■ REVIEWS OF EDUCATIONAL MATERIAL

James C. Eisenach, M.D., Editor

Principles and Practice of Intensive Care Monitoring. Edited by Martin J. Tobin. New York, McGraw-Hill, 1998. Pages: 1200. Cost: $140.00.

The past decade has seen multiple textbooks on monitoring, usually smallish volumes that provide detailed information on common monitoring procedures and their underlying technology. The new textbook, *Principles and Practice of Intensive Care Monitoring,* takes a much broader view of monitoring, including all forms of monitoring used in the intensive care unit and focusing on how physiologic data can be used to modify patient outcomes. The book contains detailed reviews of most of the available methods for obtaining physiologic data from patients in the intensive care unit. Many of these methods are in common use, whereas others are state-of-the-art procedures used in only a few specialized centers. Much attention is devoted to analyses examining the accuracy (and usefulness) of the data generated by these devices and to how physicians and other care givers can use this information to manage complex patients in the intensive care unit. Chapters are grouped together by organ system, with respiratory and cardiovascular monitors receiving the most attention. There are also chapters dealing with specific situations (*e.g.,* transport) and technologies (*e.g.,* molecular biologic tests). Topics range from the very technical (engineering data on alarms—their frequency, pitch, and intensity) to the purely clinical (indications for placing a pulmonary artery catheter). Taken as a whole, Tobin has created a unique book—one that redefines what monitoring is all about.

The book is large and expansive and is aimed at the intensivist who wishes to use technology wisely and provide high-quality patient care. Although certain chapters can serve as reference standards (*e.g.,* techniques to measure respiratory muscle strength), the book can also function as a series of interesting and useful reviews to be read at one's leisure. The chapters addressing the potential utility of computers in medicine are particularly interesting, providing insight both into the potential offered by this technology and the daunting hurdles that must be circumvented to translate this potential into useful clinical tools.

The authors are leaders in their fields. The overall quality of writing is high. All forms of monitoring modalities are covered. Although one can quibble that some topics are covered in excessive depth (in comparison to the whole) and a few chapters fail to deliver a clear message, the balance is excellent, and there is minimal overlap between chapters.

In summary, this is an excellent textbook and well worth the price. Intensivists will find it both stimulating and useful. It belongs in the library of all major hospitals and medical schools.

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Atlas of Anesthesia Volume V: Subspecialty Care. Series Editor: Ronald D. Miller. Volume Editor: Stanley Muravchick. Philadelphia, Current Medicine, 1998. Pages: 214. Cost: $135.00.

In the production of this series of atlases, the editors intend to provide visual assistance in the learning and retention of a vast body of information. Information is beautifully depicted in graphs, tables, charts, radiographs, microslides, photographs, illustrations, and algorithms. The authors and editor of this volume have done a wonderful job of achieving their goal to "convey critical concepts through carefully selected visual images." I do not think this series of volumes should be used as an initial teaching tool for students or residents, but is an excellent adjunct to a complete textbook.

The *Subspecialty Care* volume is number five of seven in Miller's atlas series. The other volumes are *Critical Care, Scientific Principles, Preoperative Preparation and Intraoperative Monitoring, Principles of Anesthetic Techniques and Anesthetic Emergencies, Pain Management, Pediatric Anesthesia,* and *Cardiothoracic Anesthesia.* The present 11-chapter volume is well catalogued by a table of contents that organizes the figures and legends clearly. Each chapter begins with a brief introduction to the historic development and salient aspects of the subspecialty.

Chapter 1 is devoted to anesthesia for cardiac surgery. Major aspects of cardiac disease are subdivided to focus on aortic and mitral valve surgery, ischemic heart disease, arrhythmias, cardiomyopathies, and cardiopulmonary bypass. This subspecialty could not possibly be completely covered in a mere 19 pages, but the pertinent issues are well illustrated. The chapter is not intended to be all-inclusive; an entire additional atlas volume is dedicated to cardiothoracic anesthesia.

Chapter 2 discusses anesthesia for vascular surgery patients. Dr. Youngberg has divided the chapter into carotid, abdominal aortic, thoracic aortic, and peripheral vascular surgeries. Concise methods of preoperative assessment of vascular patients are presented, including the American Heart Association/American College of Cardiology task force guidelines for noncardiac surgery. The carotid surgery section has useful anatomic depictions of cervical plexus blocks for teaching or reviewing these techniques. The aortic subsection succinctly summarizes the hemodynamic response to aortic cross-clamping and shunting.

The authors Firestone begin chapter 3 on organ transplantation by first describing immunology of transplantation and immunosuppressant pharmacotherapy. Summaries pertinent to donor collection and individual organ transplant surgeries provide an easy, quick reference for the anesthesiologist involved with these cases.

Drs. Gaiser and Gutsche give an excellent review of the broad field of obstetric anesthesia in chapter 4. Maternal physiology, labor analgesia, fetal distress, complications of pregnancy, postpartum problems, and neonatal resuscitation are discussed. The legends throughout the chapter are descriptive and encompassing.

Chapter 5 addresses the subspecialty of orthopedic surgery. Anesthetic issues are clearly and concisely reviewed with an excellent discussion of the pathophysiology of bone cement implantation syndromes and fat embolism. The diagrams of various patient positioning for spine surgery are also very useful.

Chapter 6 discusses trauma and massive hemorrhage and consolidates a huge body of information into a small space. The controversial subject of fluid resuscitation in the trauma patient is neatly summarized. Physiologic alterations and care of patients with both head injury and massive hemorrhage are addressed to clearly present the relevant and current controversies in management.

Neurosurgery and interventional neuroradiology are addressed in chapter 7, which includes interesting examples of pathophysiologic states in a series of magnetic resonance imaging scans. Graphs nicely

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depict the effects of anesthetic agents on cerebral blood flow and intracranial pressure. Intraoperative complications involving ischemic and embolic events during intracranial surgery and autonomic hyperreflexia in patients with spinal cord injury are described clearly. There is also a concise summary of postoperative management of electrolyte abnormalities.

Chapter 8 discusses urologic and male reproductive surgery and uroradiology and also includes a section on adrenal pathology. The chapter begins with the anatomy and physiology of the kidney, as well as its neurohumeral function. The effect of various anesthetics on renal function is summarized nicely. Presentation and treatment of transurethral resection of the prostate (TURP) syndrome are outlined clearly for good board review. Advantages and disadvantages of anesthetic techniques for lithotripsy are listed clearly.

Chapter 9 is dedicated to head and neck surgery and includes a brief section on ophthalmology. This chapter is very detailed and provides wonderful illustrations, radiographs, and photographs of the airway. The physiology of breathing and the airway is depicted with flow volume loops. Graphs show the effects of anesthetic agents on airway neural and muscular activity. Regional techniques for securing the airway and performing peribulbar and retrobulbar blocks are nicely illustrated and make for good references.

Pediatric anesthesia and pain management are discussed in chapter 10, providing a review of common pediatric diagnoses and anesthetic issues. The chapter begins with a detailed summary of commonly used anesthetics in pediatrics. Normal vital signs and laboratory values are also listed for varying age groups. All of the charts in this chapter are great references for quick review.

Finally, chapter 11 addresses the issue of anesthesia for the elderly patient, including an inclusive outline of physiologic and anatomic differences in this population, as well as alterations in response to anesthetic agents. Interesting epidemiologic data regarding elderly patients and disease patterns are presented. Useful algorithms are included to guide preoperative laboratory assessment and intraoperative monitoring in these patients.

I agree with the editors that visual images assist the learning process and allow for greater retention of knowledge. As clearly stated in the preface, this atlas is not meant to be all-inclusive or detailed, but rather a general depiction of the nuances of subspecialty practices in anesthesiology. This goal has been achieved, and this atlas volume is well worth its cost.

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Sedation Simulator, CD-ROM Version 1.0 for Windows. Edited by Howard Schwid. Anesoft, University of Washington. Price: $99.00.

The Sedation Simulation program uses a CD-ROM format, which costs $99. System requirements are Windows 3.11, Windows 95, or Windows 98 with 4-MB RAM and 12-MB hard disk memory for PCs. The program is not Macintosh compatible. The program was easily installed on my laptop Compaq Presario 1920 and within a few minutes I could begin a "lesson." Instructions on the general use of the program were minimal, but this was not a problem.

The CD-ROM contains three audiovisual tutorials, each approximately 2.5 min in duration, which provide basic instruction about simple airway management or obtaining peripheral intravenous access. The bulk of the program is the 40 different patients and cases requiring sedation and analgesia. There are four general types of cases the subscriber can choose from: radiologic, dental, endoscopic, and minor surgery. The range of cases in each category is adequately diverse. Both pediatric and adult patients exist.

Critical events can occur at random during each of the 40 cases, or one can choose from a menu of 11 possible adverse events. These critical events are agitation, apnea, aspiration, bronchospasm, cardiac arrest, anaphylaxis, hypertension, tachycardia, bradycardia, hypotension, and myocardial ischemia. However, a quirk in the programming only allows users to choose critical events for the first 4 of the 40 cases. Thus, users cannot focus on the types of cases that may be more relevant to their practice and methodically work their way through the menu of critical events.

Users can take the usual steps involved in providing sedation and analgesia in a manner that simulates clinical conditions. From a top row of menus, patients can be evaluated, examined, and monitored, and airway management and drug administration can be chosen. There is a limited but instructive amount of information available concerning the cardiovascular and respiratory pharmacophysiology of sedation and analgesia under the last menu item in the "help" category. Although the quality of the images in the program is very good, there are not many figures to illustrate educational points throughout the CD-ROM. At any time during a simulation, an individual can pause from the lesson at hand and acquire and explore some of the basic cardiovascular, respiratory, and resuscitative information provided under the help menu. On the other hand, impatient individuals will tend to speed things up through the "accelerate" mode. There is only one fast-forward, and it is rather rapid. This will likely detract from the real-time aspect of the simulation. Fortunately, the program reverts to real time whenever a patient's condition changes.

Other limitations or flaws exist. For example, as simulations proceed into difficult clinical scenarios, not infrequently, patients die. The simulation ends such calamities with the brief comment "the patient has died. Please inform the family." This can be frustrating, especially when usual and even recommended therapies (found in the help menu) are not always available among the therapeutic options. For example, phenylephrine is not found among drug options for the treatment of hypotension. Other similar problems occurred. In the case of a hypertensive emergency, the recommendations are to use phentolamine or sodium nitroprusside and perhaps an arterial line for monitoring, but, again, these choices are not among the options available during simulation. In the latter case, the recommendations do not seem consistent with what most nonanesthesiologists administering conscious sedation would consider. Minor flaws, such as when the description of a particular patient (*e.g.*, 45-yr-old obese, anxious smoker with angina) does not match the picture of the patient (young, slim adult male who looks relaxed), are amusing but not problematic.

The presentation of the 40 cases is somewhat interactive in that a "consultant" system can be queried. However, advanced interactivity is limited. For example, if patients improve after an adverse event, one can only assume that this was because initiated therapies were correc-

tive. If a user fails to initiate proper therapies, time will continue to pass until the patient either dies or the user pauses the simulation to seek advice or information from the help menu. Incorrect choices are not highlighted through instructional means during the active phase of the simulation. Although this reviewer thinks such instructional feedback during simulation is of added value and enhances the interactive potential of the format, perhaps "real" simulation (is that an oxymoron?) is better without such added educational components.

A final limitation of the program worth noting is that once the procedure is completed, the patient is left in limbo. There are no prompts questioning the caregiver about patient fitness for discharge from either the procedure area or the facility. If one lets time "accelerate," even for 30 min, nothing happens. Thus, the entire issue of patient recovery and fitness for discharge is avoided in an awkward manner.

The Sedation Simulation program is advertised as intended for radiologists, endoscopists, dentists, surgeons, and nurses, which seems appropriate. For those seeking a basic introduction to or review of the pharmacology and practice of sedation and analgesia or "conscious sedation," the Sedation Simulation program can be recommended. Overall, this reviewer found the Sedation Simulation program fun to use. It should prove to be a useful educational tool for clinicians who are either inexperienced or require an update concerning this area of patient care. Additional benefits include an increased awareness of the utility of pulse oximetry and capnometry, because it becomes clear during simulations that critical events are more quickly diagnosed when these monitors are applied. Twenty CME or CNE credits can be obtained by simply mailing in a printed summary of the simulated cases and a nominal accreditation fee.

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