# Contents

## Section I: General Pharmacological Principles


**1. Introduction, Routes of Drug Administration ..... 3**
*Introduction 3*
*Sources of Drugs 5*
*Dosage forms of Drugs 7*
*Routes of Drug Administration 10*

**2. Pharmacokinetics ..... 15**
*Transport of Drugs 16*
*Absorption of Drugs 19*
*Distribution of Drugs 22*
*Biotransformation (Metabolism) of Drugs 26*
*Excretion of Drugs 32*
*Kinetics of Drug Elimination 35*

**3. Pharmacodynamics ..... 40**
*Principles of Drug Action 40*
*Mechanism of Drug Action 40*
*Drug Synergism and Antagonism 56*
*Drug Dosage; Fixed Dose Drug Combinations (FDCs) 59*
*Factors Modifying Drug Action 61*

**4. Adverse Drug Effects ..... 68**
*Side Effects, Toxic Effects and Poisoning 69*
*Drug Allergy 70*
*Drug Dependence and Addiction 73*
*Teratogenicity 74*


## Section II: Systemic Pharmacology


**5. Drugs Acting on Autonomic Nervous System-1 ..... 79**
(General Considerations, Cholinergic and Anticholinergic Drugs)
*General Considerations 79*
*Cholinergic Drugs (Cholinomimetic, Parasympathomimetic) 85*
*Anticholinesterases 86*
*Anticholinergic Drugs (Parasympatholytic) 89*

**6. Drugs Acting on Autonomic Nervous System-2 ..... 94**
(Adrenergic and Antiadrenergic Drugs)
*Adrenergic Transmission 94*
*Adrenergic Drugs (Sympathomimetics) 98*
*α-Adrenergic Blocking Drugs 104*
*β-Adrenergic Blocking Drugs 107*

**7. Autacoids and Related Drugs ..... 112**
*Histamine 112*
*$H_1$ Antagonists (Conventional Antihistaminics) 115*
*5-Hydroxytryptamine (5-HT, Serotonin) 119*
*Prostaglandins and Leukotrienes (Eicosanoids) 120*

**8. General Anaesthetics and Skeletal Muscle Relaxants ..... 128**
*General Anaesthetics 128*
*Skeletal Muscle Relaxants 137*

**9. Drugs Acting on Central Nervous System-1 ..... 144**
(Sedative-Hypnotics, Ethyl Alcohol, Antiepileptics and Antiparkinsonian Drugs)
*Sedative-hypnotics 144*
*Ethyl Alcohol (Ethanol) 151*
*Antiepileptic Drugs 154*
*Antiparkinsonian Drugs 161*

**10. Drugs Acting on Central Nervous System-2 ..... 165**
(Psychopharmacological Agents)
*Antipsychotic Drugs (Neuroleptics) 166*
*Drugs for Mania and Bipolar Disorder 171*
*Antidepressant Drugs 174*
*Antianxiety Drugs 181*

**11. Cardiovascular Drugs-1 ..... 183**
(Drugs Affecting Renin-Angiotensin System, Calcium Channel Blockers, Drugs for Hypertension, Angina Pectoris and Myocardial Infarction)
*Drugs Affecting Renin-Angiotensin System 183*
*Angiotensin Converting Enzyme Inhibitors 185*
*Angiotensin Receptor Blockers 187*
*Calcium Channel Blockers 188*
*Antihypertensive Drugs 191*
*Antianginal Drugs 197*
*Drug Therapy in Myocardial Infarction 203*

**12. Cardiovascular Drugs-2 ..... 205**
(Drugs for Heart Failure and Cardiac Arrhythmia)
*Cardiac Glycosides 205*
*Treatment of Congestive Heart Failure 209*
*Antiarrhythmic Drugs 211*

**13. Diuretics ..... 217**
*Relevant Physiology of Urine Formation 217*
*Diuretics 219*

**14. Hormones and Related Drugs-1 ..... 228**
(Anterior Pituitary Hormones, Antidiabetic Drugs, Corticosteroids)
*Introduction 228*
*Anterior Pituitary Hormones 229*
*Antidiabetic Drugs (Insulin; Oral Antidiabetic Drugs) 233*
*Corticosteroids 244*

**15. Hormones and Related Drugs-2 ..... 251**
(Androgens, Anabolic Steroids, Estrogens, Progestins and Contraceptives)
*Androgens 251*
*Anabolic Steroids 252*
*Estrogens 253*
*Progestins 256*
*Hormonal Contraceptives 258*

**16. Hormones and Related Drugs-3 ..... 262**
(Thyroid Hormone and Thyroid Inhibitors, Hormones Regulating Calcium Balance)
*Thyroid Hormone 262*
*Thyroid Inhibitors (Antithyroid Drugs) 265*
*Hormones Regulating Calcium (Calcium; Vitamin D; Parathormone; Calcitonin) 267*
*Bisphosphonates 272*

**17. Drugs Affecting Blood ..... 274**
*Haematinics 274*
*Coagulants 279*
*Haemostasis in Dentistry 281*
*Anticoagulants 283*
*Fibrinolytic Drugs (Thrombolytics) 287*
*Antifibrinolytic Drugs 288*
*Antiplatelet Drugs (Antithrombotic Drugs) 288*
*Hypolipidaemic Drugs 291*

**18. Drugs for Gastrointestinal Disorders ..... 294**
*Drugs for Peptic Ulcer and Reflux Disease 294*
*Antiemetic Drugs 301*
*Laxatives (Aperients, Purgatives, Cathartics) 305*
*Treatment of Diarrhoeas 309*

**19. Drugs for Respiratory Disorders ..... 314**
*Drugs for Cough 314*
*Drugs for Bronchial Asthma 316*

**20. Vitamins ..... 322**
*Fat-soluble Vitamins 322*
*Water-soluble Vitamins 325*

**21. Anticancer and Immunosuppressant Drugs .....329**
*Anticancer Drugs 329*
*Immunosuppressant Drugs 339*

## Section III: Antimicrobials and Drugs Important in Dental Therapeutics

**22. Nonsteroidal Anti-inflammatory Drugs and Antipyretic-Analgesics .....347**
*NSAIDs and Prostaglandin Synthesis Inhibition 348*
*Properties and Uses of NSAIDs/Analgesics 350*
*Analgesics/NSAIDs in Dentistry 262*

**23. Opioid Analgesics and Antagonists .....364**
*Opioid Analgesics 364*
*Opioid Receptors 371*
*Complex Action Opioids 373*
*Pure Opioid Antagonists 375*

**24. Local Anaesthetics.....377**
*Mechanism of Action and Properties of Local Anaesthetics 378*
*Uses and Techniques of Local Anaesthesia 384*
*Local Anaesthesia in Dentistry 386*

**25. Antimicrobial Drugs: General Considerations .....388**
*Classification of Antimicrobials 389*
*Drug Resistance 391*
*Superinfection 393*
*Choice of an Antimicrobial Agent 394*
*Combined use of Antimicrobials 398*
*Prophylactic Use of Antimicrobials 400*
*Prophylaxis of Dental Wound Infection 400*

**26. Sulfonamides, Cotrimoxazole, Quinolones and Nitroimidazoles .....403**
*Sulfonamides 403*
*Cotrimoxazole 405*
*Quinolones 406*
*Nitroimidazoles 411*

**27. Beta-Lactam Antibiotics.....414**
*Penicillins 414*
*Beta-lactamase Inhibitors 422*
*Cephalosporins 423*
*Monobactams 429*
*Carbapenems 429*

**28. Tetracyclines, Chloramphenicol and Aminoglycoside Antibiotics.....431**
*Tetracyclines and Tigecycline 431*
*Chloramphenicol 436*
*Aminoglycoside Antibiotics 439*

**29. Macrolide and Other Antibacterial Antibiotics .....445**
*Macrolide Antibiotics 445*
*Lincosamide Antibiotics 449*
*Glycopeptide Antibiotics 449*
*Oxazolidinone 451*
*Miscellaneous Antibiotics: Quinupristin/Dalfopristin, Daptomycin, Polypeptide Antibiotics 451*

**30. Antitubercular and Antileprotic Drugs .....453**
*Antitubercular Drugs 453*
*Treatment of Tuberculosis 458*
*Antileprotic Drugs 460*
*Treatment of Leprosy 462*

**31. Antifungal Drugs .....464**
*Polyene Antibiotics 465*
*Griseofulvin 467*
*Imidazole and Triazole Antifungals 467*
*Terbinafine 470*
*Topical Antifungals 471*

**32. Antiviral Drugs (Non-retroviral).....472**
*Anti-herpes Virus Drugs 472*
*Anti-influenza Virus Drugs 474*
*Anti-hepatitis Virus Drugs 475*

**33. Anti-retrovirus Drugs.....479**
*Nucleoside Reverse Transcriptase Inhibitors (NRTIs) 480*
*Nonnucleoside Reverse Transcriptase Inhibitors (NNRTIs) 481*
*Retroviral Protease Inhibitors (PIs) 481*
*Integrase Inhibitors 482*
*Treatment of HIV Infection 483*
*Post-exposure Prophylaxis (PEP) of HIV Infection 484*

**34. Antiprotozoal Drugs.....486**
*Antimalarial Drugs 486*
*Antiamoebic Drugs 494*

**35. Antiseptics, Disinfectants and Other Locally Acting Drugs .....497**
*Antiseptics and Disinfectants 497*
*Locally Acting Drugs 504*

**36. Drugs and Aids with Specific Application in Dental Disorders .....506**
*Antiplaque and Antigingivitis Agents 506*
*Antibiotics in Periodontal Disease 508*
*Anticaries Drugs 509*
*Desensitizing Agents 512*
*Obtundants 513*
*Mummifying Agents 514*
*Bleaching Agents 514*
*Disclosing Agents 515*
*Dentifrices 515*

**37. Management of Medical Emergencies in Dental Office .....517**
*Emergency Drug Tray/Kit 517*
*Management of Syncope (Fainting) 519*
*Management of Acute Allergic Reaction 519*
*Management of Angina Pectoris/Myocardial Infarction 520*
*Management of Cardiac Arrest/Ventricular Fibrillation 521*
*Management of Asthmatic Attack/Bronchospasm 521*
*Management of Hypoglycaemia 521*
*Management of Seizures/Status Epilepticus 522*

**38. Drug Interactions.....523**
*Mechanisms of Drug Interactions 524*
*Drug Interactions in Dentistry 525*

*Index .....531*