Includes Full-Text Download



# CLINICAL DRUG DATA

11th Edition

Kelly M. Smith • Daniel M. Riche • Nickole N. Henyan

# Clinical Drug Data

eleventh edition

TRUNG ĐẠI HỰC LỚNG NGHIỆP HÀ MỘI Trung Tậm tháng tin thu Miễn

07-07

02031

**EDITORS** 

Kelly M. Smith, PharmD, BCPS, FASHP, FCCP

Associate Dean, Academic and Student Affairs Practice Associate Professor, Pharmacy Practice and Science University of Kentucky College of Pharmacy Lexington, Kentucky

### Daniel M. Riche, PharmD, BCPS, CDE

Assistant Professor University of Mississippi Schools of Pharmacy and Medicine University of Mississippi Medical Center Jackson, Mississippi

Nickole N. Henyan, PharmD

Clinical Pharmacist
Shore Health System
University of Maryland Medical System

Easton, Maryland OF THE ASIA FOUNDATION
NOT FOR RE-SALE

QUÀ TẶNG CỦA QUỸ CHÂU Á KHÔNG ĐƯỢC BÁN LẠI Medical



New York Chicago San Francisco Lisbon London Madrid Mexico City Milan New Delhi San Juan Seoul Singapore Sydney Toronto

### Clinical Drug Data, Eleventh Edition

Copyright © 2010 by The McGraw-Hill Companies, Inc. All rights reserved. Printed in the United States of America. Except as permitted under the United States Copyright Act of 1976, no part of this publication may be reproduced or distributed in any form or by any means, or stored in a data base or retrieval system, without the prior written permission of the publisher.

1234567890 DOC/DOC 14 13 13 11 10

Set ISBN 978-0-07-162688-0; MHID 0-07-162688-0 Book ISBN 978-0-07-162685-9; MHID 0-07-162685-9 Bind-in-Card ISBN 978-0-07-162687-3; MHID 0-07-162687-5

This book was set in Times Roman at Aptara, Inc.
The editors were Michael Weitz and Regina Y. Brown.
The production supervisor was Sherri Souffrance.
Project management provided by Deepa Krishnan, Aptara, Inc.
The cover designer was Malvina D'Alterio.
RR Donnelley was printer and binder.

This book is printed on acid-free paper.

### Cataloging-in-Publication is on file for this title at the Library of Congress.

International Edition Set ISBN 978-0-07-174845-2; MHID 0-07-174845-8 International Edition Book ISBN 978-0-07-174844-5; MHID 0-07-174844-X International Bind-in-Card ISBN 978-0-07-162687-3; MHID 0-07-162687-5

Copyright © 2010. Exclusive rights by the McGraw-Hill Companies, Inc. for manufacture and export. This book cannot be re-exported from the country to which it is consigned by McGraw-Hill. The International Edition is not available in North America.

McGraw-Hill books are available at special quantity discounts to use as premiums and sales promotions, or for use in corporate training programs. To contact a representative please e-mail us at bulksales@mcgraw-hill.com.

# **Contents**

Contributor.	s	i
Preface		
How to Use	This Book	xx
	UG MONOGRAPHS ncipal Editors: Daniel M. Riche and Nickole N. Henyan	1
Section 1	Analgesic and Anti-Inflammatory Drugs, Daniel M. Riche	3
Chapter 1	Antimigraine Drugs, Toy S. Biederman	3
Chapter 2	Antirheumatic Drugs, Danial E. Baker and Stephen M. Setter	12
Chapter 3	Chronic Gout Therapy, Daniel M. Riche	25
Chapter 4	Nonsteroidal Anti-Inflammatory Drugs, Stephen M. Setter and Danial E. Baker	35
Chapter 5	Opioids, Mark T. Holdsworth	52
Section 2	Antimicrobial Drugs, Daniel M. Riche	75
Chapter 6	Aminoglycosides, Renée-Claude Mercier	75
Chapter 7	Antifungal Drugs, John D. Cleary and Kayla R. Stover	83
Chapter 8	Antimycobacterial Drugs, Gina C. Biglane and	
	Jessica H. Brady	111
Chapter 9	Antiparasitic Drugs, Kayla R. Stover	122
Chapter 10	Antiviral Drugs, David J. Caldwell	130
Chapter 11	β-Lactams, Christopher Betz and Courtney M. Brown	185
Chapter 12	Macrolides, Davey P. Legendre	223
Chapter 13	Quinolones, Mary Gauthier-Lewis and Treavor T. Riley	233
Chapter 14	Sulfonamides, Davey P. Legendre	242
Chapter 15	Tetracyclines, Roxie L. Stewart	246
Chapter 16	Hepatitis Antiviral Drugs, Julianna Chan	255
Chapter 17	Miscellaneous Antimicrobials, Mary Gauthier-Lewis and Treavor T. Riley	271

Section 3	Antineoplastics, Chemoprotectants, and Immunosuppressants, Nickole N. Henyan
Chapter 18	Antineoplastics, Shirley Hogan
Chapter 19	Alkylating Agents, Shirley Hogan
Chapter 20	Antimetabolites, Shirley Hogan
Chapter 21	Cytokines, Shirley Hogan314
Chapter 22	DNA Intercalating Drugs, Shirley Hogan
Chapter 23	Hormonal Drugs and Antagonists, Shirley Hogan
Chapter 24	Mitotic Inhibitors, Shirley Hogan
Chapter 25	Monoclonal Antibodies, Amber P. Lawson
Chapter 26	Tyrosine Kinase Inhibitors, Amber P. Lawson
Chapter 27	Miscellaneous Antineoplastics, Shirley Hogan
Chapter 28	Chemoprotectants, Shirley Hogan
Chapter 29	Immunosuppressants, Timothy M. Clifford
Section 4	Cardiovascular Drugs, Nickole N. Henyan395
Chapter 30	Antiarrhythmic Drugs, Kurt Reinhart and C. Michael White 395
Chapter 31	Antihypertensive Drugs, James J. Nawarskas
Chapter 32	β-Adrenergic Blocking Drugs, Sachin A. Shah
Chapter 33	Calcium Channel Blocking Drugs, Sachin A. Shah
Chapter 34	Hypolipidemic Drugs, Daniel M. Riche and James M. Wooten
Chapter 35	Inotropic and Vasopressor Drugs, Robert J. DiDomenico 494
Section 5	Central Nervous System, Daniel M. Riche
Chapter 36	Anticonvulsants, April D. Miller
Chapter 37	Antidepressants, Aaron P. Gibson
Chapter 38	Antipsychotic Drugs, Aaron P. Gibson
Chapter 39	Anxiolytics, Sedatives, and Hypnotics, Aaron P. Gibson 596
Chapter 40	Lithium, Aaron P. Gibson
Chapter 41	Neurodegenerative Disease Drugs, Toy S. Biederman
Chapter 42	Ophthalmic Drugs for Glaucoma, Mikael D. Jones 640
Section 6	Gastrointestinal Drugs, Daniel M. Riche
Chapter 43	Acid-Peptic Therapy, P. Shane Winstead and George A. Davis
Chapter 44	Antiemetics, Mark T. Holdsworth
Chapter 45	Gastrointestinal Motility and Miscellaneous Gastrointestinal Drugs, Scott S. Malinowski
Chapter 46	Inflammatory Bowel Disease, Juliana Chan and John Garofalo

	CONTENTS VII
Section 7	Hematologic Drugs, Nickole N. Henyan729
Chapter 47	Coagulants and Anticoagulants, Krista D. Riche and
Charter 10	Paula Horn
Chapter 48	Hematopoietics, Catherine E. Ferara759
Section 8	Hormonal Drugs, Nickole N. Henyan
Chapter 49	Adrenal Hormones, Andrea N. Traina and Michael P. Kane 769
Chapter 50	Antidiabetic Drugs, Stephen M. Setter, John R. White Jr., and R. Keith Campbell
Chapter 51	Contraceptives, Peggy Piascik and T. Joseph Mattingly 806
Chapter 52	Female Sex Hormones, Peggy Piascik
Chapter 53	Thyroid and Antithyroid Drugs, Betty J. Dong
Section 9	Renal and Electrolytes, Daniel M. Riche
Chapter 54	Diuretics, Paul G. Cuddy861
Chapter 55	Electrolytes, Paul G. Cuddy
Chapter 56	Bisphosphonates, Paul G. Cuddy
Section 10	Respiratory Drugs, Nickole N. Henyan
Chapter 57	Antiasthmatics, Laura L. Sanders909
Chapter 58	Antihistamines, Laura L. Sanders
Chapter 59	Inhaled Corticosteroids, Laura L. Sanders
Chapter 60	Cough and Cold, Laura L. Sanders
	Attending 1 Convenion Pacton, Acily M. Smith
	INICAL INFORMATION979 rincipal Editor: Kelly M. Smith
Section 1	Drug-Induced Diseases
Chapter 61	Drug-Induced Blood Dyscrasias, Stephanie D. Sutphin 981
Chapter 62	Drug-Induced Hepatotoxicity, Trenika R. Mitchell
Chapter 63	Drug-Induced Nephrotoxicity, William R. Vincent III 1003
Chapter 64	Drug-Induced Oculotoxicity, Melanie Mabins 1014
Chapter 65	Drug-Induced Ototoxicity, William R. Vincent III 1025
Chapter 66	Drug-Induced Pancreatitis, Trenika R. Mitchell 1031
Chapter 67	Drug-Induced Sexual Dysfunction, Melanie Mabins 1035
Chapter 68	Drug-Induced Skin Disorders, Katherine D. Mieure 1044
Section 2	Drug Use in Special Populations
Chapter 69	Drugs and Pregnancy, Kristina E. Ward
Chapter 70	Drugs and Breast-Feeding, Philip O. Anderson 1080
Chapter 71	Pediatric Drug Therapy, William E. Murray

### viii CONTENTS

Chapter 72	Geriatric Drug Therapy, Emily R. Hajjar	1110
Chapter 73	Renal Disease, Gary R. Matzke, William E. Dager, and Brett H. Heintz	
	and Brett H. Heiniz William F. Dager.	
Chapter 74	Dialysis of Drugs, Gary R. Matzke, William E. Dager, and Brett H. Heintz	1132
Section 3	Immunization, Andrea L. McKeever and Heather F. DeBellis	1141
Section 4	Medical Emergencies: Anaphylaxis, Cardiac Arrest, Poisoning,	1191
	Status Epilepticus	1101
Chapter 75	Anaphylaxis, Frank Romanelli	1103
Chapter 76	Cardiac Arrest, Heather M. Schumann and Krysta A. Zack	1203
Chapter 77	Poisoning, F. Lee Cantrell	1207
Chapter 78	Status Epilepticus, April D. Miller	1207
Section 5	Drug Interactions and Interferences	1211
Chapter 79	Cytochrome P450 Enzyme Interactions, John R. Horn	1211
Chapter 80	Drug-Induced Discoloration of Feces and Urine, Annette T. McFarland and Amy Sutton Peak	
Section 6	Nutrition Support, <i>Phil Ayers</i>	
PART III AI	PPENDICES	1237
Pi	rincipal Editor: Kelly M. Smith	1220
Appendix 1	Conversion Factors, Kelly M. Smith	12/3
Appendix 2	Anthropometrics, Kelly M. Smith Chamistry	1243
Appendix 3	Laboratory Indices: Blood, Serum, Plasma Chemistry; Urine, Renal Function Tests; Hematology, Kelly M. Smith.	1247
Annendix 4	Drug-Laboratory Test Interferences, Linda Sobeski Farho	
Appendix 5	Pharmacokinetic Equations, Gary Theilman	1265
Index	The state of the s	1271

## **How to Use This Book**

Part I of this book is organized around 10 major drug categories, which have been subdivided into common therapeutic groups. Within these therapeutic groups, drug information is alphabetically presented in three formats: *Monographs, Minimonographs*, and *Comparison Charts*. Monographs and Comparison Charts are grouped together to ensure that related drugs are easy to compare and contrast. Charts are located after the monographs to which they relate. Drug antagonists are grouped together with agonists to simplify organization and accessibility.

Monographs are used for drugs of major importance and prototype agents.

**Minimonographs** are used for drugs similar to prototype drugs, those of lesser importance within a therapeutic class, and promising investigational agents. Minimonographs contain only selected subheadings of information rather than all subheadings contained in the full monographs.

Comparison Charts are used to present clinically useful information on members of the same pharmacologic class and different drugs with a similar therapeutic use, as well as to present clinically relevant information on certain other topics.

The preferred method to gain access to complete information on a particular brand or generic drug is to use the index at the end of the book. The index may also direct the user to other pertinent information on the drug.

### MONOGRAPH FORMAT

### **CLASS INSTRUCTIONS**

This is an optional heading at the beginning of each drug class. It consists of patient instructions that apply to more than one of the drug monographs in this subcategory. If all drugs are not identical in their instructions, only the common information is found here. The Patient Instructions section of each monograph that is affected states, "See Class Instructions" as the opening phrase.

### **GENERIC DRUG NAME**

Brand Name(s)

The *nonproprietary (generic)* name is listed on the left, followed by common brand names listed on the right. Brand-name products listed are not necessarily superior or preferable to other brand-name or generic products; "Various" indicates the availability of additional brand and/or generic products.

**Pharmacology.** A description of the chemistry, major mechanisms of action, and human pharmacology of the drug in clinical application.

Administration and Adult Dosage. Route of administration, indications, and usual adult dosage range are given for the most common labeled uses. Dosages correspond

to those in the product labeling or in standard reference sources. "Dose" refers to a single administration and "dosage" to a cumulative amount (e.g., daily dosage).

**Special Populations.** Dosages in patient populations other than the typical adult are listed:

Pediatric Dosage (given by age or weight range)

Geriatric Dosage (given by age range)

Other Conditions (renal failure, hepatic disease, obesity, etc.)

**Dosage Forms.** The most commonly used dosage forms and available strengths are listed, as well as popular combination product dosage forms. Prediluted IV piggyback or large-volume parenteral containers are not listed unless this is the only commercially available product.

**Patient Instructions.** Key information that should be provided to the patient when prescribing or dispensing medication is presented. When introductions apply to an entire drug category, see "Class Instructions" at the beginning of that subcategory.

Missed Doses. What the patient should do if one or more doses are missed.

**Pharmacokinetics.** Data are presented as the mean  $\pm$  the standard deviation. Occasionally the standard error of the mean (SE) is the only information available on variability, and it is identified as such.

Onset and Duration (time course of the pharmacologic or therapeutic effect)

Serum Levels (therapeutic and toxic plasma concentrations are given)

Fate (The course of the drug in the body is traced. Pharmacokinetic parameters are generally provided as total body weight normalized values. The volume of distribution is either a  $V_d$  in a one-compartment system or  $V_c$  and  $V_{d\beta}$  or  $V_{dss}$  in a two-compartment system.)

t½ (terminal half-life is presented)

**Adverse Reactions.** Reactions known to be dose related are usually given first, then other reactions in decreasing order of frequency. Reaction frequency is classified into three ranges. However, percentages of reactions may be provided for reactions that occur more frequently than 1%.

frequent (>1/100 patients)

occasional (1/100 to 1/10,000 patients)

rare (<1/10,000 patients)

**Contraindications.** Those listed in product labeling are given. "Hypersensitivity" is not listed as a contraindication because it is understood that patients should usually not be given a drug to which they are allergic or hypersensitive—exceptions are noted.

**Precautions.** Warnings for use of the drug in certain disease states and/or patient populations, together with any cross-sensitivity with other drugs. Part II, Section 2, "Drug Use in Special Populations," should be consulted for more information, particularly regarding pregnancy and breastfeeding.

Drug Interactions. The most important drug interactions are listed.

**Parameters to Monitor.** Important clinical signs and/or laboratory tests to monitor to ensure safe and effective use are presented. The frequency of monitoring may also be given; however, for many drugs the optimal frequency has not been determined.

**Notes.** Distinguishing characteristics, therapeutic usefulness, or relative efficacy of the drug are presented, as well as unique or noteworthy physicochemical properties, handling, storage, or relative cost.