
In the Preface to their book, the editors describe their aim to present concisely concepts and knowledge derived from applied physiology and applied pharmacology as a basis for anaesthetic practice and postgraduate examinations, balancing the needs of the practicing anaesthetist and examination candidate. The book is described as a logical development of the earlier Clinical Anaesthetic Pharmacology, now incorporating human physiology in an approach that seeks to integrate physiology, pharmacology, and anaesthesia in each chapter. It is intended to provide a theoretical background to anaesthetic practice.

The team of editors are all from The Queen’s University of Belfast (three from the Department of Anaesthesics and one from the Department of Physiology). There are 42 contributors (mostly Senior Lecturers and Consultants), including the editors, mostly from The Queen’s University. Although the book has regional origins, excepting inclusion of those drugs used in Europe but not in the United States (diamorphine, papaveretum, among others), there is not a prominent regional bias that would be distracting to non-European readers.

The book is divided into 11 sections (basics, nervous system, cardiovascular system, blood, respiratory system, renal system, metabolism and energy balance, endocrine system, responses to infection, life cycle, and drug toxicity). Chapters include those typically found in anaesthesia textbooks, as well as others, such as clinical trials and statistical methods, pharmacology of pain management, fluid balance and nutrition, immunity, sepsis, and management of drug overdose. There are specific chapters on chemistry related to anaesthetic practice, cell physiology, pharmacokinetics, and pharmacodynamics, as well as on childhood and anesthetic drugs, conception and pregnancy, drugs and pregnancy, physiology and pharmacology of aging, and adverse reactions and drug interactions. Chapters average 15 pages, and their contents are outlined on the first page of each chapter. Some chapters have a small number of high-quality line diagrams to illustrate anatomy or physiology. Chapters on drug classes more core to anaesthesia (intravenous, volatile, and local anaesthetics, sedatives, opioids, neurovascular blockers) and some others (i.e., nonsteroidal anti-inflammatory drugs [NSAIDs]), drugs for nausea/vomiting, gastrointestinal drugs) were nicely replete with drug structures to aid in understanding structure-activity relationships and biotransformation pathways; however, this feature was not universal. Most chapters contain a few illustrations and/or tables; however, in general, these are used judiciously to provide space for text, which is appropriate for the relatively short chapters. Figures reproduced from primary publications are used sparingly. Although some topics do integrate physiology and pharmacology in the same chapter, many others have separate chapters for each.

The book is specifically crafted as a primer or review, rather than a detailed and annotated reference book. Chapters are broadly written, and major concepts are concisely delivered without extensive explanation. There is a relaxed, free-flowing style of writing that is user-friendly and contributes to the readability of the text, which will be appreciated by the busy practitioner and registrar. Typefaces and paper quality add to the ease of readability. One particularly nice feature, especially for trainees, is the brief historical perspective and some developmental aspects of the drugs, which are provided in many of the pharmacology chapters. The index is quite complete. Chapters do not include citations within the text, nor do they contain a bibliography of comprehensive and current references. Rather, they are followed (sometimes) by a Further Reading list of 5-15 book chapters, reviews, or the occasional primary publication. These lists tend toward major reviews which are often 5-10 yr old, as well as classic or seminal articles.

Certain disadvantages usually associated with multi-authored texts can be found in this book as well. There is some unevenness in the depth of coverage. For example, the chapter on skeletal muscle is 16 pages long (yet only one page is devoted to excitation-contraction coupling at the neuromuscular junction), while that devoted to both anticholinergic and anticholinesterase drugs contains only five pages of text. The pathology and therapy of sepsis receives cursory review, while the chapter on volatile anaesthetics is remarkably thorough. The chapter on NSAIDs addresses contemporary issues such as cyclooxygenase isomers and their relative inhibition by various drugs, while, in contrast, the figure used to illustrate volatile anaesthetic uptake omits the newest drugs, desflurane and sevoflurane. Some repetition is found (midazolam is addressed in chapters on intravenous anaesthetics and on sedatives) and can be contradictory (for example, predominant midazolam metabolism is variably said to be 4- or 1-hydroxylation). In general, however, repetition between chapters is neither prominent nor problematic, and there is reasonable consistency of depth throughout the book that is consonant with its intended mission as a review for practitioners and postgraduate examinees.

Anaesthetic physiology and pharmacology accomplishes its mission as a broad, general introductory book for postgraduate trainees and a review for practitioners. Advanced trainees reviewing for anaesthetic examinations may also find the book helpful.

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This text is volume 118 in the respected ongoing series on Lung Biology in Health and Disease, under the executive editorship of Dr. Claude Lenfant, Director of the National Heart Lung and Blood Institute of the National Institutes of Health. Drs. Marino and Slutsky, the expert editors of this volume, are to be commended on engaging an outstanding group of 66 of the world’s leaders in ventilation as contributors and for integrating their final 38 chapters into an impressive reference text. The book is divided logically into four