

**Ministry of Health of the Republic of Belarus
educational institution
"Gomel State Medical University"**

Department of General and Clinical Pharmacology

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METHODOLOGICAL RECOMMENDATIONS

for conducting a practical lesson on the optional course
"Practical Pharmacology" in the discipline "Pharmacology"
with students 3-year faculty of foreign students,
studying at the specialty 1-79 01 01 "General Medicine"

**TOPIC 2: "PRACTICAL PHARMACOLOGY AND APPROACHES TO THE SE-
LECTION AND USE OF ANTIHYPERTENSIVE DRUGS"**

Time: 2 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

Arterial hypertension (AH) is one of the most common diseases. In our country, according to research results, about 30 million people suffer from hypertension. A prolonged increase in blood pressure can lead to damage to target organs and the development of a number of complications: stroke, encephalopathy, left ventricular hypertrophy, heart, kidney failure, etc. Timely initiation of antihypertensive therapy can reduce cardiovascular morbidity and mortality, improve the course and prognosis of arterial hypertension. In accordance with the currently available data on the etiology and pathogenesis of hypertension, treatment should be aimed at eliminating emotional overstrain, reducing increased activity of the sympathetic-adrenal system, normalizing electrolyte metabolism, reducing vascular tone and heart function, inhibiting renin-angiotensin-aldosterone systems. The presence of a large number of antihypertensive drugs, which can be used to reduce blood pressure in different ways, obliges doctors to justify and maximally individualize their prescription.

Learning goal:

– formation of specialized knowledge of optimal antihypertensive therapy, depending on the pathogenetic variant of arterial hypertension, its stage, complications and the presence of concomitant diseases; familiarize with the methods of control and criteria for the effectiveness and safety of the therapy.

Educational purpose:

– - to develop one's value-personal, spiritual potential, to form the qualities of a patriot and a 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, learn to observe educational and labor discipline, norms of medical ethics and deontology.

Tasks:

As a result of the training session, the student must

know:

– classification and main characteristics of the studied drugs, pharmacodynamics and pharmacokinetics, indications and contraindications for their use, side effects;
– features of pharmacokinetics and pharmacodynamics of the studied drugs, advantages and disadvantages of various dosage forms used in medical practice;
– principles of research and testing of new medicines; information-reference and search systems.

be able to:

– analyze the effect of drugs on the topic of the lesson in terms of the totality of their pharmacological properties and the possibility of their use in medical practice; write them out in prescriptions;
– be able to use various dosage forms of the studied drugs, based on the characteristics of their pharmacodynamics and pharmacokinetics;
– be able to work with scientific literature, search for information about the use and effect of the studied drugs.

own:

- rules for prescribing study drugs in the treatment of various diseases and pathological conditions, taking into account indications;
- skills of choosing medicines on the topic of the lesson;
- skills of searching, analyzing and summarizing information about the use and operation of fixed assets on the topic of the lesson.

Motivation for mastering the topic:

The specifics of training doctors in the specialty 1-79 01 01 "Medicine" determines the need for students to purposefully study knowledge about practical pharmacology and approaches to the selection and use of medicines on the topic of the lesson.

MATERIAL EQUIPMENT

Reference and information literature, schemes, tables, presentations, collection of medicines.

CONTROL QUESTIONS FROM RELATED DISCIPLINES

- **from biochemistry and physiology:** physical properties and structure of cell membranes, transport of substances through biological membranes in normal and pathological conditions;
- **from general and bioorganic chemistry:** basics of chemical kinetics and catalysis, buffer solutions and systems, pH calculation;
- **from biochemistry:** the kinetics of enzymatic reactions, the Michaelis-Menten kinetics equation, the concept of enzyme inhibitors, types of enzyme inhibitors;
- **from pathological physiology:** cell damage, disorders of protein, fat, carbohydrate and mineral metabolism, disorders of local and general circulation, immunopathological processes, allergies, inflammation, pathology of the heart and blood vessels.

CONTROL QUESTIONS ON THE TOPIC OF THE LESSON

1. Classification and pharmacological characteristics of antihypertensive drugs according to the points of application of action.
2. The principles of the use of antihypertensive drugs, based on the pathophysiological variants of the course of arterial hypertension, the expediency of the combined use of drugs with different points of application of action.
3. The main drugs used to stop the hypertensive crisis.
4. Classification of diuretics by chemical structure. and predominant action in the nephron and strength of action.
5. Pharmacological characteristics of glomerular diuretics, drugs that affect the proximal tubules, diuretics that affect the distal tubules and collecting ducts.
6. Pharmacological characteristics of diuretics of plant origin (effect on diuresis, azotemia, disinfectant effect, efficiency, toxicity).
7. Dosing principles and frequency of diuretic administration. Features of combined diuretics.

PROCEDURE OF THE LESSON

Theoretical part

1. Козловский В.И. Основы фармакологии = Essentials of Pharmacology: студентов учреждений высшего образования, обучающихся по специальностям 79-01 01 «Лечебное дело» / В. И. Козловский (и др.). Гродно: ГрГМУ 2019. — Р. 99-108.

Practical part

1) Review the theoretical material demonstrated by the teacher;
2) Master the methodology for solving problems and writing prescriptions on the topic of the lesson.

Control of the assimilation of the topic

It is carried out in the form of independent written work (solving practical problems and writing prescriptions for an individual assignment).

METHODOLOGICAL RECOMMENDATIONS FOR ORGANIZING AND PERFORMING IWS

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

- preparation for practical exercises;
- preparation of thematic reports, abstracts, presentations;
- note-taking of educational literature.

The main methods of organizing independent work:

– fulfillment of test tasks and practical tasks of the EUMC for self-control and self-assessment.

The list of tasks of the SRS:

- solution of practical problems of EUMC;
- performance of test tasks EUMK.

SRS control is carried out in the form:

- evaluation of an oral answer to a question, message, report or problem solving in practical classes;
- individual conversation.

METHODOLOGICAL RECOMMENDATIONS FOR THE ORGANIZATION AND IMPLEMENTATION OF IIWS

Recommended forms of organization of the IIWS:

- writing an essay on a given topic;
- preparation of a report and multimedia presentation on a given topic.

List of IIWS tasks:

Topics of abstracts / multimedia presentations:

1. Antihypertensive therapy and the risk of developing diabetes;
2. Antihypertensive therapy and the risk of developing cancer;
3. Antihypertensive therapy and severity of Covid-19.

Forms of monitoring the implementation of the IIWS:

- checking and evaluating the abstract on a given topic;

- checking and evaluating a multimedia presentation on a given topic.

LIST OF USED SOURCES

1. Харкевич, Д. А. Фармакология : учебник для использования в учеб. процессе образоват. организаций, реализующих программы высш. образования по специальностям 33.05.01 "Фармация", 31.05.01 "Лечеб. дело", 31.05.02 "Педиатрия", 32.05.02 "Мед.-профилактик. дело", 31.05.03 "Стоматология" / Д. А. Харкевич. - 12 изд., испр. и доп. - Москва : ГЭОТАР-Медиа, 2017. - 754 с. : ил., табл., фот. - Рек. ФГАУ "ФИРО".
2. Козловский В.И. Основы фармакологии = Essentials of Pharmacology: студентов учреждений высшего образования, обучающихся по специальностям 79-01 01 «Лечебное дело» / В. И. Козловский (и др.). Гродно: ГрГМУ 2019. - Рек. УМО по высш. мед., фармацевт. образованию.
3. Конорев, М. Р. Курс лекций по фармакологии. В 2 т. Т. 2, ч. 1 : для студентов 3 и 4 курсов фармацевт. фак. учреждений высш. образования, обучающихся по специальности 1 - 79 01 08 "Фармация" / М. Р. Конорев, И. И. Крапивко, Д. А. Рождественский ; УО "ВГМУ", Каф. общей и клинической фармакологии с курсом ФПКипК. - Витебск: ВГМУ, 2019. - 294 с.: ил., табл. - Рек. УМО по высш. мед., фармацевт. образованию.
4. Конорев, М. Р. Курс лекций по фармакологии. В 2 т. Т. 2, ч. 2 : для студентов 3 и 4 курсов фармацевт. фак. учреждений высш. образования, обучающихся по специальности 1 - 79 01 08 "Фармация" / М. Р. Конорев, И. И. Крапивко, Д. А. Рождественский ; УО "ВГМУ", Каф. общей и клинической фармакологии с курсом ФПКипК. - Витебск: ВГМУ, 2019. - 165 с.: ил. - Рек. УМО по высш. мед., фармацевт. образованию.
5. Михайлова Е.И. Общая фармакология: студентов учреждений высшего образования, обучающихся по специальностям 79-01 01 «Лечебное дело», 79-01 04 «Медико-диагностическое дело» / Е. И. Михайлова (и др.). Гомель: ГомГМУ 2020. — 54 с.
6. Аляутдин, Р.Н. Фармакология : учебник для использования в учеб. процессе образоват. организаций, реализующих программы высш. образования по специальностям 33.05.01 "Фармация", 31.05.01 "Лечеб. дело", 31.05.02 "Педиатрия", 32.05.02 "Мед.-профилактик. дело", 31.05.03 "Стоматология" / Р.Н. Аляутдин. - 3 изд., испр. и доп. - Москва : ГЭОТАР-Медиа, 2022. - 352 с. : ил., табл., фот. - Рек. ФГАУ "ФИРО". — Текст : электронный // Консультант студента : [сайт]. — URL : <https://www.studentlibrary.ru/book/ISBN9785970468180.html>.