused overview of the field of pediatric anesthesia. As such, not all topics receive in-depth discussion. For example, the chapter entitled chronic pediatric pain discusses only one pathology, complex regional pain syndrome type I. This is not so much a criticism as an acknowledgment that challenging pathology and procedures always require deeper investigation from other sources. Still, the reader should walk away with a sense of what is a reasonable standard of care for a variety of pediatric patients undergoing routine procedures.

This *Requisites* text is a good starting point for those who desire an overview of pediatric anesthesia. It should be extremely helpful to residents doing their core rotation in pediatric anesthesia, as well as those preparing for their oral board examinations. The book is readable, informative, and well written. I highly recommend it.

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Cardiac and Vascular Anesthesia: The Requisites in Anesthesiology.

By Jacqueline M. Leung, M.D. St. Louis, Mosby (an affiliate of Elsevier Inc.), 2004. ISBN: 0-323-02043-7. Pages: 216 plus color plates. Price: \$79.95.

Dr. Leung *et al.* are to be congratulated in largely achieving their stated goal of "providing succinct yet comprehensive and clinically oriented coverage of cardiac and vascular anesthesia" in this new addition to the *Requisites in Anesthesiology* series. As discussed in the preface, "the specialty of cardiovascular anesthesia has undergone tremendous advancement . . . it is still evolving . . . it is impossible to capture the entire subject in a single book," and yet the authors have come impressively close. In general, the book is very well written, with a clinically focused approach to the subject matter organized as follows.

Chapter 1: Cardiac Physiology. The descriptions of cardiac anatomy and the discussions of cardiac electrophysiology and mechanical functioning in chapter 1 are basic, but they are linked to clinical management principles such that even experienced practitioners will benefit from reviewing this chapter.

Chapter 2: Cardiovascular Monitoring. Chapter 2 is very detailed regarding invasive arterial pressure monitoring and transesophageal echocardiography (TEE) but is surprisingly thin where central pressure monitoring is concerned. Perhaps this is appropriate given the critical and routine role that intraoperative TEE now plays and the gradual waning of reliance on pulmonary artery catheters, but it is notable that there is neither a depiction nor a discussion of the pressure waves seen with these "routine cardiovascular monitors." From an educational

standpoint, this would seem important to include in a comprehensive chapter on this subject because alterations of the typical waves and descents are mentioned in the context of certain disease processes in other chapters. Nevertheless, because TEE has essentially become a standard monitor for cardiovascular surgery, an appropriately detailed and well-written treatment of this subject is allotted half of the chapter. In just 11 pages, the authors have managed to capture the basic essence of TEE, including indications for perioperative TEE, a reproduction of the 20 "standard views" and instructions for attaining them, TEE images depicting common views, a brief but adequate introduction to the physics of ultrasonography, and some of the recommended training components for developing and maintaining TEE skills.

Chapter 3: Cardiovascular Drugs. Trainees and experienced practitioners alike will benefit from the historical perspectives and reviews of the literature regarding each agent discussed in chapter 3. A notable omission from this chapter, however, is the drug vasopressin.

Chapter 4: Pacemakers, Intraaortic Balloon Pumps and Ventricular Assist Devices. Chapter 4 is the only dark cloud in an otherwise clear sky of a textbook. One of the well-known problems with comprehensive textbooks is that some of the information is bound to be outdated by the time the text is published. Even so, in contrast to the rest of this excellent text, some material in this chapter is dated and, on occasion, factually incorrect. For example, the Abiomed BVS5000 (Abiomed, Danvers, MA) is described as a device that is "implanted within the chest cavity" and incorrectly attributed to the same German manufacturer as the Biomedicus pump (Medizinische Hochschule, Hannover, Germany [at time of writing]). The statistics quoted regarding bridge to transplantation with the Thoratec (Thoratec Laboratories, Pleasanton, CA) are from 1993, and the current societal importance of this major use of left ventricular assist devices is not even mentioned in the one short paragraph about the Heartmate (Thoratec Corporation, Woburn, MA), the original pneumatic version of which has been approved by the US Food and Drug Administration as a bridge to transplantation since 1994. Other notable omissions from this chapter include the Novacor (WorldHeart, Ottawa, Canada), approved by the Food and Drug Administration as a bridge to transplantation since 1998, and the entire concept of "destination therapy" (for which the Heartmate has been approved by the Food and Drug Administration since November 2002). The discussion of the intraaortic balloon pump is thin, and based on what is presented, one might come away thinking that the major hemodynamic advantage of this device is an augmentation of forward cardiac output; the fact that the intraaortic balloon pump favorably alters the balance of myocardial oxygen supply and demand (the generally accepted major benefit of the device) is never even mentioned. The section on pacemakers, however, is reasonably good.

Chapter 5: Anesthetic Considerations for Patients Undergoing Cardiopulmonary Bypass. Chapter 5 provides a thorough enough treatment of the subject of cardiopulmonary bypass that residents could use it to review for their in-service and board examinations. Notable omissions from the chapter, however, include a basic description of the cardiopulmonary bypass machine and an explanation of how bypass is physically accomplished (the path blood follows), because this is often a source of confusion for the uninitiated.

Chapter 6: Ischemic Heart Disease: Anesthetic Concerns for Myocardial Revascularization. Overall, chapter 6 is an excellent treatment of the preoperative, intraoperative, and postoperative considerations and treatment of patients presenting for revascularization. One small issue regards the discussion of acute normovolemic hemodilution: Many centers may prefer to take blood off the patient *before* systemic heparinization, because this may better preserve platelet function in the stored blood.

Chapter 7: Valvular Disease. Chapter 7 provides an excellent treatment of valvular disease, complete with relevant epidemiology, typical

findings on physical examination (now an almost extinct entity given the availability of echocardiography), and a discussion of the role of TEE for each lesion. The section on aortic stenosis would have benefited from inclusion of how aortic valve area can be determined with use of TEE. The only suggested method for determining valve area is planimetry of the aortic valve in a midesophageal short-axis view (notoriously difficult in calcified valves). The ability to "quantify" blood flow through the aortic valve and left ventricular outflow tract using the deep transgastric and transgastric long-axis views is mentioned, but there is no explanation beyond that.

Chapter 8: Congenital Heart Disease. In chapter 8, the author has done a fantastic job of organizing the enormous and often initially bewildering subject of congenital heart disease into a coherent, well-written treatise.

Chapter 9: Anesthesia for Off-pump Cardiac Surgery. In chapter 9, the typical problems and challenges associated with off-pump coronary artery bypass surgery are discussed. I was glad to see the author advancing the notion that extubation on the table at the end of the case is not necessarily in the patient's best interest.

Chapter 10: Anesthetic Management of Adults with Congenital Heart Disease Undergoing Noncardiac Surgery. Similar to chapter 8, chapter 10 is a well-organized compendium of the wide spectrum of congenital heart disease lesions. Although the 13 pages devoted to descriptions of the various lesions and how they are typically corrected are excellent, only 4 pages are actually devoted to the anesthetic treatment of adults with congenital heart disease undergoing noncardiac surgery. Nevertheless, this chapter provides an excellent treatment of the subject.

Chapter 11: Anesthesia Management for Less Common Diseases (Transplantation, Neoplasms, Trauma, and Pericardial Disease). The discussions of transplantation (including a nice little detour discussing other surgical management strategies for heart failure), cardiac neoplasms, management of cardiac trauma, and pericardial disease are excellent, but in contrast to the rest of the book, there is notable absence of TEE in chapter 11.

Chapter 12: Anesthesia for Patients with Thoracic Aortic Disease. Chapter 12 is a fantastic reference for anyone involved in the care of these patients. One notable omission, however, is suggested anesthetic management for these cases. Everything else conceivable is there—diagnosis, classifications, surgical positioning, potential incisions, hypothermia, steroids, evoked potentials, and so on—but what about the anesthesia? Although there is a brief mention of the author's preferred induction technique for a patient with a type A dissection (midazolam, fentanyl, and lidocaine accompanied by β blockers and/or vasodilators as needed), there is no discussion of how anesthesia might be maintained, *e.g.*, during an elective repair of the descending aorta using evoked potentials. Nevertheless, it is an excellent chapter, well worth reading.

Chapter 13: Anesthesia for Vascular Surgery. The case studies in chapter 13 are nicely accompanied by in-depth discussion of the issues presented and suggested anesthetic management.

In summary, on the whole, *Cardiac and Vascular Anesthesia: The Requisites in Anesthesiology* is an excellent reference for those just learning to anesthetically treat patients undergoing cardiac surgery and a very good refresher for practicing anesthesiologists seeking certification or recertification. Given the current importance of perioperative TEE, the authors are to be applauded for their interweaving of TEE concepts and practice into nearly every chapter.

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