

TOPICS IN PHARMACOLOGY

for pharmacy students 3rd course, study years 2020/2021

GENERAL PHARMACOLOGY

1. Routes of drug administration – advantages and disadvantages.
2. Absorption of drugs. Transport of drugs through biologic membranes after enteral and parenteral administration.
3. Pharmacokinetics. Drug distribution. Plasma protein binding. Barrier systems.
4. Biotransformation (metabolism) of drugs. Enzyme inducers, enzyme inhibitors.
5. Routes of excretion of drugs from the body – renal and extrarenal.
6. Pharmacodynamics. Drug action and drug effect. Receptor and non-receptor mechanisms of drug action.
7. Dose – definition. Types of doses. Therapeutic window and therapeutic index.
8. Drug factors determining the drug effect – chemical structure, physical and chemical properties, dose, dosage form.
9. Human factors influencing the drug effect – drugs in pregnancy, breastfeeding, children, elderly, liver and kidney diseases. Genetic abnormalities and drug action.
10. Multiple drug administration phenomena: drug tolerance, tachyphylaxis; substances causing dependence and abuse; accumulation; drug allergy.
11. Combined administration of drugs.
12. Levels and mechanisms of drug interaction.
13. Antiseptics and disinfectants. Definition. Mechanism of action. Oxidants. Essential oils.
14. Antiseptics and disinfectants. Definition. Halogen derivatives and detergents.
15. Antiseptics and disinfectants. Definition. Silver salts, dyes, ethyl alcohol.
16. Water-soluble vitamins (Vitamin B, C and P) – pharmacological effects, clinical application, adverse drug reactions and drug interactions.
17. Lipid-soluble vitamins (Vitamin A, D, E and K) – pharmacological effects, clinical application, adverse drug reactions and drug interactions.
18. Female sex hormones their antagonists – pharmacological effects, clinical application, adverse drug reactions and drug interactions.

19. Contraceptives – pharmacological effects, clinical application, adverse drug reactions and drug interactions.
20. Male sex hormones and their antagonists – pharmacological effects, clinical application, adverse drug reactions and drug interactions. Anabolic drugs – pharmacological effects, clinical application, adverse drug reactions and drug interactions.
21. Drugs affecting the thyroid – pharmacological effects, clinical application, adverse drug reactions and drug interactions.
22. Drugs affecting uterine motility – uterokinetic drugs, uterotonic drugs and toxolytics – pharmacological effects, clinical application, adverse drug reactions and drug interactions.

SPECIAL PHARMACOLOGY

I. CNS DEPRESSANTS

1. Hypnotic drugs.
2. Sedative drugs.
3. Antiepileptic drugs.
4. Antiparkinsonian drugs.

II. CNS DEPRESSANTS

1. Neuroleptics.
2. Anxiolytics.
3. Central myorelaxants.

III. CNS STIMULANTS

1. Psychostimulants.
2. Nootropic drugs.
3. Antidepressants and antimanic drugs.

IV. DRUGS USED IN THE TREATMENT OF PAIN

1. Opioid (narcotic) analgesics .
2. Analgesics – antipyretics.
3. Non-steroidal anti-inflammatory drugs.

V. AUTONOMIC NERVOUS SYSTEM – CHOLINERGIC DRUGS

1. Cholinergic mediation. Types and localization of cholinergic receptors.
2. Classification of cholinergic drugs.
3. Direct and indirect acting cholinomimetics – mode of action, pharmacokinetics, side effects, drug interactions.
4. M-cholinolytics – mode of action, pharmacokinetics, side effects, drug interactions.
5. Neuromuscular blockers – mode of action, pharmacokinetics, side effects, drug interactions.

VI. AUTONOMIC NERVOUS SYSTEM – ADRENERGIC DRUGS

1. Adrenergic mediation. Types and localization of adrenergic receptors.
2. Classification of adrenergic drugs.

3. Direct and indirect acting adrenomimetic drugs – mode of action, pharmacokinetics, side effects, drug interactions.
4. Postsynaptic acting adrenergic drugs – β -blockers and α -blockers: mode of action, pharmacokinetics, side effects, drug interactions.
5. Presynaptic acting adrenergic drugs – mode of action, pharmacokinetics, side effects, drug interactions.

VII. AUTACOIDS

1. Histamine and histamine antagonists.
2. Serotonin, angiotensin, prostaglandins and their antagonists.
3. Local anesthetics.

VIII. CARDIVASCULAR DRUGS

1. Cardiac glycosides.
2. Peripheral vasodilators.
3. Antihyperlipidemic drugs.
4. Capillarotonic and venotonic drugs.

IX. CARDIVASCULAR DRUGS

1. Antiarrhythmic drugs.
2. Antianginal drugs.

X. CARDIVASCULAR DRUGS

1. Antihypertensive drugs.
2. Diuretics.

XI. DRUGS AFFECTING HEMOPOESIS

1. Antianemic drugs – Iron preparations, Cyanocobalamin (Vitamin B₁₂), folic acid.
2. Hematopoietic growth factors – erythropoietin, filgrastim, sargramostim, molgramostim.

XII. DRUGS AFFECTING COAGULATION

1. Coagulants with local and systemic effect and antifibrinolytics.
2. Anticoagulants.
3. Fibrinolytics
4. Antiagregants.

XIII. DRUGS AFFECTING THE RESPIRATORY SYSTEM

1. Drugs used to treat cough.
2. Drugs affecting bronchial secretion.
3. Drugs used to treat asthma.

XIV. DRUGS AFFECTING THE GASTROINTESTINAL SYSTEM

1. Drugs used to treat peptic ulcer disease.
2. Laxatives and antidiarrheal drugs.

XV. DRUGS AFFECTING THE GASTROINTESTINAL SYSTEM

1. Antiemetic drugs.
2. Drugs affecting appetite.
3. Hepatoprotectors and drugs affecting the biliary secretion.

XVI. HORMONAL AGENTS

1. Agents for diabetes. Insulins. Oral hypoglycemic drugs.
2. Corticosteroids – glucocorticoids, mineralcorticoids.

XVII. ANTICANCER DRUGS

Anticancer drugs – classification, mode of action, side effects.

XVIII. ANTIMICROBIAL AGENTS

1. Principles of treatment with chemotherapeutics.
2. Sulfonamides and trimethoprim.
3. Quinolones.
4. Antifungal drugs.
5. Antiviral drugs.

XIX. BACTERIOSTATIC ANTIBIOTICS

1. Antibacterial drugs – therapeutic guidelines.
2. Tetracycline antibiotics.
3. Macrolide antibiotics. Lincosamide antibiotics. Chloramphenicol.
4. Antimycobacterial drugs.

XX. BACTERICIDAL ANTIBIOTICS

1. Antibacterial drugs – therapeutic guidelines.
2. Beta lactam antibiotics – penicillins, carbapenems, monobactams, cephalosporins,
3. Aminoglycoside antibiotics.

XXI. DRUGS USED IN OPHTHALMOLOGY

1. Antibiotics for local application.
2. Antiviral drugs.
3. Antiseptics.
4. Glucocorticoids for local application.
5. Nonsteroidal drugs for local application.
6. Drugs used in treatment of glaucoma.
7. Antiallergic drugs for local application.
8. Drugs used in treatment of cataract.

XXII. DRUGS USED IN OTO-RHINO-LARYNGOLOGIE

1. Nasal decongestants for local application.
2. Nasal decongestants for oral application.
3. Antiallergic drugs for local application.
4. Nonsteroidal drugs for local application.

XXIII. DRUGS USED IN DERMATOLOGY

1. Glucocorticoids for local application.
2. Retinoids.
3. Immunosuppressors.
4. Drugs used in treatment of psoriasis.
5. Drugs used in treatment of acne.
6. Drugs used in treatment of hair loss.



Approved of Head of Department.....
/Prof. L.Peychev, MD, PhD, МНМ/

Supporting literature

1. Lectures course of Pharmacology – prof. L.Peychev, MD, PhD, МНМ, study years 2020-2021.
2. Basic and clinical pharmacology with toxicology. Edit.: N.Boyadjieva, Sofia: ARSO, 2021. - 449 p.
3. Pharmacology / Ed. Michael A. Clark et al. - 5th ed.- Balingen : Lippincott Williams & Wilkins, 2019. - 612 p.
4. Clinical Pharmacy and Therapeutics. Edit.: R.Walker, C. Whittlesea, Churchill Livingstone, Elsevier 2012, 983 p.
5. Goodman and Gilman pharmacological basis of therapeutics / Ed. Laurence L. Brunton et al. – 12-th ed. New York : McGraw – Hill, 2011. - 2084 p. + DVD.