

UNIT VII: Chemotherapeutic Drugs

- Chapter 37:** Principles of Antimicrobial Therapy...67
Darlene Koon
- Chapter 38:** Cell Wall Inhibitors...483

*Contributing Authors...v**Reviewer...vii**Illustration and Graphic Design...vii*

Contents

UNIT I: Principles of Drug Therapy

- Chapter 1:** Pharmacokinetics...1
Venkata Yellepeddi
- Chapter 2:** Drug-Receptor Interactions and Pharmacodynamics...25
Joanna Peris

UNIT II: Drugs Affecting the Autonomic Nervous System

- Chapter 3:** The Autonomic Nervous System...39
Rajan Radhakrishnan
- Chapter 4:** Cholinergic Agonists...51
Rajan Radhakrishnan
- Chapter 5:** Cholinergic Antagonists...65
Rajan Radhakrishnan and Thomas B. Whalen
- Chapter 6:** Adrenergic Agonists...77
Rajan Radhakrishnan
- Chapter 7:** Adrenergic Antagonists...95
Rajan Radhakrishnan

Unit III: Drugs Affecting the Central Nervous System

- Chapter 8:** Drugs for Neurodegenerative Diseases...107
Jose A. Rey
- Chapter 9:** Anxiolytic and Hypnotic Drugs...121
Jose A. Rey
- Chapter 10:** Antidepressants...135
Jose A. Rey
- Chapter 11:** Antipsychotic Drugs...147
Jose A. Rey
- Chapter 12:** Drugs for Epilepsy...157
Jeannine M. Conway and Angela K. Birnbaum
- Chapter 13:** Anesthetics...171
Thomas B. Whalen
- Chapter 14:** Opioids...191
Robin Moorman Li
- Chapter 15:** Drugs of Abuse...205
Carol Motycka and Joseph Spillane
- Chapter 16:** CNS Stimulants...215
Jose A. Rey

UNIT IV: Drugs Affecting the Cardiovascular System

- Chapter 17:** Antihypertensives...225
Kyle Melin
- Chapter 18:** Diuretics...241
Jason Powell
- Chapter 19:** Heart Failure...255
Shawn Anderson and Katherine Vogel Anderson
- Chapter 20:** Antiarrhythmics...269
Shawn Anderson and Andrew Hendrickson
- Chapter 21:** Antianginal Drugs...281
Kristyn Mulqueen
- Chapter 22:** Anticoagulants and Antiplatelet Agents...291
Katherine Vogel Anderson and Patrick Cogan
- Chapter 23:** Drugs for Hyperlipidemia...311
Karen Sando

UNIT V: Drugs Affecting the Endocrine System

- Chapter 24:** Pituitary and Thyroid...325
Karen Whalen
- Chapter 25:** Drugs for Diabetes...335
Karen Whalen
- Chapter 26:** Estrogens and Androgens...351
Karen Whalen
- Chapter 27:** Adrenal Hormones...365
Karen Whalen
- Chapter 28:** Drugs for Obesity...375
Carol Motycka

UNIT VI: Drugs for Other Disorders

- Chapter 29:** Drugs for Disorders of the Respiratory System...381
Kyle Melin
- Chapter 30:** Antihistamines...393
Thomas A. Panavelil
- Chapter 31:** Gastrointestinal and Antiemetic Drugs...401
Carol Motycka
- Chapter 32:** Drugs for Urologic Disorders...415
Katherine Vogel Anderson
- Chapter 33:** Drugs for Anemia...423
Katherine Vogel Anderson and Patrick Cogan
- Chapter 34:** Drugs for Dermatologic Disorders...431
Thomas A. Panavelil
- Chapter 35:** Drugs for Bone Disorders...441
Karen Whalen
- Chapter 36:** Anti-inflammatory, Antipyretic, and Analgesic Agents...447
Eric Dietrich, Nicholas Carris, and Thomas A. Panavelil

UNIT VII: Chemotherapeutic Drugs

- Chapter 37:** Principles of Antimicrobial Therapy...471
Jamie Kisgen
- Chapter 38:** Cell Wall Inhibitors...483
Jamie Kisgen
- Chapter 39:** Protein Synthesis Inhibitors...499
Nathan R. Unger and Timothy P. Gauthier
- Chapter 40:** Quinolones, Folic Acid Antagonists, and Urinary Tract Antiseptics...513
Timothy P. Gauthier and Nathan R. Unger
- Chapter 41:** Antimycobacterial Drugs...525
Charles A. Peloquin and Eric Egelund
- Chapter 42:** Antifungal Drugs...535
Jamie Kisgen
- Chapter 43:** Antiprotozoal Drugs...547
Lisa Clayville Martin
- Chapter 44:** Anthelmintic Drugs...561
Lisa Clayville Martin
- Chapter 45:** Antiviral Drugs...567
Elizabeth Sherman
- Chapter 46:** Anticancer Drugs...587
Kourtney LaPlant and Paige Louzon
- Chapter 47:** Immunosuppressants...619
Sony Tuteja

UNIT VIII: Toxicology

- Chapter 48:** Clinical Toxicology...631

Dawn Sollee

Index...641

Figure Sources...663

• **Absorption:** After administration, the drug enters the blood plasma. The route of administration determines how quickly the drug reaches the blood.

• **Distribution:** Some drugs may bind reversibly to proteins in the blood plasma or may diffuse into the interstitial and intracellular fluids.

• **Metabolism:** The drug may be biotransformed by metabolism by enzymes in the liver.

• **Elimination:** Finally, the drug and its metabolites are eliminated from the body in urine, bile, or feces.

Using knowledge of pharmacokinetic parameters, clinicians can design optimal drug regimens, including the route of administration, the dose, the frequency, and the duration of treatment.

II. ROUTES OF DRUG ADMINISTRATION

The route of administration is determined by the properties of the drug (for example, water or lipid solubility, ionization) and by the therapeutic objectives (for example, the desirability of a rapid onset, the need for long-term treatment, or delivery to a local site). Major routes of drug administration include enteral, parenteral, and topical, among others (Figure 1.2).

Figure 1.1

Schematic representation of drug absorption, distribution, metabolism, and elimination.

Drug at site of administration

Drug in plasma

Distribution

Drug in tissues

Metabolism

Metabolites in tissues

Elimination

Drug and/or metabolites in urine, bile, tears, breast milk, saliva, sweat, or feces