Michael J. Avram, Ph.D., Editor

Pharmacology and Physiology for Anesthesia: Foundations and Clinical Applications. Edited by Hugh C. Hemmings, Jr., M.D., Ph.D., Talmage D. Egan, M.D. Philadelphia, Saunders, 2013. Pages: 704. Price: $150.00.

The field of anesthesiology continues to grow and expand at a rapid rate. To be at the forefront of knowledge in this area and provide outstanding patient care, a solid foundation is required. Superficial facts can be memorized, but a deep understanding of patient physiology will provide the clinician with the tools to make appropriate decisions and interventions when challenging situations present. *Pharmacology and Physiology for Anesthesia: Foundations and Clinical Applications* presents the broad knowledge required for the anesthesia provider in addition to including appropriate depth in both pharmacology and physiology.

Five sections make up this textbook, starting with Basic Principles of Pharmacology. The material in this section has become increasing critical for the clinician to grasp as the number of drugs administered in the various areas of practice, such as the operating suite, intensive care unit, or pain clinic, continues to increase. Our specialty uses desirable drug interactions in daily practice, taking advantage of desirable drug effects while minimizing adverse effects without much thought. However, we must be vigilant for the increasing possibility of adverse drug interactions or reactions. Pharmacokinetics, pharmacodynamics, and pharmacogenetics are clearly described such that those who do not have in-depth training in these fields can understand the daily applications. Sections II (Nervous System) and III (Cardiovascular and Pulmonary Systems) begin by providing basic physiology at the cellular level. This is built on by descriptions of overall system physiology and the pharmacology of relevant medications used in the treatment or manipulation of the physiology of each organ system. Section IV (Gastrointestinal and Endocrine Systems) not only discusses liver, gastrointestinal, and endocrine physiology and pharmacology, but also devotes chapters to the important areas of nutritional and metabolic therapy as well as the challenging issue of postoperative nausea and vomiting. Section V concludes the textbook with discussions on renal physiology and fluid and electrolyte management in addition to the blood transfusion and coagulation management. Although this textbook provides up-to-date information on critical and rapidly changing fields of fluid and electrolyte management, blood transfusion, and coagulation management, the deeper value of this textbook is the foundation that is provided. With such an understanding of the physiology, practitioners will be able to understand and adjust to new practices in these ever-changing areas.

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Textbooks provide valuable education for those new to the field and building a foundation on which to learn, provide review for boards and continuing medical education, and act as a reference for the provider to refresh on topics as necessary. This book meets each of these needs well. Not only does it provide an excellent foundation for learners to begin to master the art and science of anesthesiology, but also it is an excellent resource for the practicing clinician to have on the shelf for reference. There is sufficient depth to answer queries while being organized in such a manner that information can be located efficiently. Individuals selected to write chapters are known to excel in the areas they cover, which explains the thorough and cutting edge content. The online feature at ExpertConsult.com provides additional convenient access to the textbook information and beyond. This textbook can easily be recommended to anesthesiology providers at all levels of training.

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Fundamentals of Neuroanesthesia: A Physiologic Approach to Clinical Practice. Edited by Keith J. Ruskin, M.D., Stanley H. Rosenbaum, M.D., Ira J. Rampil, M.D. New York, Oxford University Press, 2014. Pages: 384. Price: $165.00.

Fundamentals of Neuroanesthesia: A Physiologic Approach to Clinical Practice, edited by Drs. Keith J. Ruskin, Stanley Rosenbaum, and Ira Rampil, offers a well-organized and clearly written physiologic basis for the anesthetic approach to a broad range of neurosurgical cases. This first edition textbook adds to the current selection of neuroanesthesia texts because of its practicality. The topics covered are comprehensive, including sections on anesthesia for supratentorial and posterior fossa craniotomies, pituitary surgery, craniotomy for skull base and vascular surgery, posterior fossa surgery, epilepsy surgery, awake procedures, stereotactic radiosurgery and intraoperative magnetic resonance imaging, neurointerventional radiology, and the anesthetic implications of patients with other neurologic diseases.

The book is divided into 30 chapters and begins with a discussion of neurophysiology and neuroanatomy. The anatomy chapter is enjoyable to read because the discussion is very relevant to the anatomy of the surgical procedures and neurologic diseases discussed later in the book. The chapter discussing cerebral blood flow and metabolism describes basic physiology and enriches the topic by covering advanced modalities used to monitor cerebral blood flow and metabolism in clinical practice. The next group of chapters covers pharmacology of anesthetic agents. At the end of the chapter

on sedative-hypnotics, an awake craniotomy case and a spinal fusion with neuromonitoring case are presented; they facilitate meaningful discussion about the use and administration of intravenous anesthetics in neurosurgical patients.

The next several chapters discuss specific neurosurgical procedures. For each procedure, the chapters cover preoperative considerations, positioning considerations, intraoperative management, complications that may arise, and postoperative management. Practical recommendations based on explanations from current literature are made and, where relevant, current practice guidelines, such as the Brain Trauma Foundation Guidelines for traumatic brain injury, are reviewed. A separate chapter also reviews positioning with a comprehensive group of illustrations of the frames and tables used in spine and intracranial surgery. The book finishes with the management of specific neurosurgical patient populations, including pediatric patients, patients who are critically ill, those with occlusive cerebrovascular disease, and brain-dead patients.

One minor criticism is the repetitive nature of the chapters that discuss the various types of neurosurgical procedures. For example, the basic principles for induction and emergence from anesthesia for a neurosurgical patient and general considerations for anesthetic maintenance in a patient undergoing neuromonitoring are repeated for each type of procedure. This is especially noticeable when reading the book from cover to cover. On the contrary, this repetition may be helpful to those reading one chapter at a time because each chapter is complete. I would also suggest an improvement in the editing for the next edition, as the number of typographical errors was distracting.

As noted in the preface of the book, neurosurgical procedures are now more commonly performed outside the tertiary medical center, and anesthesiologists who have not completed fellowship training in neuroanesthesia may be called upon to take care of patients undergoing craniotomy, spine, and neurointerventional radiology procedures. The authors accomplish their goal of providing a practical and thorough book ideal for the general anesthesiologist and neuroanesthesia trainee confronted with a planned or emergent neurosurgery case.

Overall, *Fundamentals of Neuroanesthesia: A Physiologic Approach to Clinical Practice* is a textbook whose essence is perfectly captured by its title. It is a well-organized, easy-to-read text that is written specifically for the clinician faced with tough neurosurgical cases. The discussions are clinical, yet well supported by physiology, scientific evidence, and neuroradiology. It is a must read for the general anesthesiologist taking care of neurosurgical patients as well as anesthesia residents and neuroanesthesia fellows.

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