

■ BOOK REVIEWS

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Monitoring in Anesthesiology: Current Standards in Newer Techniques. Volume 31. By D. Royston and T. W. Feeley. Boston, Little, Brown. Pages 201. Price \$39.00.

This issue of *International Anesthesiology Clinics* evaluates several aspects of monitoring during anesthesia and intensive care. The authors of this monograph are well-recognized experts in the field. Most of the articles not only provide useful information on various pathophysiologic aspects of the disorders encountered and the technologies involved in measuring the different parameters, but they also contribute interesting historic information. As is usual in monographs of this kind, the list of discussed topics is somewhat arbitrary, and some of the topics overlap. Some topics, for example, the description of the routine use of the pulmonary artery catheter, can be found in almost any standard textbook of anesthesiology; while other topics, such as "transesophageal echocardiography," "evoked potential measurements," "computerized EEG," and "respiratory mechanics," were not included.

Two excellent articles describe the history, technology, and principles of continuous intravascular (B. D. Royston) and in-line (M. L. Smith, N. T. Smith, and E. S. E. Nessler) measurement of blood gases and electrolytes. These two chapters address the limitations and advantages of these methods as well as expected future developments. These articles are of particular value in view of the fact that this information usually is omitted from textbooks dealing with anesthesiology and intensive care.

Two of the other articles are devoted to perioperative myocardial ischemia. B. D. Berquist and J. M. Leung describe the consequences of myocardial ischemia and the methods used in its detection, from magnetic resonance imaging to clinical monitoring. An interesting comparison is made among the different clinical tools already available to detect perioperative ischemia, such as electrocardiography, echocardiography, pulmonary artery catheterization, and metabolic sampling. The significance of each of these methods has been highlighted by the authors. A subtopic on automated ST-segment monitoring (J. G. Muller and P. G. Barash) presents a methodologic analysis of ischemia-induced ST-segment changes. This article is a good source of information for any anesthesiologist embarking on ST-segment analysis. The authors also discuss several marketed automated systems for ST-segment analysis. Although it is undoubtedly important to understand the differences among the available systems, the authors have not analyzed them all. This could be conceived as biased, which probably was not the authors' intention.

Three articles describe different methods of continuous evaluation of cardiac output, but only one of them, on pulse infusion-thermodilution cardiac output (M. Yelderman), is of likely clinical relevance. Dr. Yelderman was a pioneer in the development of cardiac output measurements based on heat pulses delivered from filaments built into a regular pulmonary artery catheter. This method of thermodilution cardiac output measurement is an averaging technique and represents the cardiac output of the 3–6 min prior to the reading. The accuracy and efficiency of this method have been evaluated in 800 patients. Articles discussing continuous monitoring of cardiac output by pulse waveform and the use of the esophageal Doppler in monitoring aortic blood flow provide relatively little clinically pertinent information.

Only one article in this monograph addresses central nervous system monitoring: "Continuous Monitoring of Cerebral Hemoglobin Ox-

xygen Saturation." The author (R. W. Brown) describes the theoretic basis of cerebral oxygen balance and the validity and limitations of its measurement. Continuous measurement of jugular-venous bulb oxygen saturation was the only means of monitoring global cerebral oxygen balance until the advent of noninvasive techniques based on near-infrared spectroscopy. In contrast to jugular oxygen saturation, near-infrared spectroscopy reflects regional, not global, oxygen balance. It is too early, however, to predict the importance and accuracy of infrared spectroscopy, because this system is still in its trial stage.

The monograph concludes with an article analyzing the effect of monitoring standards on anesthesia outcome (J. H. Eichhorn). After a review of the historic aspect, the author analyzes data supporting the routine use of pulse oximetry and capnography. The chapter includes critical reservations by other experts regarding the scientific basis for the prevalent monitoring standards.

Monitoring in Anesthesiology: Current Standards and Newer Techniques is recommended highly for its invaluable and well-presented information, which sometimes is omitted in our textbooks. Despite several minor flaws, the monograph is an excellent, up-to-date review of leading topics in this field.

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Local Anesthetics. By Rudolph H. deJong. St. Louis, Mosby-Year Book, 1994. Pages: 421. Price: \$55.00

Many people can understand complicated issues or ideas, but very few people can explain them in a concise manner that is easy to understand. Dr. deJong is one such person. *Local Anesthetics* reads as if Dr. deJong was talking to the reader. He gives a balanced explanation of each topic, tying together the referenced studies that led to our current understanding of local anesthetic action. Dr. deJong has a long history of scientific work in the field of local anesthetics, and his book brings together historic perspectives and current research involving animals and humans. He succinctly develops lines of reasoning from the numerous research studies that culminate in the current understanding of local anesthetic function. This single-author book, in the current atmosphere of larger and larger "specialty" books in the field of anesthesia, is commendable but more importantly rewards the reader with consistency throughout the book not attainable in multiauthored compendiums.

The book is divided into two parts, "The Basic Sciences" and "The Clinical Sciences," with a preface on the history of local anesthetics and appendices of generic and trade names of the local anesthetics and their molecular weights. Each part has multiple chapters that walk the reader through the physicochemical properties of the local anesthetics and the intended and unintended tissues and organs affected. Dr. deJong's depth of knowledge and proficiency with the past and current concepts of local anesthetics shines through in every

chapter. To reiterate, every chapter is consistent in content and quality. There are no weak chapters, and to say that any one chapter stands out would only discount the strength of the others. All of the chapters are well referenced, with up-to-date citations. Additionally, any one chapter can stand alone and be read and understood individually. The book makes for informative and smooth reading from cover to cover. Chapters covering specific topics can be understood clearly and are excellent references if one has limited time or desires to read only selected sections. The chapters dealing with local anesthetic effects on the central nervous system, the cardiovascular system, and adverse effects and drug toxicity are particularly useful for this purpose. The only drawback of the book, and it is a minor one, is the synopses at the end of each chapter. This book is distinguished because of the informative and smoothly written chapters. These "Monarch Notes" after each chapter cheapen an otherwise excellent information source. I hope that in future editions, these are removed.

Although several large, multiauthored textbooks on anesthesia and nerve blocks contain information on local anesthetics, they pale in comparison to this well-organized and superbly written book. Given its reasonable price and the amount of information and the quality of writing in it, this book will make a significant contribution to the library of any anesthesiologist who uses local anesthetics.

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Textbook of Trauma Anesthesia and Critical Care. By Christopher M. Grande. St. Louis, Mosby, 1993. Pages: 1445. Price \$145.

This book, sponsored by the International Trauma Anesthesia and Critical Care Society, is one of the first comprehensive texts in the field of trauma anesthesia. The textbook is a symbolic manifestation of the effort to establish and codify this new subspecialty. It was edited by Dr. Grande and ten section editors. The chapters were written by contributors from all over the world, many of whom are also members.

Part I of the book focuses on the history of trauma anesthesia, epidemiology of trauma, trauma care systems, general trauma management, and the role of the trauma anesthesiologist in the care of trauma victims in- and outside the operating room. Part II contains a description of the components of the trauma systems and the trauma anesthesia practices throughout the world. These sections note that in many parts of Europe, anesthesiologists have played the leading role in trauma care, coordinating and delivering prehospital and disaster care, as well as directing intrahospital critical care. Documenting this international variability is a commendable goal, because trauma anesthesiologists-in-training eventually may assume or share the responsibility of developing or improving a trauma system.

Parts III–X delineate the body of clinical knowledge in the practice of trauma anesthesia and critical care, beginning with management of the trauma victim in the field and proceeding through the preoperative, intraoperative, and postoperative phases. These sections also review the perioperative anesthetic management of trauma of specific organ systems, special trauma populations (burns, geriatric, pediatric, obstetric), and patients with common preexisting diseases.

Part XI deals with ethical and legal issues that are relevant when one forgoes life-sustaining interventions in hopeless cases. It also reviews the evaluation and certification of brain death, organ donor management, and organ transplantation. Finally, parts XII and XIII discuss special considerations, such as critical care transport, hyperbaric oxygen therapy, toxicology, and environmental conditions.

The book is written clearly and well edited. It has an easy-to-read style, many boxes and tables, and generally good-quality illustrations. The bibliography at the end of most chapters is comprehensive and current.

As with many multiauthored texts, the quality of the chapters varies significantly, and repetition is unavoidable. For example, the calculation of the pressure–volume index is described in the chapter on neurologic trauma in the section on perioperative anesthetic management and in the chapter on neurologic injuries in the section on recuperative phase. Although the editor-in-chief allowed some overlap between chapters so that each section could function independently, cross-referencing among sections could have decreased redundancy.

Many chapters are excellent, such as those on the history of trauma anesthesia, preanesthetic evaluation, trauma and sepsis, and the evaluation and certification of brain death. The chapter on monitoring is disappointingly too superficial and contains several errors. It states that in the presence of methemoglobin or carboxyhemoglobin, pulse oximeters report "functional" saturation when, in fact, Barker *et al.* (ANESTHESIOLOGY 70:112–117, 1989), have demonstrated this not to be the case. It also states incorrectly that the Oximetrix 3 computer (Abbott Critical Care, Mountain View, CA) calculates mixed venous hemoglobin oxygen saturation "depending on the patient's hemoglobin concentration." In the same chapter, a list of monitors to be used in the operating room contains items that are not monitors (warming blankets, humidified breathing systems, and large-bore intravenous lines) and therefore should not have been included.

The chapter on emergency and elective airway management spends a significant amount of time describing the theoretic use and methods of extrapulmonary gas exchange. Although interesting, this discussion seems out of place and should have been included in another section of the book. The same chapter contains a significant error when it states that a confirmatory sign of endotracheal intubation when using a colorimeter carbon dioxide detector is a characteristic pink to purple color, when, in fact, that color would indicate either esophageal intubation or low perfusion.

The information contained in some chapters is based largely on anecdotal experience or personal opinion. This is not surprising, if one considers the lack of scientific data in the field of trauma anesthesia.

Despite the above criticisms, this book presents an excellent update and broad review of known information and introduces areas not covered previously as part of trauma anesthesia. The ITACCS and the authors of this textbook are to be congratulated for reviving and expanding the commitment of anesthesiologists to the care of the trauma patients.