

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 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 15: «FINAL (CONTROL) LESSON ON NEUROTROPIC DRUG»

Time: 3 hours

Approved at the meeting of the department of general and clinical pharmacology
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LEARNING AND EDUCATIONAL GOALS, OBJECTIVES, MOTIVATION FOR LEARNING THE TOPIC

The final lesson on neurotropic drugs is a succession and concluding in the study of drugs that primarily affect the nervous system. Neurotropic drugs are now widely used in practical medicine. They are used to help with various diseases and conditions: from the treatment of diseases of internal organs and the nervous system to the provision of emergency assistance in terminal states. The prescription of medicinal products of this action requires great responsibility from doctors, knowledge of not only their pharmacological features, but also measures of assistance in poisoning with substances that primarily affect the nervous system.

Learning objective:

- formation of scientific knowledge about the main pharmacological effects, providing therapeutic and preventive effect of drugs on the topic of the class, indications and contraindications for their use, the interaction of drugs, their combined use for use in medical and preventive 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 the creation of medicines. Legislation in the field of medicines.
2. Fundamentals of pharmacokinetics. Principles of dosage of medicines.
3. Biotransformation and excretion of drugs. Correction of the dosage regimen of drugs with changes in clearance and volume of distribution.
4. Pharmacodynamics of medicines.
5. The State Pharmacopoeia, its content and purpose. International Pharmacopoeia. Pharmacy. Rules for the storage and release of medicines. The recipe, its structure.
6. Rules for prescribing prescriptions when prescribing medicines in various dosage forms.
7. Features of prescribing narcotic, poisonous and potent drugs.

CONTROL QUESTIONS ON THE TOPIC OF THE CLASS

1. Anatomico-physiological structure of the nervous system. Types of receptors and neurotransmitters, mechanisms of receptor influence.
2. Drugs affecting afferent innervation, definition, classification. Pharmacological characteristics of astringent, enveloping and adsorbing drugs. Application.
3. Local anesthetics, definition, classification, mechanism of action, comparative characteristics. Resorptive action of local anesthetics.
4. Anatomico-physiological aspects of the peripheral nervous system. Irritant drugs, the principle of action and the mechanism of development of effects (distracting and trophic). Rules for the use of mustard plasters.
5. Anatomico-physiological characteristics of efferent innervation. The concept of synapses, mediators and receptors, their subdivision and localization. M-cholinergic agonists (M-cholinomimetic agents). Mechanism of action, basic effects, application.

6. Biosynthesis and degradation of acetylcholine. Muscarinic and nicotinic cholinergic agonists. Classification, mechanisms of action, pharmacological effects, comparative characteristics, application.

7. Clinic of acute poisoning with muscarin and cholinesterase inhibitors (indirect muscarinic and nicotinic antagonists). Treatment.

8. Muscarinic antagonists. Classification, pharmacological effects, comparative characteristics, application.

9. Clinic of acute poisoning with muscarinic antagonists. Treatment.

10. Drugs affecting the activity of nicotinic receptors, classification. Nicotinic agonists. Medical and biological problems of smoking.

11. Ganglionic blockers. Classification, main effects, use, treatment of over-dose.

12. Neuromuscular blockers (peripheral muscle relaxants): definition, classification, sequence of development of the main effect, use, treatment of overdose.

13. Adrenoceptors, definition, classification, location in the body, physiological role. Classification of agents that affect adrenoceptor activity. Alpha-adrenergic agonists. Main effects, application.

14. Alpha-adrenergic antagonists (alpha-blockers). Classification, main effects, use, possible complications.

15. Beta-adrenergic agonists. Classification, main effects, application, possible complications.

16. Beta-adrenergic antagonists (beta-blockers). Classification, basic effects, application, possible complications.

17. Beta, alpha-adrenergic agonists (direct, indirect). Main effects, comparative characteristics, application.

18. Mixed beta, alpha-adrenergic antagonists (beta, alpha-adrenoblockers). Indications for use.

19. Sympatholytic drugs, pharmacological effects, use, side effects.

20. Neurotropic drugs of central action, classification. Classification of general anesthetics. Comparative characteristics of agents for inhalation anesthesia.

21. Drugs for non-inhalational anesthesia, their comparative characteristics. The concept of combined anesthesia and neuroleptanalgesia.

22. Ethyl alcohol, the effect on the central nervous system and other organs and systems of the body (with regard to resorptive and local action). Use in medical practice. Medico-biological and social problems of chronic alcoholism (directions in treatment and principles of drug therapy).

23. Hypnotics, classification, principles of action and rules of appointment. Poisoning with barbiturate and benzodiazepine hypnotics, a clinic and treatment.

24. Analgesics, definition, classification, comparative characteristics of groups. Pharmacological characteristics of non-narcotic analgesics (analgesics-antipyretics), application.

25. Narcotic analgesics, definition, classification, mechanism of action, comparative characteristics, indications for use. Medico-biological and social problems of drug addiction.

26. Anticonvulsants, definition, classification. Pharmacological characteristics of antiepileptic drugs. Principles of therapy of epilepsy. Treatment of status epilepticus.

27. Antiparkinsonics, classification by mechanism of action. Mixed antiparkinsonics.

28. Psychotropic drugs, definition, classification. Pharmacological characteristics of psychomotor stimulants (psychostimulants).

29. Antipsychotic drugs (neuroleptics), definition, classification, mechanism of action, main effects and application in various fields of medicine. Side effects of neuroleptics and the mechanism of their development.

30. Anxiolytics (tranquilizers), definition, classification, pharmacodynamics, use, side effects. The difference between anxiolytics and neuroleptics.

31. Sedatives, pharmacodynamics, use. Bromism, a clinic, measures by the power.

32. Normotimicheskie (psycho-regulatory), anti-manic drugs, the principles of action, effects, application.

33. Antidepressants, definition, classification by the mechanism of action, the main effects, application. Side effects of antidepressants.

34. Psychometabolic stimulants (nootropic drugs), the mechanism of action, the main effects, application, contrast to psychomotor stimulants (psychostimulants).

35. Analeptics, definition, brief description, application.

Prescribe and identify indications for use:

1. Lidocaine solution in ampoules
2. Almagel
3. A solution of neostigmine (proserin) in ampoules
4. Atropine sulfate solution in ampoules
5. Ipratropium bromide (atrovent) in the form of an aerosol
6. A solution of clonidine (clonidine) in ampoules
7. Salbutamol in the form of an aerosol
8. Propranolol (anaprilin) in tablets
9. Metoprolol in tablets
10. A solution of morphine hydrochloride in ampoules
11. Acetylsalicylic acid (aspirin) in tablets

12. Paracetamol in tablets
13. Chlorpromazine (aminazine) in tablets
14. Sulpiride (betamax) in tablets (capsules)
15. Amitriptyline in tablets
16. A solution of diazepam (relanium) in ampoules

PROCESS OF THE STUDY

Theoretical part

Theoretical questions are described in the appendix to the methodological recommendations.

Practical part

1. Take notes on theoretical material demonstrated by the teacher.
2. Master the methods of solving the 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. Non-opioid drugs of central action with analgesic activity (paraaminophenol derivatives) and drugs from various pharmacological groups with an analgesic component of action.
2. Clinical manifestations of acute poisoning with salicylates and other non-narcotic analgesics, measures of assistance in these conditions.
3. Symptoms of acute and chronic poisoning with sleeping pills and measures of assistance in these conditions.
4. Comparative characteristics of the pharmacodynamics of anxiolytics, sedatives and antipsychotics.

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.

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