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Christopher J. Bowmer
W. Edward Lindup ˣ
Department of Pharmacology and Therapeutics
University of Liverpool
Liverpool L69 3BX, England

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BOOKS

REVIEWS

Advances in General and Cellular Pharmacology. Vol. 1. Edited by TOSHIO NARAHASHI and C. PAUL BIANCHI. Plenum, 227 W. 17th St., New York, NY 10011. 1977. 252 pp. 16 × 23 cm. Price $24.50.

This book is divided into five sections with the titles and authors as follows: Cardiac Cellular Pharmacology, Automaticity in Cardiac Muscle: Its Alteration by Physical and Chemical Imbalances, by Frances M. Wald and J. Thomas Bigger, Jr.; Actions of Opiates and their Antagonists on Cholinergic Transmission in the Guinea Pig Ileum, by Seymour Ehrenpreis; Pharmacology of Heart Cells During Ontogenesis, by Achilles J. Pappano; Analysis of Dose–Response Relationships, by Douglas R. Waud; and Cellular Pharmacology of Ganglionic Transmission, by Syogoro Nishi.

Characteristics of the automaticity in the myocardium after spontaneous diastolic depolarization are included in the first section. The subsection describing depolarization modification by physical and chemical factors contains especially comprehensive information on alterations induced by several cardiac drugs including β-adrenergic blocking agents, lidocaine, phenytoin (diphenylhydantoin), quinidine, procainamide, and digitalis.

Ehrenpreis describes experiments utilizing the electrically stimulated guinea pig ileum. A table listing 12 opiates or their antagonists, relating a correlation between effects on the ileum and analgesic potency, is of interest. A postulated relationship of the prostaglandin system to cholinergic transmission is given special treatment.

A major contribution of the section on ontogenesis is information regarding the effects of autonomic drugs on the physical and mechanical properties of chick embryo hearts. Nicotine and tyramine, thought to act by neurotransmitter release, tetrodotoxin, and the digitalis glycosides were also studied on this test object. In addition, limited experiments on heart cells in culture were described, giving data on a nerve free system.

The section entitled Analysis of Dose–Response Relationships has its forte in the comprehensive presentation of the kinetic approach. Pertinent information on experimental design and statistical evaluation is especially valuable.

Nishi concludes the volume with a section that thoroughly considers postsynaptic muscarinic and nicotinic sites, as well as receptors described as excitatory noncholinoreceptive and inhibitory adrenoceptive sites. A review of presynaptic receptor sites and transmitter liberation is a highlight of this section. Physiopharmacologic characteristics of the postsynaptic membrane are also discussed.

This book is a definite contribution to the pharmacologic literature. The authors are prolific in the reference portion of their sections. The well-documented reviews in each section and the concise presentation of the author's original research are uniformly exceptional throughout this publication. This book is valuable primarily as a reference text across interdisciplinary lines in the biological and physical science areas, and one anticipates future volumes of this quality.

Reviewed by Glenn D. Appelt
School of Pharmacy
University of Colorado
Boulder, CO 80309

Biopharmaceutics and Clinical Pharmacokinetics. By MILO GIBALDI. Lea & Febiger, Washington Square, Philadelphia, PA 19106. 1977. ix + 181 pp. 17.5 × 25.5 cm. Price $8.50.

This book began as a chapter in "Theory and Practice of Industrial Pharmacy" edited by Lachman, Lieberman, and Kanig (Lea & Febiger, 1970). The first edition was a reprint of the chapter in paperback. The second edition retains the advantages of an inexpensive paperback, but it has been considerably expanded and updated. The most useful changes are: division of the book into chapters, addition of many valuable new references, and addition of a significant amount of clinical pharmacokinetic material.

Chapter 1 is a very brief introduction to pharmacokinetics, in which the discussion is restricted to the one-compartment body model. The concepts of drug accumulation and repetitive dosing are also introduced. This chapter could serve as a concise review for a recently graduated pharmacist, but it is not sufficiently detailed to be used alone for the teaching of pharmacokinetics on the undergraduate level.

The next three chapters deal with the GI absorption of drugs. The discussion progresses clearly and logically from biological factors, such as membrane structure, to the role of the dosage form. Chapter 2 reviews membrane structure and function and GI physiology in humans. Chapter 3 discusses such physiochemical factors as pH-partitioning, solubility, and rate of dissolution. Chapter 4 discusses dosage form factors that influence drug dissolution in the GI tract. This chapter contains a survey of several drugs found to present bioavailability problems in humans, with a brief discussion of each drug. This chapter is particularly effective in giving the reader a perspective of the importance of bioavailability testing and control of drug products.

Chapter 5 deals with routes of administration other than oral and discusses relatively recent observations concerning the variability and unreliability of the intramuscular route.

Chapter 6 discusses drug disposition, including tissue distribution, renal excretion, and drug metabolism. Although this chapter is not thorough enough to be used as a sole resource for teaching purposes, it is a suitable review in preparation for the subsequent chapters on the clinical utility of plasma drug concentrations.

Chapter 7, Intersubject Differences in Drug Concentration in Plasma, is an excellent introduction to the complexities one faces in trying to control and adjust drug dosages in individual patients in the real clinical world. Some topics covered are: body weight; sex; age, particularly the newborn; genetic factors; renal, hepatic, and other diseases; and drug interactions. In this chapter, as in Chapter 4, many examples of specific drugs and specific clinical conditions are presented, and the discussion is generously referenced.

The final chapter continues in the drug-by-drug style, with the emphasis on the significance of plasma drug concentrations as guides to efficacy and toxicity. Some of the drugs discussed are warfarin, digoxin, gentamicin, phenytoin, theophylline, salicylate, lidocaine, propranolol, lithium, and nortriptyline. The presentation is clear and to the point, with the added advantage of having practical value in identifying drugs for which monitoring of plasma concentrations may be helpful in guiding therapy.

The book is well written in a very understandable style, with many examples and ample references in each chapter. Although certain chapters would require considerable amplification in the classroom, this book could serve as an inexpensive text for an undergraduate course in bio-