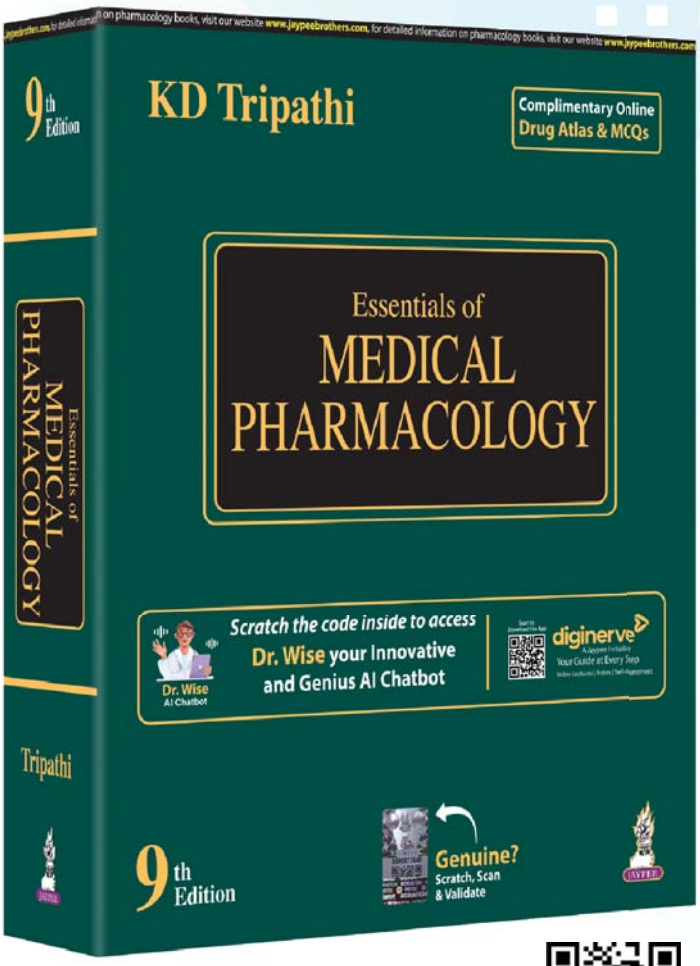

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Essentials of

MEDICAL PHARMACOLOGY

KD Tripathi

9th Editon

JAYPEE

Complimentry Online Drug Atlas & MCQs

Antisecretory-Antispasmodics

Molecular class/ Name of Drug	Mechanism of action	Dosage	Indications	Side effects	Brand names	Important Note
Quaternary compounds						
Oxyphenonium	competitive antagonists or inverse agonists at constitutively active sites	5–10 mg (children 3–5 mg) oral	Peptic ulcer, gastrointestinal hypermotility and colics	Dry mouth, difficulty in swallowing and talking. Dry, flushed and hot skin (especially over face and neck), fever, difficulty in micturition, decreased bowel sounds. A scarlet rash may appear. Dilated pupil, photophobia, blurring of near vision, palpitation. Excitement, psychotic behaviour, ataxia, delirium, dreadful visual hallucinations. Hypotension, weak and rapid pulse, cardiovascular collapse with respiratory depression.	ANTRENYL 5, 10 mg tab	
Clidinium	competitive antagonists or inverse agonists at constitutively active sites	2.5–5 mg oral	Nervous dyspepsia, gastritis, irritable bowel syndrome (IBS), and colic		In SPASRIL, ARWIN 2.5 mg tab with chlordiazepoxide 5 mg. NORMAXIN, CIBIS 2.5 mg with dicyclomine 10 mg and chlordiazepoxide 5 mg	used in combination with benzodiazepines for nervous dyspepsia, gastritis, irritable bowel syndrome (IBS), and colic
Cimetropium bromide	competitive antagonists or inverse agonists at constitutively active sites	50 mg 2–3 times a day	IBS		IBSCIM 50 mg tab	

What is new in this edition?

- Thoroughly updated chapters, incorporating new therapeutic approaches and recently marked drugs, such as long acting GLP-1 receptor agonists (Semaglutide) and SGLT-2 inhibitors (Dapagliflozin) for diabetes, neprilysin inhibitor (sacubitril) and SGLT-2 inhibitors for CHF, Orexin antagonists (Suvorexant) as hypnotic, Rho-Kinase inhibitor (Netarsudil) for glaucoma, adrenergic beta-3 agonist (Mirabegron) for overactive bladder, PCSK9 inhibitor (Inclisiran) as long acting hypocholesterolemic, CGRP receptor antagonists (Rimegepant) for migraine, PDE-4 inhibitor (Roflumilast) for COPD, and many others.
- Latest therapeutic and prophylactic regimens recommended under the National Health Programs for MDR/XDR-tuberculosis, leprosy, HIV, malaria, kala-azar, filariasis, viral hepatitis, etc.
- Drugs and vaccines for COVID-19 and the latest AIIMS/ICMR guidelines for management of COVID.
- Pharmacovigilance program of India.
- Evidence based medicine with authenticated reference to latest therapeutic guidelines from WHO; ACC/AHA; ISH; NICE; SIGN; Cochrane reviews, meta analysis and landmark clinical trials.
- The WHO classification of antibiotics into `AWaRe" (Access, Watch, Reserve) groups.
- A Separate chapter on alcohols, drug dependence and drugs of abuse.
- A new chapter on environmental toxicology, poisonings; snake/dog bites and scorpion/bee stings.
- Chapterwise listing of abbreviations for user convenience.
- Several new figures, flow charts, tables and highlight boxes.
- Full coverage of competency-based pharmacology curriculum of NMC for graduate medical students.

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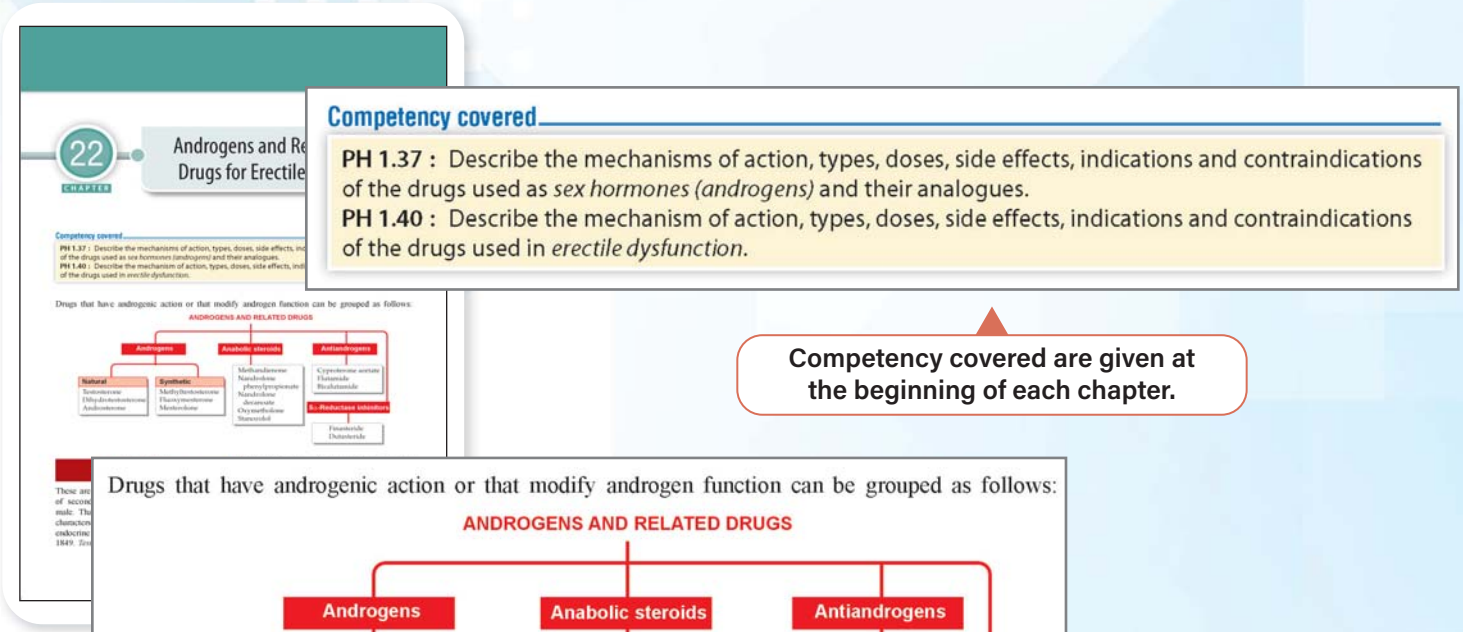
SAMPLE PAGES

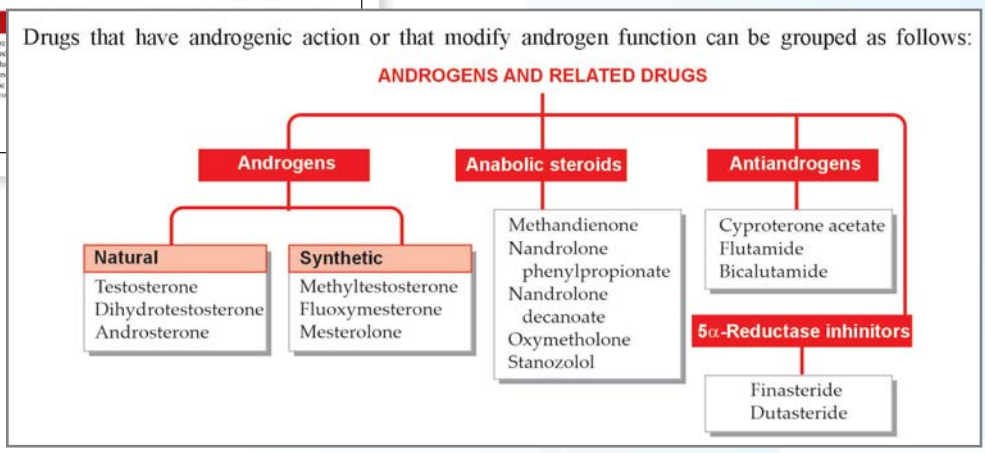


Competency covered

PH 1.37 : Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used as *sex hormones (androgens)* and their analogues.

PH 1.40 : Describe the mechanism of action, types, doses, side effects, indications and contraindications of the drugs used in *erectile dysfunction.*

Competency covered are given at the beginning of each chapter.

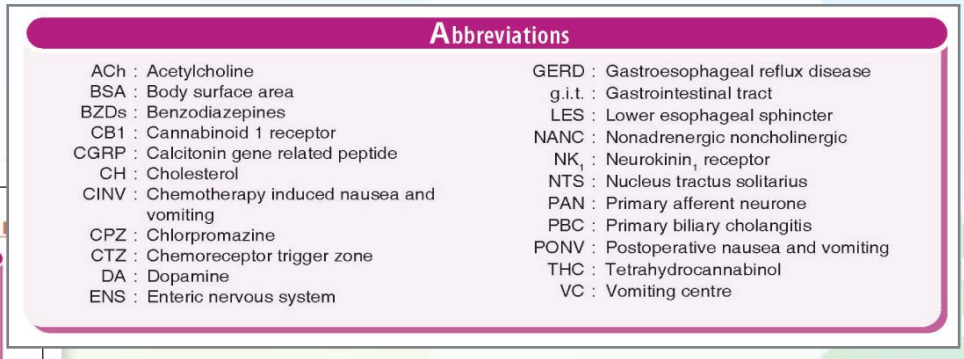


Drugs that have androgenic action or that modify androgen function can be grouped as follows:

ANDROGENS AND RELATED DRUGS

- **Androgens**
  - **Natural**
    - Testosterone
    - Dihydrotestosterone
    - Androsterone
  - **Synthetic**
    - Methyltestosterone
    - Fluoxymesterone
    - Mesterolone
- **Anabolic steroids**
  - Methandienone
  - Nandrolone phenylpropionate
  - Nandrolone decanoate
  - Oxymetholone
  - Stanozolol
- **Antiandrogens**
  - Cyproterone acetate
  - Flutamide
  - Bicalutamide
  - **5α-Reductase inhinitors**
    - Finasteride
    - Dutasteride

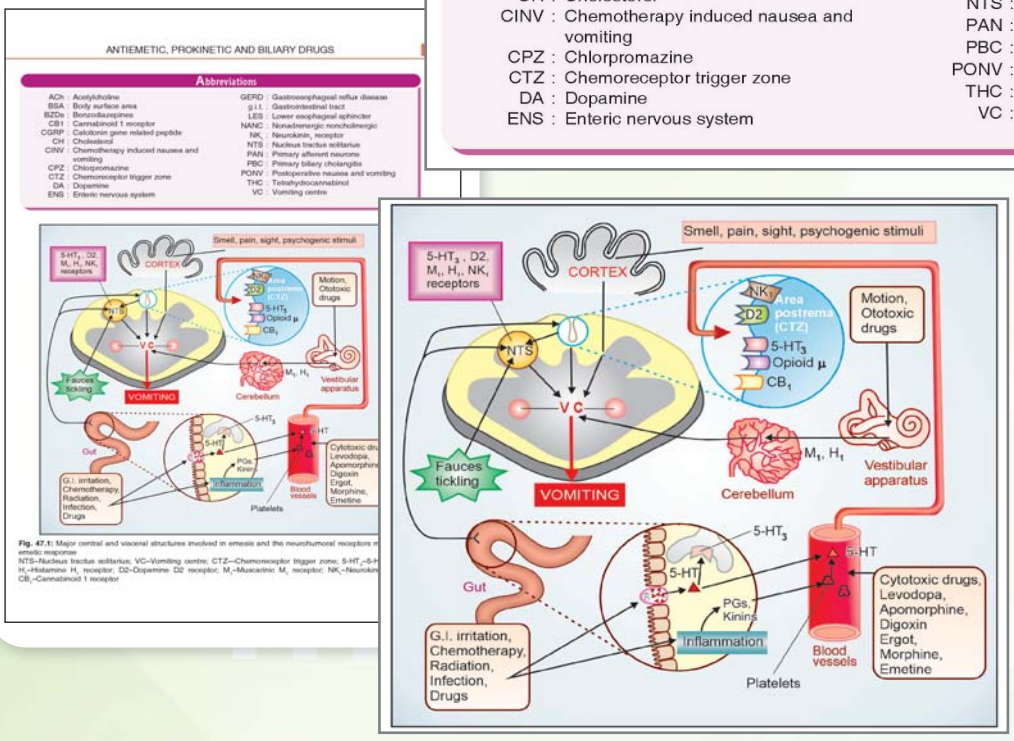
Feature flowcharts for better understanding.



Abbreviations

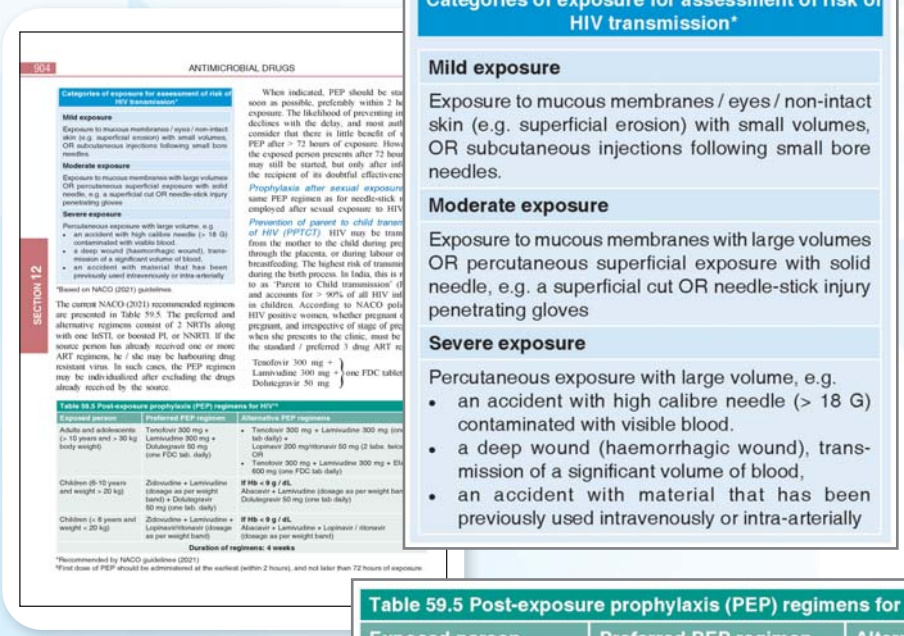
ACh	Acetylcholine	GERD	Gastroesophageal reflux disease
BSA	Body surface area	g.i.t.	Gastrointestinal tract
BZDs	Benzodiazepines	LES	Lower esophageal sphincter
CB1	Cannabinoid 1 receptor	NANC	Nonadrenergic noncholinergic
CGRP	Calcitonin gene related peptide	NK_1	Neurokinin$_1$ receptor
CH	Cholesterol	NTS	Nucleus tractus solitarius
CINV	Chemotherapy induced nausea and vomiting	PAN	Primary afferent neurone
CPZ	Chlorpromazine	PBC	Primary biliary cholangitis
CTZ	Chemoreceptor trigger zone	PONV	Postoperative nausea and vomiting
DA	Dopamine	THC	Tetrahydrocannabinol
ENS	Enteric nervous system	VC	Vomiting centre

Abbreviations are provided to simplify complex medical terms for clarity.



Diagrams are included to enhance visual learning.

SAMPLE PAGES



Categories of exposure for assessment of risk of HIV transmission*

Mild exposure

Exposure to mucous membranes / eyes / non-intact skin (e.g. superficial erosion) with small volumes, OR subcutaneous injections following small bore needles.

Moderate exposure

Exposure to mucous membranes with large volumes OR percutaneous superficial exposure with solid needle, e.g. a superficial cut OR needle-stick injury penetrating gloves

Severe exposure

Percutaneous exposure with large volume, e.g.

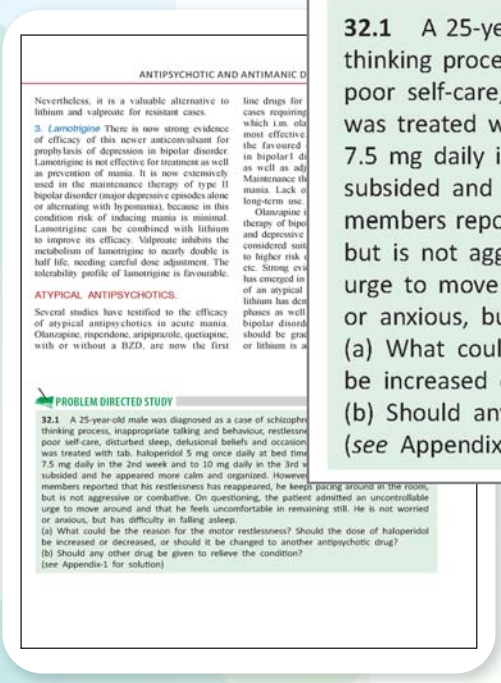
- an accident with high calibre needle (> 18 G) contaminated with visible blood.
- a deep wound (haemorrhagic wound), transmission of a significant volume of blood,
- an accident with material that has been previously used intravenously or intra-arterially

Important Topics are highlighted in the blue boxes.

Key information is highlighted using Tables.

Table 59.5 Post-exposure prophylaxis (PEP) regimens for HIV*§

Exposed person	Preferred PEP regimen	Alternative PEP regimens
Adults and adolescents (> 10 years and > 30 kg body weight)	Tenofovir 300 mg + Lamivudine 300 mg + Dolutegravir 50 mg (one FDC tab. daily)	• Tenofovir 300 mg + Lamivudine 300 mg (one FDC tab daily) + Lopinavir 200 mg/ritonavir 50 mg (2 tabs. twice daily) OR • Tenofovir 300 mg + Lamivudine 300 mg + Efavirenz 600 mg (one FDC tab daily)
Children (6-10 years and weight > 20 kg)	Zidovudine + Lamivudine (dosage as per weight band) + Dolutegravir 50 mg (one tab. daily)	**If Hb < 9 g / dL** Abacavir + Lamivudine (dosage as per weight band) + Dolutegravir 50 mg (one tab daily)
Children (< 6 years and weight < 20 kg)	Zidovudine + Lamivudine + Lopinavir/ritonavir (dosage as per weight band)	**If Hb < 9 g / dL** Abacavir + Lamivudine + Lopinavir / ritonavir (dosage as per weight band)
Duration of regimens: 4 weeks		



PROBLEM DIRECTED STUDY

32.1 A 25-year-old male was diagnosed as a case of schizophrenia on the basis of disturbed thinking process, inappropriate talking and behaviour, restlessness, bursts of temper, anxiety, poor self-care, disturbed sleep, delusional beliefs and occasional auditory hallucinations. He was treated with tab. haloperidol 5 mg once daily at bed time. The dose was increased to 7.5 mg daily in the 2nd week and to 10 mg daily in the 3rd week. His symptoms gradually subsided and he appeared more calm and organized. However, in the 5th week his family members reported that his restlessness has reappeared, he keeps pacing around in the room, but is not aggressive or combative. On questioning, the patient admitted an uncontrollable urge to move around and that he feels uncomfortable in remaining still. He is not worried or anxious, but has difficulty in falling asleep.

(a) What could be the reason for the motor restlessness? Should the dose of haloperidol be increased or decreased, or should it be changed to another antipsychotic drug?

(b) Should any other drug be given to relieve the condition?

(*see* Appendix-1 for solution)

Problem Directed Studies are given to explain the complexity of case-based learning.

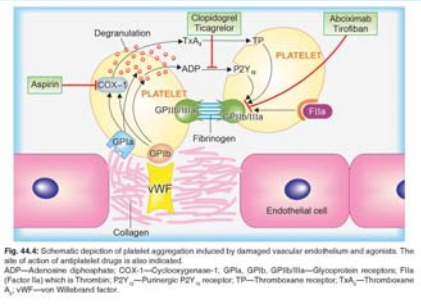


Fig. 44.4: Schematic depiction of platelet aggregation induced by damaged vascular endothelium and agonists. The site of action of antiplatelet drugs is also indicated.
ADP—Adenosine diphosphate; COX-1—Cyclooxygenase-1; GPIa, GPIb, GPIIb/IIIa—Glycoprotein receptors; FIIa (Factor IIa) which is Thrombin; $P2Y_{12}$—Purinergic $P2Y_{12}$ receptor; TP—Thromboxane receptor; TxA_2—Thromboxane A_2; vWF—von Willebrand factor.

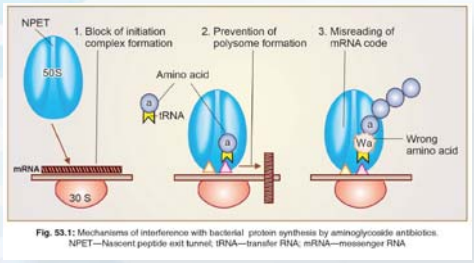
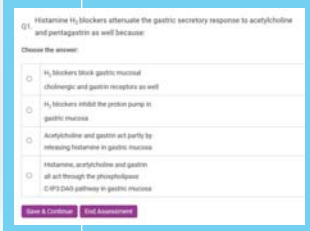
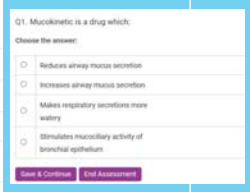
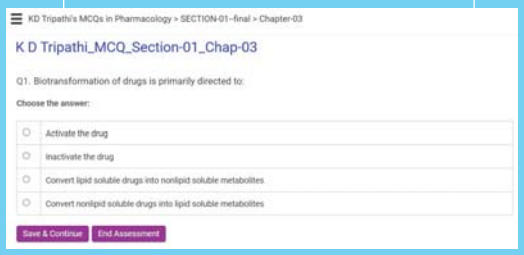


Fig. 53.1: Mechanisms of interference with bacterial protein synthesis by aminoglycoside antibiotics.
NPET—Nascent peptide exit tunnel; tRNA—transfer RNA; mRNA—messenger RNA

Online MCQs







Each chapter features figures and flowcharts for better understanding

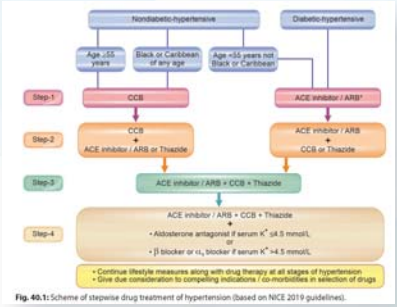
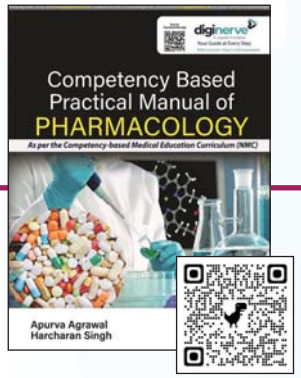
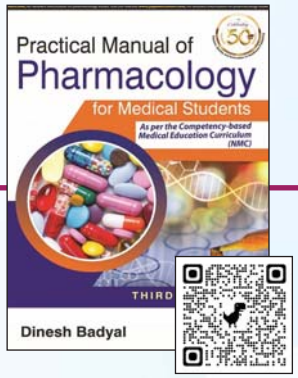
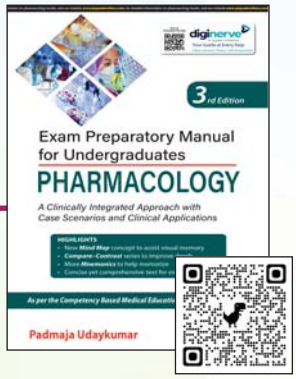


Fig. 40.1: Scheme of stepwise drug treatment of hypertension (based on NICE 2019 guidelines).

Other Essential Titles







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