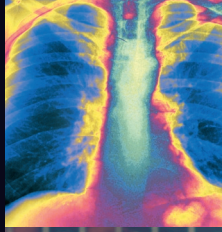
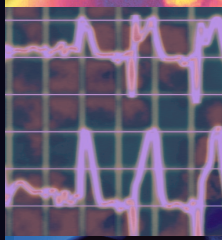
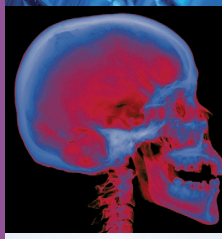
Third Edition

The Hands-on Guide to Clinical Pharmacology

Sukhdev Chatu



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Contents

Preface to the third edition

Clinical pharmacology is relevant to most aspects of medicine and a basic knowledge of it is essential for those healthcare professionals involved in the clinical management of patients. With this in mind, it has become necessary to update the previous (second) edition in order to incorporate evolvements in this field.

The first edition of *Hands-on Guide to Clinical Pharmacology* was written by Alexander Milson, Christopher Tofield and me while we were still medical students (at St Bartholomew's & The Royal London Hospital School of Medicine and Dentistry). At that time, we were in need of a practical yet concise set of notes to revise clinical pharmacology. Hence, what started as a collated set of revision notes was soon expanded upon, structured and turned into the first edition.

Following the success of that original version, it soon became evident that an updated second edition was required and in demand. To the credit of all those involved in the making of that text, this success has continued to date. In this third edition, each chapter has been updated and the information expanded to include more drugs and management scenarios, as well as a new chapter on chemotherapy agents.

The purpose of this book has primarily been two-fold and remains unchanged. First, it is designed to serve as a revision aid for all students involved in the study of clinical pharmacology. Second, it is presented as a user-friendly rapid reference guide and should be of value to healthcare professionals such as medical students, doctors, pharmacists and nurses.

This book is a guide to those drugs that are most likely to be encountered on hospital wards or during a course of study. It also outlines the treatment regimens of common conditions. The most relevant and important interactions, adverse effects and contraindications have been selected. However, it is not intended as an exhaustive account of clinical pharmacology and doses have purposely been omitted. Further, more detailed information is best obtained from a local formulary (e.g. *British National Formulary*).

The aim for this book has always been accuracy while maintaining conciseness – a feature that is much valued by students and busy professionals! Certainly, this book will help you to manage pharmacology in a clinical setting and, above all, take the stress out of related exams!

S. Chatu

Acknowledgements

First and foremost, I would like to acknowledge the input of my co-authors from the first and second editions of this book, Alexander Milson and Christopher Tofield. Their contributions laid the foundation for this latest edition.

The three of us will always be grateful for the support we received, in getting the first edition off the ground, from Professor Nigel Benjamin and Professor Mark Caulfield while at St Bartholomew's & the Royal London Hospital School of Medicine and Dentistry.

I am sincerely grateful to all those colleagues who took time out of their busy schedules to check all the material and for kindly offering me their expert suggestions.

For the opportunity to update this book to its third edition I must extend my thanks to Wiley-Blackwell and also to all the staff involved in its production.

Finally, I send my heartfelt thanks to all the readers who have always been vital to the success of this venture.

Sukhdev Chatu

Abbreviations

ABG	Arterial blood gas
ACE	Angiotensin-converting enzyme
ADH	Antidiuretic hormone
ADP	Adenosine diphosphate
AF	Atrial fibrillation
ALT	Alanine transaminase
APTT	Activated partial thromboplastin time
ARB	Angiotensin-receptor blocker
5-ASA	5-aminosalicylic acid
AST	Aspartate transaminase
ATP	Adenosine triphosphate
AV	Atrioventricular
BCG	Bacillus Calmette–Guérin
BMI	Body mass index
BP	Blood pressure
BPH	Benign prostatic hyperplasia
BMI	Body mass index
cAMP	Cyclic adenosine monophosphate
CABG	Coronary artery bypass graft
CBT	Cognitive behavioural therapy
CCU	Coronary care unit
cGMP	Cyclic guanosine monophosphate
CLL	Chronic lymphoid leukaemia
CMV	Cytomegalovirus
CNS	Central nervous system
COC	Combined oral contraceptive
COMT	Catechyl-O-methyl transferase
COPD	Chronic obstructive pulmonary disease
COX	Cyclo-oxygenase
CPAP	Continuous positive airways pressure
CPR	Cardiopulmonary resuscitation
CSF	Cerebrospinal fluid
CT	Computerized tomography
CTG	Cardiotocography
CVA	Cerebrovascular accident
CXR	Chest X-ray
D_2	Dopamine$_2$
DC	Direct current
DDP-4	Dipeptidyl peptidase-4
DEXA	Dual energy X-ray absorptiometry
DMARD	Disease-modifying antirheumatic drug
DNA	Deoxyribonucleic acid
DT	Diphtheria, tetanus
DTP	Diphtheria, tetanus, pertussis
DVT	Deep vein thrombosis
EBV	Epstein–Barr virus
ECG	Electrocardiogram

ECT	Electroconvulsive therapy
EPO	Erythropoietin
FBC	Full blood count
FEV_1	Forced expiratory volume in 1 second
FSH	Follicle-stimulating hormone
5-FU	5-fluorouracil
GABA	Gamma-aminobutyric acid
G-CSF	Granulocyte-colony stimulating factor
GI	Gastrointestinal
GIP	Glucose-dependent insulinotropic polypeptide
GIST	Gastrointestinal stromal tumour
GLP-1	Glucagon-like peptide 1
GP	General practitioner
G6PD	Glucose-6-phosphate dehydrogenase
GTN	Glyceryl trinitrate
HAART	Highly active antiretroviral therapy
HACEK	***H****aemophilus* (*H. parainfluenzae*, *H. aphrophilus*, *H. paraphrophilus*), ***A****ctinobacillus actinomycetemcomitans* (*Aggregatibacter actinomycetemcomitans*) ***C****ardiobacterium hominis*, ***E****ikenella corrodens*, ***K****ingella kingae*
Hb	Haemoglobin
HbA1c	Haemoglobin A1c
HBsAg	Hepatitis B surface antigen
HDL	High-density lipoprotein
Hib	*Haemophilus influenzae* type b
H_1	$Histamine_1$
H_2	$Histamine_2$
HIV	Human immunodeficiency virus
HMG-CoA	3-hydroxy 3-methylglutaryl co-enzyme A
HOCM	Hypertrophic obstructive cardiomyopathy
HPV	Human papilloma virus
HRT	Hormone replacement therapy
5-HT	5-hydroxytryptamine
ICD	Implantable cardiac defibrillator
Ig	Immunoglobulin
IHD	Ischaemic heart disease
IM	Intramuscular
INR	International normalized ratio
ISA	Intrinsic sympathomimetic activity
ISDN	Isosorbide dinitrate
ISMN	Isosorbide mononitrate
ITU	Intensive therapy unit
IUCD	Intrauterine contraceptive device
IV	Intravenous
LABA	Long-acting beta agonist
LDL	Low-density lipoprotein
LFT	Liver function test
LMWH	Low-molecular-weight heparin
LV	Left ventricular
LVEF	Left ventricular ejection fraction
LVF	Left ventricular failure

MAb	Monoclonal antibody
MAO	Monoamine oxidase
MAOI	Monoamine oxidase inhibitor
MI	Myocardial infarction
MMR	Measles, mumps, rubella
MRSA	Methicillin-resistant *Staphylococcus aureus*
NMDA	*N*-methyl-D-aspartate
MMSE	Mini Mental State Examination
NRT	Nicotine replacement therapy
NRTI	Nucleoside reverse transcriptase inhibitor
NRTK	Non-receptor tyrosine kinase
NSAID	Non-steroidal anti-inflammatory drug
Pco_2	Partial pressure carbon dioxide
Po_2	Partial pressure oxygen
PCA	Patient-controlled analgesia
PCI	Percutaneous coronary intervention
PDE_5	Phosphodiesterase type 5
PE	Pulmonary embolism
PEFR	Peak expiratory flow rate
PGE_2	Prostaglandin E_2
PID	Pelvic inflammatory disease
POP	Progestogen-only pill
PPAR	Peroxisome proliferator-activated receptor
PPI	Proton-pump inhibitor
PTH	Parathyroid hormone
PUVA	Psoralen with ultraviolet A
PSVT	Paroxysmal supraventricular tachycardia
PVD	Peripheral vascular disease
RNA	Ribonucleic acid
RTK	Receptor tyrosine kinase
SA	Sinoatrial
SC	Subcutaneous
SIADH	Syndrome of inappropriate antidiuretic hormone
SLE	Systemic lupus erythematosus
SSRI	Selective serotonin re-uptake inhibitor
STAT-C	Specifically targeted antiviral therapy for hepatitis C
SVT	Supraventricular tachycardia
T3	Triiodothyronine
T4	Thyroxine
TCA	Tricyclic antidepressant
TENS	Transcutaneous electrical nerve stimulation
TIA	Transient ischaemic attack
TIBC	Total iron-binding capacity
TKI	Tyrosine kinase inhibitor
TNF	Tumour necrosis factor
tPA	Tissue plasminogen activator
TPMT	Thiopurine methyltransferase
TSH	Thyroid-stimulating hormone
U&Es	Urea and electrolytes
UTI	Urinary tract infection
UVB	Ultraviolet B
V_2	$Vasopressin_2$

VF	Ventricular fibrillation
VLDL	Very low-density lipoprotein
V/Q	Ventilation/perfusion
VRE	Vancomycin-resistant enterococci
VT	Ventricular tachycardia
WPW	Wolff–Parkinson–White

CARDIOVASCULAR SYSTEM

Management guidelines (pp. 2–8)

Anaphylactic shock
Dysrhythmias
- Bradycardia
- Atrial fibrillation (AF)
  - Paroxysmal
  - Persistent
  - Permanent
- Atrial flutter
- Paroxysmal supraventricular tachycardia (PSVT)-(narrow complex tachycardia)
- Ventricular fibrillation (VF)
- Ventricular tachycardia

Heart failure
- Acute
- Chronic

Hyperlipidaemia
Hypertension
Ischaemic heart disease
- Stable angina

Acute coronary syndromes
- Unstable angina
- Non-ST elevation myocardial infarction (MI)
- ST elevation MI
- Post MI

Thromboembolism
- Deep vein thrombosis (DVT)
- Pulmonary embolism

Drug types (pp. 9–11)

Beta blockers
Calcium-channel blockers
Diuretics

Drugs (pp. 12–40)

Angiotensin-converting enzyme (ACE) inhibitors
Adenosine, alpha$_1$ blockers, amiodarone, amlodipine, angiotensin-receptor blockers (ARBs), aspirin, atenolol, atropine
Bendroflumethiazide, bezafibrate
Clopidogrel
Digoxin, diltiazem, dobutamine, dopamine
Epinephrine, ezetimibe

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