BOOK REVIEWS

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Anesthesia for Vascular Surgery. EDITED BY MICHAEL F. ROIZEN. New York, Churchill Livingstone, 1990. Pages: 505. Price: $85.00.

As an anesthesiologist whose clinical activities have for several years been concerned predominantly with major vascular surgery, I eagerly anticipated the publication of **Anesthesia for Vascular Surgery**, and I am generally pleased with the product. Roizen shares my bias that major vascular surgery constitutes the premier anesthetic challenge. It is remarkable that the void filled by this book has existed for so long, in contrast to the literature of other subspecialty areas, such as cardiac anesthesia, its closest cousin.

The format of **Anesthesia for Vascular Surgery** is unusual and, I think, effective. The book is organized into four major categories: Cerebrovascular Insufficiency; Visceral and Suprarenal Aortic Reconstruction; Abdominal Aortic Reconstruction; and Lower Extremity Bypass Grafting. Each category begins with a chapter by a vascular surgeon describing a variety of perioperative surgical issues. I found these essays informative and useful.

After each surgeon's perspective is a chapter on the general principles of anesthetic management for the particular category of vascular procedure. I especially appreciated the discussions on risk assessment, with morbidity and mortality figures as they have evolved over the years. There is currently a great deal of interest regarding the development of preoperative evaluation techniques that can identify patients at risk for intra- and postoperative cardiac morbidity. Several contributors bring us up-to-date on recent studies, but go on to point out that even if preoperative risk assessment were to become quite precise (if not inexpensive), the appropriate clinical algorithm to be followed remains unknown. That is, do patients with a positive predictor (based on dipyridamole thallium reperfusion scans or ischemia on Holter, for instance) have cardiac catheterization followed by coronary artery bypass graft (CABG) or angioplasty? Do they start on medical therapy? Do they receive "special" anesthetic and postoperative care? Many vital issues remain to be investigated, and thus, a patient's sojourn through the clinical decision tree varies as local whim or custom dictates.

The most delightful aspect of **Anesthesia for Vascular Surgery** is a series of "how-to" chapters in each of the major categories of surgical procedure. Recognizing that a wide range of techniques, may be successfully employed, Roizen has gathered several detailed accounts of anesthetic practice as developed by experienced clinicians throughout the country. It is valuable to know the spectrum of opinions regarding the use of monitoring devices, controlling cardiac load, renal protection, postoperative extubation, postoperative pain relief, and other procedures. The various authors present arguments from the literature to support their views, and often come to opposite conclusions. Some use pulmonary artery catheters on virtually all patients (using the occult heart disease rational), whereas others are quite conservative. To control blood pressure during aortic clamping, some use nitroprusside; some prefer nitroglycerin; and others deepen anesthesia. Several authors review the literature on renal protection, which suggests the lack of benefit of furosemide, but then most admit they give it anyway to augment urine output. Some believe a patient's trachea should remain intubated, whereas others advocate early tracheal extubation. I wonder if the standard deviation of clinical beliefs is as broad in other medical specialties? It was fascinating to peruse these chapters, delighting in those authors who agreed with my judgment and musing over the arguments of those who did not. I was chagrined that contributors to the section on cerebrovascular insufficiency seemed unreasonably close to declaring brain monitoring as the "standard of care" during carotid endarterectomy, while admitting 1) that such techniques are associated with false positives and false negatives (at an unspecified incidence), and 2) that no clinical studies have shown a benefit from the use of such monitors. It seems that caution is warranted in making recommendations which could have medical-legal implications.

In common with many multi-authored texts, the book suffers from redundancy and overlap of information. Since the entire book deals with patients who have atherosclerosis, we learn many times that disease in one vascular bed implies disease in another and that cigarette smoking is detrimental. Presumably, these warnings are worth repeating.

The introductory chapters are of some interest. The first one, on overall morbidity and mortality, is rich in published data, several aspects of which are later repeated in the subsections. The chapter on cardiovascular monitoring is particularly informative in its discussion of the pitfalls of central pressure monitoring. The final chapters, under the heading Controversies and Other Issues, are brief reviews of specific topics such as Regional Anesthesia and Anticoagulation, Somatosensory Evoked Potentials, Appropriateness of Pulmonary Artery Pressure Monitoring, and Transesophageal Echocardiography.

In summary, Anesthesia for Vascular Surgery is valuable reading for all anesthesiologists, whose practice includes vascular procedures. This clinical monograph may be more suited to the experienced professional than to the anesthesia trainee. The former are more likely to appreciate and tolerate the ambiguity created by the divergent views expressed.

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Monitoring in Anesthesia and Critical Care Medicine. Second Edition. EDITED BY CASEY D. BLITT. New York, Churchill-Livingstone, 1990. Pages: 903. Price: $99.50.

The last 5 years have seen an explosive growth in monitoring technology and equipment, as well as the adoption of standards for minimal monitoring of patients undergoing anesthesia. The goal of the second edition of **Monitoring in Anesthesia and Critical Care Medicine** is to be a complete, state-of-the-art general reference. The book is multiauthored and comprises 33 chapters organized into five sections.

Section 1: General Principles. The first of five chapters, "A Philosophy of Monitoring," provides a general overview and briefly mentions standards for monitoring. "The Senses as Monitors" presents an interesting critical perspective on the art of anesthesia. The two-page chapter "Stethoscopy," which follows, is somewhat disappointing in that it gives superficial treatment to a subject that is worthy of considerable elaboration. "Monitoring and Patient Safety," and particularly its very important discussion of capnography, is excellent. Section 1 concludes with a superb discussion, "Cost Benefit Analysis in Monitoring."

Section 2: Monitoring the Cardiovascular System. This section includes seven chapters. The two chapters on blood pressure monitoring provide a good account of the available noninvasive and invasive methods. "Electrocardiographic Monitoring and Dysrhythmia Analysis" includes

23 pages on dysrhythmias and their management, but only 5 pages on the monitoring aspects of the EKG. Thus, many questions on this fundamental modality, such as lead placement systems and the selection of the most appropriate mode on modern EKG monitors (*i.e.*, diagnostic *vs.* monitoring *vs.* filter) are left unanswered. The chapters "Central Venous Pressure Monitoring," "Pulmonary Arterial Catheterization," and "Transesophageal Echocardiography" are excellent and include many illustrations.

Section 3: Monitoring the Respiratory System. This section comprises several outstanding chapters—"Respiratory Monitoring," Monitoring Anesthetic and Respiratory Gases," and "Blood Gas Monitoring." In contrast, the chapter "Pulse Oximetry" is disappointing: too much space is devoted to unhelpful formulas and equations, and little or none to the subject of erroneous readings due to dyshemoglobins, dyes, or pigments. Furthermore, it is stated that regardless of the amount of methemoglobin present, virtually no error is introduced in the calculation of functional hemoglobin by the pulse oximeter. This is incorrect (ANESTHESIOLOGY 70:112–117, 1989).

Section 4: Monitoring the CNS. Four excellent chapters—"The Electroencephalogram," "Evoked Potentials," "Intracranial Pressure," and "Anesthetic Depth Monitoring"—compose this section.

Section 5: Miscellaneous Monitoring. This section comprises several good chapters, including "Temperature" and "The Kidney." One chapter, "Miscellaneous Blood Measurements" (ions, glucose, osmolality, protein, coagulation, *etc.*) is notable for its absence of illustrations and lack of any discussion of thromboelastography. "Monitoring the Anesthesia Delivery System," although good, may already be somewhat out-of-date. For instance, no mention is made of the ASTM F1161-88 Machine Standard (approved July 1988, published March 1989), which discusses monitoring and alarm features of contemporary anesthesia delivery systems. In addition, agent-specific IR gas analysis has arrived! A solid review, "Neuromuscular Monitoring" is followed by the excellent chapter "Computers in Anesthesiology," in which are discussed the basics of computing and its numerous applications (monitoring, record keeping, and control systems) in the operating room (OR) and in the intensive care unit (ICU). "Monitoring in Unusual Environments" provides a brief summary of monitoring considerations in ESWL, x-ray, and magnetic resonance imaging suites and could be expanded.

Section 6: Monitoring and Subspecialties. The six chapters of this section cover neuro-, cardiac, pediatric, and obstetric anesthesia as well as critical care monitoring. The chapters "Cardiac Monitoring," "Pediatrics," and "Critical Care" are especially good for the nonspecialist, whereas "Obstetric Anesthesia" provides lengthy discussions of the physiology and management of the complicated obstetric patient but too little on monitoring *per se.* The final chapter in the book, "Monitoring Modalities of the Future," reviews potential OR and ICU applications of newer technologies such as IR spectroscopy, imaging, Doppler, and scintigraphy.

Despite the above criticisms, **Monitoring in Anesthesia and Critical Care Medicine** meets its overall goals. It is generally well-written and is satisfactorily illustrated, referenced, and indexed. As with any multi-authored book, individual chapters vary considerably in approach, quality, and depth, but for the most part the reader will find answers and a source of references to his or her monitoring questions. Overlap among chapters is not generally a problem except for the subject of pulse oximetry, which is covered to varying degrees in at least four different chapters. One good comprehensive chapter on this important monitoring modality would be preferable. Areas not adequately or specifically discussed but which warrant space include standards for basic intraoperative monitoring (ASA 1986 *et seq.*), telemetry, integration of monitoring systems, monitoring the OR atmosphere, optodes, and choice of a monitoring system.

Since technology is advancing so rapidly it is difficult for any book on monitoring to be completely current. At this time, **Monitoring in Anesthesia and Critical Care Medicine** is the most up-to-date good general reference on this subject and as such deserves a place in everyone's library.

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