

**Ministry of health of the Republic of Belarus
Educational institution
«Gomel State Medical University»**

Department of general and clinical pharmacology

Authors:

A.V.Sennikava, senior lecturer

E.I. Mikhailova, head of department, DMS, prof.

A.Y. Braga, assistant

METHODOLOGICAL RECOMMENDATIONS

for a practical lesson on the discipline "Pharmacology"
for the third-year students of the Faculty of Foreign Students,
studying at the specialty 1-79 01 01 "General medicine"

**TOPIC 24: «FINAL (CONTROL) LESSON ON DRUGS
AFFECTING THE FUNCTION OF EXECUTIVE ORGANS»**

Time: 3 hours

Approved at the meeting of the department of general and clinical pharmacology
the protocol № 18 of 30.06.2022

LEARNING AND EDUCATIONAL GOALS, OBJECTIVES, MOTIVATION FOR LEARNING THE TOPIC

The final lesson is successive and final in the study of the means that regulate the functions of executive bodies and systems. Possession of knowledge of the pharmacokinetic and pharmacodynamic features of these drugs, the ability to choose and prescribe drugs correctly, taking into account possible indications and contraindications, the skills to correctly prescribe various dosage forms of this group of drugs in the form of prescriptions are necessary for a doctor of any specialty.

Learning objective:

– the formation of scientific knowledge on the anatomical and physiological structure of the executive organs and systems, the origin, physicochemical properties and features of the pharmacokinetics and pharmacodynamics of drugs that regulate the functions of the executive organs and systems, which will allow you to control the effects of drugs based on pharmacokinetic and pharmacodynamic principles, build an individual strategy for pharmacotherapy and write out prescriptions for medicines from different pharmacological groups and in different dosage forms, for use in treatment and prevention activities.

Educational purpose:

– to develop their value-personal, spiritual potential, to form the qualities of a patriot and citizen, ready for active participation in the economic, industrial, socio-cultural and public life of the country; to realize the social significance of their future professional activities, to learn to follow academic and work discipline, standards of medical ethics and deontology.

Tasks:

As a result of the study lesson, the student should

know:

– classification and basic characteristics of the studied drugs, pharmacodynamics and pharmacokinetics, indications and contraindications for their use, side effects;
– features of pharmacokinetics and pharmacodynamics, advantages and disadvantages of different dosage forms of these drugs;
– principles of research and testing of new drugs; information and reference and search systems;

be able to:

– analyze the effect of the studied drugs on the set of their pharmacological properties and the possibility of their use in medical practice; to write them in prescriptions;
– use different dosage forms of these drugs, based on the peculiarities of their pharmacodynamics and pharmacokinetics;
– work with scientific literature, search for information about the use and action of the studied drugs;

possess:

– skills in choice of drugs on the topic of the lesson;
– the rules of prescribing the studied drugs in the treatment of various diseases and pathological conditions, taking into account the indications;

- skills of dosage regime correction in case of pathological changes in functions of organs or systems responsible for biotransformation and elimination of drugs or in case of joint use of different drugs;
- skills to search, analyze and summarize information about the use and effects of the studied drugs.

Motivation for learning the topic:

- the specifics of training doctors in this specialty determines the need for students to purposefully study the main pharmacological effects, providing therapeutic and preventive effects of drugs on the topic of the class, indications and contraindications for their use, the interaction of drugs, their combined use, which will successfully complete the specialized disciplines of the specialty.

MATERIAL EQUIPMENT

Reference and informational literature, charts, tables, presentations, drug collections.

CONTROL QUESTIONS FROM RELATED DISCIPLINES

1. The subject of pharmacology. Terminology. Sources and stages of drug creation. Legislation in the field of drugs.
2. Principles of pharmacokinetics. Principles of drug dosing.
3. Biotransformation and excretion of drugs. Drug dosing regimen correction for changes in clearance and volume of distribution.
4. Pharmacodynamics of drugs.
5. State pharmacopoeia, its content and purpose. International pharmacopoeia. Pharmacy. Rules of storage and dispensing of medicines. Prescription, its structure.
6. Rules for registration of prescriptions for drugs in different dosage forms.
7. Peculiarities of prescribing narcotic, poisonous and potent drugs.

CONTROL QUESTIONS ON THE TOPIC OF THE CLASS

General pharmacology

1. Antitussives, classification, mechanism of action, rules of application, possible complications.
2. Expectorants, definition, classification, indications for prescribing and application.
3. Medicines for bronchial asthma and bronchospasm: classification, pharmacodynamics, rules of administration.
4. Management of asthmatic status.
5. Management of cardiogenic pulmonary edema, pathogenetic therapy.
6. Pathogenetic therapy of heart failure (acute and chronic). Classification of medicines used for heart failure.
7. Cardiotonic agents, definition, classification. Characterization and application of non-glycosidic cardiotonic agents.
8. Cardiac glycosides, definition, classification, influence on parameters (indicators) of the heart (taking into account the mechanism of action). Indications and rules for use of cardiac glycosides.
9. Glycoside therapy of chronic heart failure. Clinic and measures of care for acute poisoning with cardiac glycosides. Prevention of chronic digitalis intoxication.

10. Anti-arrhythmic drugs, definition, classification. Drugs for tachyarrhythmias, classification, pharmacodynamics, use with regard to efficacy in arrhythmias of different genesis.
11. Anti-arrhythmic drugs, definition, classification. Drugs for bradyarrhythmias, principles of action application taking into account the genesis and degree of expression of arrhythmias.
12. Classification of drugs for coronary circulation insufficiency. Organic nitrates, classification, pharmacodynamics, rules for the treatment of angina pectoris.
13. Classification of drugs for coronary artery insufficiency. Calcium channel blockers, beta-adrenergic blockers, potassium channel activators, pharmacodynamics and use.
14. Drug therapy of myocardial infarction.
15. The main directions of treatment of chronic disorders of cerebral circulation. Drug help for migraines.
16. Peripheral vascular disease treatment (arteries and veins pathology).
17. Antihypertensive drugs, classification. Pharmacodynamics of neurotropic antihypertensive drugs.
18. Pharmacodynamics of antihypertensives without neurotropic action. Clinic and treatment of hypertensive crisis.
19. Pharmacological correction of acute vascular insufficiency. Hypotonia treatment.
20. Lipid-lowering (antiatherosclerotic) agents, pharmacodynamics and application.
21. Diuretics, definition, classification. The mechanism of action and comparative characteristics of drugs, indications for use.
22. Drugs that promote the excretion of urinary calculi. Management of renal colic attack.
23. Drugs affecting function of uterus. Classification of uterotonics, features of their pharmacodynamics, application.
24. Drugs affecting function of uterus. Tocolytics, application.
25. Drugs affecting the appetite, mechanisms of action, application. Drugs for obesity.
26. Emetics, definition, classification, application. Antiemetics, representatives of various pharmacological groups, drugs for vomiting of different genesis.
27. Drugs for gastric gland dysfunction, classification. Drugs for decreased gastric gland function (diagnostic agents and replacement therapy).
28. Drugs for acid-peptic disorders (peptic ulcer). Principles of therapy, classification of drugs and their mechanisms of action.
29. Drugs for pancreatic excretion disorders. Acute pancreatitis management.
30. Classification and pharmacological characteristics of cholagogue agents, their use. Drugs dissolving gallstones (cholelitholytics). Treatment for biliary colic.
31. Hepatoprotectors, definition and application. Hepatic detoxification stimulants, general characteristic, application.
32. Laxatives, definition, classification, mechanisms of action, indications and rules of administration. Antidiarrheal agents, definition, use.

33. Drugs affecting the blood system, classification. Erythropoiesis stimulants, classification, pharmacodynamics, use. Rules for prescribing iron preparations, poisoning with them and antidotes.

34. Medicines that affect leukopoiesis. Principles of leucopenia pharmacotherapy.

35. Classification of drugs affecting hemostasis process. Drugs affecting vascular-platelet and microcirculatory hemostasis. Aggregants, mechanisms of action, application.

36. Drugs affecting vascular-platelet and microcirculatory hemostasis. Antiaggregants, mechanisms of action, application.

37. Drugs for bleeding. Coagulants (activators of coagulation), classification, mechanisms of action, application.

38. Anticoagulants (inhibitors of coagulation), classification, mechanisms of action, application.

39. Drugs affecting fibrinolysis, classification, mechanisms of action, use.

PROCESS OF THE STUDY

Theoretical part

Theoretical material on the topic of this lesson is presented in the methodological recommendations for lessons № 16-23.

Practical part

1. Check the theoretical material outlined by the student in lectures and practical classes.

2. Check the quality of the tasks in the workbook on the topic of the class.

3. Check the mastery of the methods of solving tasks and writing out prescriptions on the topic of the class.

Theme learning control

Conducted in the form of independent written work (solution of practical problems and prescriptions for individual task).

METHODOLOGICAL RECOMMENDATIONS FOR ORGANIZATION AND EXECUTION OF STUDENTS' INDEPENDENT WORK (SIW)

The time given for independent work can be used by students for:

- preparing for the practical classes;
- completing the tasks on the topic of the class in the workbook;
- preparing thematic reports, essays and presentations;
- taking notes from academic literature.

The main methods of organizing independent work:

- completing tests and practical tasks of the electronic educational-methodical complex (EEMC) for self-monitoring and self-assessment.

The list of tasks of the SIW:

- solving practical problems in the EEMC;
- completing the test tasks of the EEMC.

Control of the SIW is carried out in the form of:

- assessment of an oral answer to a question, report, report, or solution of a task in a practical class;
- individual conversation.

METHODOLOGICAL RECOMMENDATIONS FOR ORGANIZATION AND EXECUTION OF CONTROLLED INDEPENDENT WORK OF STUDENTS (CIWS)

Recommended forms of CIWS organization:

- doing exercises on the topic of the class in the workbook;
- writing an essay on a given topic;
- preparing a report and a multimedia presentation on a given topic.

The list of tasks of the CIWS:

Topics of essays / multimedia presentations:

1. Medicines used in violation of cerebral circulation.
2. Medicines used in violation of peripheral circulation.
3. Pharmacological characteristics of antioxidants.
4. Anti-inflammatory drugs for dysmenorrhea.
5. Modern drugs in the treatment of certain cosmetic diseases.
6. Genetherapy as a new direction in pharmacology.

Forms of control of CIWS realization:

- checking and grading an essay on a given topic;
- checking and grading a multimedia presentation on a given topic.

LIST OF REFERENCES

1. Kharkevitch, D.A. Pharmacology: textbook for med. students: transl. of 12th ed. of Russ. textbook "Pharmacology" (2017) / D.A. Kharkevitch. - 2nd ed. - Москва: ГЭОТАР-Медиа, 2019. - 676 с.: ил., табл. - Рек. ФГАУ "ФИРО". – Режим доступа: <http://www.studmedlib.ru/book/ISBN5970402648.html> – Дата доступа: 23.05.2022.
2. Кратко о лекарственных средствах: учебно – методическое пособие для студентов 3 и 6 курсов факультета иностранных студентов, учреждений высшего мед. образования: в 2 ч.=Drugs in short: partical workbook for 3 and 6 year students Faculty for International Students of medical higher educational institutions: in 2 parts / Е.И. Михайлова [и др.]. – Ч. 1. – Гомель: ГомГМУ, 2020. – 56с. – Режим доступа: <http://elib.gsmu.by/xmlui/handle/GomSMU/7128> – Дата доступа: 23.05.2022.
3. Кратко о лекарственных средствах: учебно – методическое пособие для студентов 3 и 6 курсов факультета иностранных студентов, учреждений высшего мед. образования: в 2 ч.=Drugs in short: partical workbook for 3 and 6 year students Faculty for International Students of medical higher educational institutions: in 2 parts / Е.И. Михайлова [и др.]. – Ч. 2. – Гомель: ГомГМУ, 2020. – 76с. – Режим доступа: <http://elib.gsmu.by/xmlui/handle/GomSMU/7129> – Дата доступа: 23.05.2022.
4. Rang and Dale's Pharmacology / J.M. Ritter [et al.]. - 9th ed. - Edinburg [et al.]: Elsevier, 2020. - xvi, 789 p.: ill., tab. + Student consult online.