

**Ministry of Public Health of Ukraine  
Higher State Educational Institution  
"Ukrainian Medical Stomatological Academy"**

"Approved"

at a meeting of the Department of Experimental  
and Clinical Pharmacology with Clinical  
Immunology and Allergology

**Head of the department**

Professor \_\_\_\_\_ Devyatkina T.A.

" \_\_\_\_\_ " \_\_\_\_\_ 2017 Pr. № \_\_\_\_\_

**METHODICAL GUIDANCE FOR STUDENTS' SELF-DIRECTED  
WORK WHEN PREPARING FOR PRACTICAL SESSION**

Academic discipline	Clinical Pharmacology
Topic 6	<b>Defense the protocol on the effectiveness and safety of medicines. Final modular control</b>
Year of study	5
Faculty	Foreign students training (Medical)

**Poltava 2017**

### 1. Relevance of the topic:

The main goal of the written work is the use of knowledge in clinical pharmacology for the purpose of rational differentiated pharmacotherapy. Allows the student to learn the skills of drug selection and master the basic rules for prescribing combined pharmacotherapy.

### 2. Specific objectives:

1. Analyze the main pharmacokinetics of prescription drugs.
2. Conduct an adequate choice and prescribe effective and safe medicines.
3. Conduct complex studies to evaluate the pharmacodynamic effects and side effects of drugs for the purpose of prevention.
4. Analyze the features of the interaction of prescribed drugs.

### 3. Basic knowledge, skills, skills necessary to study the topic (interdisciplinary integration)

Names of previous disciplines	Obtained skills
Pharmacology	Must know the characteristics of pharmacological groups, their pharmacokinetics, pharmacodynamics, side effects.
Pathophysiology	Apply knowledge from the pathogenesis of infectious diseases of the maxillofacial region.
Psychiatry, neurology, Internal diseases	Explain the pharmacokinetics, pharmacodynamics, side effects of drugs.
Internal and Nervous Diseases Infectious, surgical diseases	Must know the pathogenesis and treatment in emergency conditions in the clinic of diseases.

### 4. Task for work during the preparation for the classes.

#### 4.1. The list of the key terms, parameters, characteristics that the student must learn in preparation for the lesson:

1. Clinical pharmacodynamics, definitions, place and role in the choice of pharmacotherapy.
2. Clinical pharmacokinetics, definitions, basic concepts, role in the choice of pharmacotherapy.
3. Classification of lipid-lowering drugs.
4. Mechanism of action, pharmacokinetics and pharmacodynamics, indications and contraindications to the appointment of statins.
5. Mechanism of action, pharmacokinetics and pharmacodynamics, indications and contraindications to the appointment of fibrates.
6. Omega-3 polyunsaturated fatty acids. Mechanism of action. Features of the application.
7. Classification of dyslipidemia. A differentiated approach to the use of lipid-lowering drugs.
8. Groups of drugs related to antianginal and antiischemic drugs.
9. Mechanism of action, pharmacological effects, indications and contraindications to the appointment of nitrates.
10. Mechanism of action, pharmacological effects, indications and contraindications to the appointment of beta-blockers.
11. Mechanism of action, pharmacological effects, indications and contraindications to the appointment of calcium channel blockers.
12. Classification of calcium channel blockers. Features of the application. Dosages.
13. Classification of beta-blockers. Features of the application. Dosing.
14. antiaggregant drugs. Classification. Mechanisms of action. Dosing methods.
15. Thrombolytic agents. Indications and contraindications to thrombolysis. Schemes of appointment.
16. Anticoagulants. Classification. Mechanisms of action. Adverse events.
17. Principles of choosing drugs for the treatment of an attack of angina pectoris, acute myocardial infarction.
18. Classification of antihypertensive drugs.
19. Differentiated approach to the appointment of antihypertensive therapy in the presence of concomitant diseases (diabetes mellitus, bronchial asthma, pregnancy, advanced age, pheochromocytoma, etc.).
20. The mechanism of antihypertensive action, side effects in the appointment of blockers of calcium channels. Principles of dosing.
21. The mechanism of antihypertensive action, side effects when prescribing beta-blockers. Principles of dosing.
22. Mechanism of antihypertensive action, pharmacological effects, indications and contraindications, adverse events in the appointment of angiotensin converting enzyme inhibitors. Principles of dosing.
23. The mechanism of antihypertensive action, pharmacological effects, indications and contraindications, adverse events in the appointment of angiotensin II receptor antagonists. Principles of dosing.
24. Principles of combined use of antihypertensive drugs.
25. Differentiated choice of drugs for the treatment of hypertensive crises
26. Classification of antiarrhythmic drugs.

27. Differentiated approach to the appointment of antiarrhythmic drugs.
28. Classification of cardiac glycosides. Principles of dosing. Cardiac and non-cardiac effects of cardiac glycosides. Indications for prescribing.
29. Clinical and ECG signs of cardiac glycoside intoxication. Principles of treatment of cardiac glycoside intoxication.
30. Differentiated choice of drugs for the treatment of cardiac asthma, pulmonary edema.
31. Neglikozidnye positive inotropic drugs. Indications for prescribing.
32. Classification of diuretics.
33. Mechanism of action, pharmacokinetics and pharmacodynamics, indications and protiposages to the appointment of loop diuretics.
34. Mechanism of action, pharmacokinetics and pharmacodynamics, indications and protiposages before the appointment of thiazide and thiazide-like diuretics. Principles of dosing.
35. Mechanism of action and pharmacological effects of potassium-sparing diuretics. Indications and contraindications for use. Dosage regimen.
36. Differentiated approach to the choice of a diuretic drug in the presence of the presence of concomitant diseases (effect on lipid and carbohydrate metabolism).
37. Classification of drugs, affecting bronchial patency.
38. Mechanism of action, pharmacokinetics, indications and contraindications to the recognition of short-acting beta-2-agonists. Principles of dosing.
39. Mechanism of action, pharmacokinetics, indications and contraindications to the recognition of long-acting beta-2-agonists. Principles of dosing.
40. Methylxanthines, mechanism of action, pharmacological effects, side effects. Principles of dosing.
41. SCS. Pharmacokinetics and pharmacodynamics. Advantages of using inhaled glucocorticoids. Dosing regimes.
42. Adverse events that occur with long-term use of GCS.
43. Mucolytic drugs. Pharmacokinetics and pharmacodynamics. Dosing regimes.
44. Interaction of medicines. Kinds. Clinical examples.
45. Types of side effects when using medicines.
46. Clinical and pharmacological classification of non-steroidal anti-inflammatory drugs.
47. Mechanism of action, pharmacological effects of non-steroidal anti-inflammatory drugs.
48. Indications and contraindications. Side effects when using non-steroidal anti-inflammatory drugs, their prevention and treatment.
49. Modern principles of the choice of antimicrobial drugs.
50. Adverse effects of antibacterial therapy, their profiles

#### **4.2.Theoretical material for the preparation for the final module control.**

**Topic 1. The subject and tasks of clinical pharmacology. The main provisions of pharmacokinetics and pharmacodynamics. Interaction of drugs, side effects of drugs, complications of drug therapy. Clinico-pharmacological characteristics of drugs that affect hemostasis and lipid metabolism.**

Defining "Clinical Pharmacology". Methods for controlling the effectiveness and safety of drugs.

Routes of administration, distribution, biotransformation, excretion of drugs. The mechanism of action of drugs, their pharmacological effects and changes in the state of the body's functions in response to the effects of drugs.

Classification of lipid-lowering drugs. The rationale for choosing a drug depending on the class of dyslipidemia. Dosage regimen, interaction with other groups of drugs. Evaluation of the effectiveness and safety of the application. Side effect of drugs.

**Topic for students' self-direcred work.** Interaction and side effects of drugs. Organization of the pharmacovigilance system in Ukraine.

**Topic 2. Clinical and pharmacological characteristics of antianginal and antiischemic drugs. Clinico-pharmacological characteristics of antihypertensive drugs.**

Etiopathogenetic principles of treatment of coronary heart disease. Classification of antianginal drugs. Features of the choice and combined use of drugs (organic nitrates, beta-adrenoblockers, calcium channel blockers, sydnonimins). Dosing regimen. Indications and contraindications for the appointment. Factors that reduce resistance to drugs in this group. Methods for assessing the effectiveness and safety of use.

Etiopathogenetic principles of treatment of arterial hypotension. Classification of hypertensive drugs. Comparative characteristics of drugs, choice of drugs and dose regimen. Evaluation of the effectiveness and safety of the application.3. Clinical and pharmacological characteristics of antianginal and anti-ischemic drugs

Classification of antianginal drugs. Features of the combined use of drugs (organic nitrates, β-adrenoblockers and calcium channel blockers). Dosing regimen. Indications and contraindications to the appointment. Factors that reduce resistance to drugs in this group. Methods for assessing the effectiveness and safety of therapy.

**Topic 3. Clinical and pharmacological characteristics of medicines affecting bronchial patency. Clinico-pharmacological characteristics of anti-inflammatory drugs.**

Modern ideas about the etiology and pathogenesis of bronchial obstruction syndrome. Classification of drugs

affecting bronchial patency. Pharmacokinetics and pharmacodynamics. Dosing regimen. Features of their combined use. Therapeutic efficacy of beta-2-agonists, M-cholinoblockers, methylxanthines. The choice of bronchodilator drugs for the removal of an attack of bronchial asthma and the systematic treatment of COPD, including - taking into account the concomitant pathology. Comparative characteristics of their therapeutic value. Side effects of drugs, the advantages and disadvantages of various pharmacological groups. Methods for assessing the efficacy and safety of therapy, taking into account the degree of bronchial obstruction, the viscosity of sputum, the state of central and peripheral hemodynamics.

Modern concepts of pathological physiology and pathological anatomy of inflammation. Classification of anti-inflammatory drugs (steroid and non-steroidal). Modern ideas about the mechanism of action. Comparative characteristics of anti-inflammatory drugs. Indications and contraindications for use. Dosing regimen. Schemes of appointment GCS. Compatibility of drugs in combination therapy of diseases. Side effect, methods of monitoring the efficacy and safety of the use of anti-inflammatory drugs

**Topic for students' self-directed work.** Clinico-pharmacological characteristics of antiallergic drugs.

The concept of allergy. Types of allergic complications. Classification of antiallergic agents: antihistamines, stabilizers of mast cell membranes, drugs that reduce vascular permeability. Pharmacological effects, principles of use. Side effects: methods of prevention and treatment. Methods for monitoring the effectiveness and safety of the application.

5. Clinical and pharmacological characteristics of antihypertensive drugs. Principles of treatment of essential hypertension. Classification of antihypertensive drugs. Justification of the choice of the drug depending on the stage and degree of hypertension. Characteristics of first and second drugs line. Dosing regimen. Comparative characteristics of drugs, the effectiveness and principle of choice, the compatibility of drugs with different variants of the course and the presence of concomitant pathology. Evaluation of the effectiveness and safety of the application. The choice of the drug and the dosage regimen, depending on the age, the presence of pregnancy.

**Topic 4. Clinical and pharmacological characteristics of antibacterial drugs.**

Principles of modern antibiotic therapy. Classification of antibiotics and other antimicrobial drugs. The role of antibiotics and other chemotherapeutic drugs in infectious and purulent-inflammatory diseases. The choice of antibacterial agents in accordance with the sensitivity of microorganisms and the localization of the process, the severity of the disease. Side effects and contraindications to antibacterial therapy. The choice of antimicrobial drugs, depending on the pharmacokinetics. Age features of antibacterial therapy. Antibiotic resistance and ways to overcome it.

**Topic for students' self-directed work.** Clinical pharmacology of drugs that are used in emergency conditions.

**Topic 5. Clinical and pharmacological characteristics of drugs that affect the functions of the gastrointestinal tract, hepatobiliary system and pancreas.**

Definition of the principles of pharmacotherapy of peptic ulcer of stomach and duodenum, gastritis, colitis, irritable bowel syndrome, gastroesophageal reflux disease. The importance of drugs that affect the secretory function of the stomach (proton pump inhibitors, H<sub>2</sub>-histaminoblockers, M-cholinoblockers, stimulating secretory function). Antihelminthic therapy (drugs, doses, duration). Gastrocytoprotectors. Medication regulation of gastrointestinal motility. Significance of symptomatic means: antiemetic and vomiting, laxatives and antidiarrheals. Dosing regimen. Modern principles of prevention and treatment of intestinal dysbiosis.

Modern principles of treatment of acute and chronic cholecystitis, hepatitis, pancreatitis. Justification of the choice and characteristics of preparations with enzyme and antiferment properties. Features of the joint use of drugs. Pharmacokinetics and pharmacodynamics of choleretics, cholekinetics, hepatoprotectors, antispasmodics. Indications and contraindications for the appointment. Side effect. Dosing regimen. Methods for monitoring the efficacy and safety of drug use.

**Topic for students' self-directed work.** Clinical pharmacology of psychotropic drugs. Features of pharmacokinetics, pharmacodynamics and applications.

**Topic 6. The final control of mastering the module.**

The final module control is carried out in the last lesson from the module within 80 minutes. The main forms of controlling the assimilation of the module are solutions of test tasks with one correct answer, a written answer to theoretical questions, a written solution of situational problems with the provision of urgent differentiated drug help (choice of the drug group, prescriptions for recommended drugs).

**Topic for students' self-directed work.** Defense the protocol on the effectiveness and safety of medicines. Final modular control.

## **5. Materials for students' self-directed work:**

### **A. Tasks for self-monitoring:**

1. What kind of pharmacotherapy is aimed at eliminating or limiting individual manifestations of the disease:  
A) preventive;  
B) Substitution;  
C) symptomatic.
2. Indicate a combination of drugs that lead to competition for protein binding:  
A) digoxin and sulfadimethoxin;  
B) digoxin and spironolactone;

- C) neodicumarin and butadione;
  - D) aspirin and nitroglycerin;
  - E) furosemide and nitrosorbide.
3. What phenomena are observed with the simultaneous administration of two drugs:
- A) idiosyncrasy;
  - B) tachyphylaxis;
  - C) the amount;
  - D) antagonism;
  - E) synergism.

#### **B. Examples of situational tasks**

1. Patient B., 38, with the aim of treating periostitis, an antibacterial preparation was prescribed whose mechanism of action is associated with inhibition of DNA gyrase. It has a wide spectrum of action. Writing the recipe.
  - A) analgin;
  - B) sulfalene;
  - C) ciprofloxacin;
  - D) metronidazole;
  - E) Biseptol.
2. The patient was diagnosed with acute osteomyelitis of the lower jaw after the examination. What antibiotic should I prescribe? Justify your answer. Writing the recipe.
  - A) bicillin-5,
  - B) ampicillin;
  - C) Levomycetin;
  - D) gentamicin;
  - E) clindamycin.
3. At the patient at treatment of a pulpitis of a 16 tooth as anesthetic a solution of lidocaine was used. A few minutes after the injection, shortness of breath appeared, heaviness behind the sternum, dry cough, cyanosis AO - 60/40 mm Hg. Which drug is used first for emergency care. Justify your answer. Writing the recipe.
  - A) adrenaline;
  - B) prednisolone;
  - C) eufillin;
  - D) promedol;
  - E) Vikassol.

#### **Literature:**

##### **Basic:**

1. Mashkovsky M.D. Medicines. - M., 2005. - 1200 s.
2. Clinical pharmacology: a textbook / Ed. I.A. Zupantsa, S.V. Nametova, A.P. Viktorova. - X.: publishing house of the NFUU: Golden Pages, 2005. - T.1 - P. 194-230.
3. Mikhailov I.B. Clinical pharmacology. - S.-PB: Folio, 1998. - 496 p.
4. Clinical pharmacology and pharmacotherapy. Belousov Yu.B., Moiseev B.C., Lepakhin V.K. - A guide for doctors. - Moscow, 1993. - 393 p.
5. Clinical pharmacology. Kukes V.G. - Moscow, Medicine, 1999. - 440 p.
6. Clinical pharmacology (in 2 volumes). Lawrence DR, Benitt PN - Moscow: Medicine, 1991.
7. Clinical pharmacology. Tutorial. Butalov VP, Makarova TP, Cherezova IN - Kazan: "Bulgar-press", 2003. - 168 p.

##### **Additional:**

1. Practical guidance on anti-infectious chemotherapy. Ed. Straungsky LS, Belousov Yu.B., Kozlov SN - Moscow, 2002.
2. Pharmacotherapy of urgent conditions: Trans. With the English. Suslova GM, Mazur G., Kunnion R.E. And others - M.; SPb.: "Publishing house BINOM" - "Nevsky Dialect", 1999. - 633 p.
3. Interaction of medicinal substances. Baltkai Ya.Ya., Fateev V.A. - Moscow: Medicine, 1991. - 302 p.
4. Treatment of diseases of internal organs. Okorokov A.N. - M.: Honey. Literature, 1999. - Volume 1. - P. 286-322.
5. Diseases of the teeth and oral cavity. Masters Yu.I., Skripnikova TP, Semenets V.G. - Poltava: PBMU, UMSA, 2001. - 352.
6. Rational therapy in dentists: Hands. For practicing doctors. Barer GM, Zoryan EV, Agapov VS, Afanasyev VV And others - Moscow: "Literature", 2006. - 568p.
7. Medicines used in dentistry. Edited by VV Yasnetsov, GN Efremova. - Moscow: GEOTAR-MED, 2004. - 334 p.
8. Mukhina EA, Gikavy VI Handbook of pharmacotherapy of major dental diseases. - Chisinau, 1990. - 32 p.
9. Side effect of drugs. Directory. Edited by S. Drogozov. - Kharkov: "SIM", 2010. - 480 with.

372 p. 10. Directory of the surgeon-dentist. L.V. Kharkov, L.N. Yakovenko. - Moscow: "The Book Plus", 2008. –

**Web sources:**

1. <http://www.studmedlib.ru>
2. <http://www.Med-Tutorial.ru>
3. <http://www.Med-books.by>
4. <http://www.osdm.org/index.php>
5. <http://www.evidence-update.ru>
6. <http://www.eacpt.org>
7. <http://medicine.iupui.edu/flockart/>

Methodical guidance have been composed by  
K.med.n., Associate Professor  
Kapustianska AA

---