

Ministry of science and high education RF Ulyanovsk State University	Form	
F-Educational plan of the discipline		

APPROVED
by the decision of the Academic Council of the USU
Institute of Medicine, Ecology and Physical Culture
16.05.2024 Record No 9/260
Chairman *V.V. Mashin*
(Signature Name)
«16» May 2024.



EDUCATIONAL PLAN

Discipline	<i>Clinical pharmacology</i>
Faculty	Medical faculty of T.Z. Biktimirov
Name of department	Therapy and occupational diseases
Course	6

Direction (specialty) 31.05.01 General medicine

Orientation (profile/specialty) not provided

Form of training full-time

Date of introduction into the academic process at USU: «1» September 2024.

Revised at the Department meeting, Record No _____ of _____ 20 _____

Revised at the Department meeting, Record No _____ of _____ 20 _____

Revised at the Department meeting, Record No _____ of _____ 20 _____

Revised at the Department meeting, Record No _____ of _____ 20 _____

Information about the authors:

Initials	Abbreviation of the department	Degree, scientific rank
Serov Valery Anatolievich	Therapy and occupational diseases	Professor of the department TOD, M.D.

AGREED	AGREED
Head of the Department, developing discipline	Head of the graduating Department
 _____ / A.M. Shutov / <i>Signature</i> <i>Full-name</i> «16» May 2024	 _____ / M.A. Vize-Khrapunova / <i>Signature</i> <i>Full-name</i> «16» May 2024

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1. OBJECTIVES AND AIM OF

Aim of the discipline :

Based on modern medical knowledge, to teach students the effective and safe choice of drugs for modern individualized pharmacotherapy using the latest information on pharmacokinetics (FC), pharmacodynamics (PD), pharmacogenetics (FG), interaction, adverse drug reactions (ADR) drugs (Dr) and provisions of evidence-based medicine (EM).

Objectives of discipline development :

- to present a complete system of theoretical foundations of clinical pharmacology; factors contributing to changes in metabolism, the action of drugs, increasing the risk of ADR;

- to consider ways of realization of compound questions of clinical pharmacology at patients;

a) study and evaluation of the physical parameters of drugs;

b) study and evaluation of PD effects of drugs;

c) assessment of potential drug-drug interactions;

d) forecasting and assessment of ADR, the study of the order of their registration;

e) study of the relationship of FC and FD drugs;

e) Study of factors contributing to changes in the action and metabolism of drugs, as well as factors that increase or reduce the risk of ADR;

g) the study of the features of PD, FC drugs depending on the functional state of the biological system of the body (age, pregnancy, etc.).

h) study of phases of clinical research of new drugs, EM provisions;

I) taking into account the formulary system, pharmacoepidemiology and results of pharmaco-economical studies;

to choose the most effective, safe and affordable drug;

- determine the optimal dosing regimen, choose the correct method of administration, taking into account the FC and PD parameters of drugs, as well as age, sex and clinical condition of the patient;

- prescribe an effective and safe combination of drugs in a specific clinical situation;

- predict and identify early side effects of drugs and carry out their correction;

- to determine adequate clinical and paraclinical parameters to control the effectiveness and safety of drugs used;

- familiarize yourself with the methods of assessing the quality of life;

- to determine the most accessible and objective methods of control over the effectiveness and safety of the applied groups of drugs and the frequency of their application;

- to take into account the features of FC, FD drugs with insufficiency of the cardiovascular, respiratory systems, gastrointestinal tract, liver and kidneys.

1. PLACE OF THE SUBJECT IN THE STRUCTURE OF GEP:

Discipline "Clinical pharmacology" refers to the training cycle Base part B1.O.42.

The basic knowledge, skills and competencies of the student necessary for the study of the discipline are formed:

- in the study of disciplines of the humanitarian, social and economic cycle: philosophy, bioethics, history of medicine, psychology and pedagogy, law Latin language;

- in the study of disciplines of mathematical, natural science cycle: physics and mathematics; medical Informatics; chemistry; biology; biochemistry; human anatomy, topographic anatomy; pathological anatomy, clinical pathological anatomy; histology, embryology, Cytology; normal physiology; pathophysiology; Microbiology, Virology; pharmacology; immunology;

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- in the study of disciplines of the professional cycle: hygiene; public health and health care, health Economics; epidemiology; medical rehabilitation; propedeutics of internal diseases; faculty therapy; dermatovenerology; General surgery, surgical diseases; Pediatrics; radiation therapy and radiation diagnostics, infectious diseases, Phthisiopulmonology, polyclinic therapy, occupational diseases, ophthalmology, obstetrics and gynecology, otorhinolaryngology.

2. LIST OF EXPECTED RESULTS OF INSTRUCTION ON THE SUBJECT (UNIT), CORELATED WITH PLANNED RESULTS OF COMPLETING THE PROGRAM

The study of the subject «Clinical pharmacology» within the completion of the educational program is directed towards the formation of the following general and professional competences in students:

Code and name of the general professional competence	Code and name of the indicator of achievement of general professional competence
General professional competences – 3 (Capable of counteracting the use of doping in sports and the fight against it)	<p>Know:</p> <ul style="list-style-type: none"> - the state legal policy in the field of combating doping, the problems of legal regulation and the need to regulate the fight against doping in the field of sports; - features of anti-doping international and Russian anti-doping legislation, consolidating the duties of athletes, coaches and other personnel to comply with anti-doping legislation, grounds and periods of temporary suspension, the rights of a person suspected of violating anti-doping legislation, sanctions for violation of anti-doping legislation, the system of bodies operating in the field anti-doping in sports, the system of doping dispute review bodies; <p>Could:</p> <ul style="list-style-type: none"> - apply the norms of anti-doping legislation to solve specific situations arising in the process of treating athletes; - to apply the provisions of the International Convention on the Suppression of Doping, the World Anti-Doping Code, the Constitution of the Russian Federation, the All-Russian Anti-Doping Rules, International Standards in the field of anti-doping rules; <p>Own:</p> <ul style="list-style-type: none"> - methods of control over the use of medicines, taking into account anti-doping legislation, - the skills of drug treatment of people involved in sports.
General professional competences – 7 (Able to prescribe treatment and monitor its effectiveness and safety)	<p>Know:</p> <ul style="list-style-type: none"> • group affiliation and PD of the main groups of drugs-a type of pharmacological action of drugs through the receptor by indirectly changing the effect of an endogenous antagonist, by inhibiting transport processes, enzymes and other mixed effects; • the concept of stereoisomerism; • characteristics of the main functional parameters of

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	<p>drugs, their dynamics, dosing regimen in various pathologies, as well as in newborns, children and the elderly, during pregnancy and lactation, depending on the nature of the disease and the functional state of the patient's body, the presence of bad habits, phenotype and genotype of metabolic pathways;</p> <ul style="list-style-type: none"> • basic principles of scientific research and monitoring of drug concentration; study of pharmaceutical interaction of drugs; • features of dosage of drugs taking into account chronobiology and chronopharmacology; • principles of mathematical modeling for the choice of dosage regimen drugs; • methods of evaluation of clinical efficacy and safety of the main groups of drugs; • basic ADR of the most common drugs, their identification, classification and registration, methods of prevention and correction; • fundamentals of the formulary system and standards of diagnosis and treatment of the most common diseases; • the provisions of the EM and its levels; • phases of clinical research of new drugs; • interrelation of FC, PD, clinical efficacy and safety of Dr in patients with different stages of lesions of the main functional systems. <p>Could:</p> <ul style="list-style-type: none"> • to observe the rules of medical ethics and deontology; to solve a set of problems related to the relationship between the doctor and the patient; • analyze the results of the study PK / PD of drugs; • choose the necessary set of research methods to assess the PD effects of drugs and interpret the data; choose methods of adequate control over the effectiveness and safety of treatment and predict the risk of side effects of drugs; • conduct adequate selection and prescribe the most effective and safe drugs; • determine the optimal dosing regimen; choose the dosage form of the drug, dose, frequency and duration of administration of drugs depending on the timing of pregnancy, lactation; conducting pharmacological tests to assess individual sensitivity to drugs; • be able to identify ADR in the appointment of the most common drugs, classify, register and
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	<p>offer ways to prevent and correct them;</p> <ul style="list-style-type: none"> • be able to read, understand and evaluate clinical trial protocols of new drugs; • choose drugs for the formation of the drug formulary; • be able to use educational scientific, normative and reference literature; • be able to solve situational problems, tests and conduct an expert assessment of the correctness of the choice, effectiveness and safety of the use of drugs in a particular patient; • have an idea about the impact of drugs on the parameters of quality of life; • be able to collect pharmacological and allergological history. <p>Own:</p> <ul style="list-style-type: none"> - a select group of drugs; - the choice of a specific drug taking into account the individual PD and FC, the mechanism of action of drugs, known ADR and possible interaction with the concomitant appointment of other drugs; - choice of dosage form, dose and route of administration of drugs, dosing regimens (multiplicity, dependence on food intake and other drugs); - predicting the risk of developing nlrh; - justification of the possibility and necessity of the combined appointment of drugs; • compliance with the rules of medical ethics and deontology; • selection of methods for adequate control of the effectiveness and safety of treatment; • dosing regimen, especially the choice of drugs depending on the timing of pregnancy, lactation; • conducting pharmacological tests to assess individual sensitivity to drugs.
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3. Volume of the subject

4.1. Volume of the subject in credit points (total): 3 credit points.

4.2. On types of academic workload (in hours): 108.

Type of academic work	Number of hours (form of education full-time)	
	Total according to the plan	Including on semesters
		№ semester B
1	2	3
Work of students with a teacher	58/ 58*	58/ 58*

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Classes:	58/ 58*	58/ 58*
lectures	12/ 12*	12/ 12*
practical classes and seminars	46/ 46*	46/ 46*
lab classes (practical lessons)	-	-
Self-study work	50	50
Concurrent control (number and type: a test, a colloquium, a report)	-	-
Course paper	-	-
Types of intermediate attestation (examination, test)	Test	Test
Total number of hours on the subject	108/ 58*	108/ 58*

* If it is necessary to use partially / exclusively distance educational technologies in the educational process in the table, through a slash, the number of hours of work of teaching staff with students for conducting classes in a distance format using distance learning is indicated.

4.3. Contents of the discipline (module). Distribution of hours on themes and kinds of study: Number of hours 108 h

The form of training: full time

	Name of sections and themes	Total	Activity format					Form of current control
			Classroom studies			Interactive classes	Self-study work	
			lect.	pract.c l.	Laboratory work			
1	2	3	4	5	6	7	8	
Section 1. General questions of clinical pharmacology								
1	Title of the topic: General issues of clinical pharmacology. The value of FC and FD for rational choice of drugs. The main pharmacokinetic processes and parameters, their clinical significance. Therapeutic drug monitoring.	8/ 2*	2/ 2*	-	-	-	6	individual survey, written testing, interview on situational tasks

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2	Topic name: Drug interactions. Possibilities of rational combination of drugs. Undesirable effects of drugs.	8/ 2*	2/ 2*	-	-	-	6	Written testing
3	Topic name: Formulary system. Pharmaco-economica. Evidence-based medicine.	8/ 2*	2/ 2*	-	-	-	6	Written testing
Section 2. Private issues of clinical pharmacology								
4	Topic name: Clinical pharmacology of antimicrobial agents. Clinical and pharmacological principles of the choice of antibacterial drugs	8/ 8*	2/ 2*	6/ 6*	-	-	-	individual survey, written testing, interview on situational tasks
5	Title of the topic: Clinical pharmacology of drugs affecting bronchial conductivity.	8/ 8*	2/ 2*	6/ 6*	-	-	-	individual survey, written testing, interview on situational tasks
6	Title of the topic: Clinical pharmacology of agents affecting vascular tone.	8/ 8*	2/ 2*	6/ 6*	-	-	-	individual survey, written testing, interview on situational tasks
7	Title of the topic: Clinical pharmacology of drugs affecting the main functions of the myocardium.	8/ 8*	2/ 2*	6/ 6*	-	-	-	individual survey, written testing, interview on situational tasks
8	Title of the topic: Clinical pharmacology of agents	6/ 6*	-	6/ 6*	-	-	-	individual survey, written testing,

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	affecting hemostasis and hematopoiesis. The preparations of iron.							interview on situation al tasks
9	Title of the topic: Clinical pharmacology of drugs used in endocrinology .	12/ 4*	-	4/ 4*	-	-	8	individua l survey, written testing, interview on situation al tasks
10	Title of the topic: Clinical pharmacology of drugs used in diseases of the digestive system.	12/ 4*	-	4/ 4*	-	-	8	individua l survey, written testing, interview on situation al tasks
11	Title of the topic: Clinical pharmacology of steroid and non-steroidal anti-inflammatory drugs.	12/ 4*	-	4/ 4*	-	-	8	individua l survey, written testing, interview on situation al tasks
12	Title of the topic: Clinical pharmacology of psychotropic drugs and vitamins. Test.	12/ 4*	-	4/ 4*	-	-	8	individua l survey, written testing, interview on situation al tasks
	Total	108/ 58*	12/ 12*	46/ 46*	-	-	50	Test.

*If it is necessary to use partially or exclusively distance learning technologies in the educational process, it should be noted that the total number of hours (c.u.) set by the Department of discipline/specialty for each discipline/practice remains unchanged and is implemented in full. In this case, in the corresponding section of the educational program the total number of hours of work with students in accordance with the educational plan is allocated and the number of hours for conducting classes in a remote format using e-learning (online courses, lectures and seminars in videoconference mode, virtual practical classes, laboratory work in the form of virtual analogues, calculation and graphic works, individual tasks in the electronic information and educational environment, etc.) Training and industrial practice for all areas of discipline/specialties of all forms of training can be partially or fully implemented in a remote format.

5. COURSE CONTENT

Section 1. General questions of clinical pharmacology

Topic 1. General questions of clinical pharmacology. The value of pharmacokinetics (FC) and

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pharmacodynamics (PD) for rational choice of drugs. Main pharmacokinetic processes and parameters, their clinical significance. Therapeutic drug monitoring.

The content of the topic:

Subject, objectives and basic concepts of clinical pharmacology (CF). Modern methods of evaluating the effectiveness and safety of drugs. Principles of evidence-based medicine. The concept of a Formulary system of drug use. The algorithm of rational prescription of medicines. FC value to select the drug and determine the dosing mode. Features of FC in different age periods. Features of FC drugs in the pathology of the respiratory system, gastrointestinal tract, blood circulation, liver and kidneys. Methodology and phases of clinical research of new drugs. Modern methods of clinical trials of drugs, the concept of controlled clinical trials. FD Dr. Definitions of PD, receptors, messengers, mechanism of action, selectivity, stereoisomers, total and partial agonists and antagonists. Modern methods of assessing the action of drugs, requirements for them. The importance of pharmacological samples in the choice of drugs and the determination of the rational mode of dosing. The value of monitoring the effect of drugs. Relationship between FC and FD. Features of FD in different periods. International Convention Against Doping and World Anti-Doping Code.

Topic 2. Drug interaction. Possibilities of rational combination of drugs. Undesirable effects of drugs.

The content of the topic:

Drug interactions. The nature of the interaction of drugs (pharmacokinetic, pharmacodynamic, physiological). Clinical characteristics of manifestations of drug interaction. Principles of rational combination of drugs. Side effects, methods of their detection, prevention and correction. Clinical types of side effects in the patient (pharmacodynamic, toxic, allergic, mutagenic, paramedic). Mechanisms of occurrence and methods of forecasting the possible development of side effects. Dependence of side effects of drugs on the route of administration, dose, duration of the course of their application. Dependence of manifestations of side effects of drugs on age. Features of side effects of drugs on the fetus and newborn. Principles of correction of side effects.

Topic 3. The formulary system. Pharmacoeconomics. Demonstrative medicine.

The content of the topic:

The law on medicines. The place of the Pharmacological Committee and the Ministry of health of the Russian Federation in the treatment of drugs. Types of drug names. Pharmacoepidemiology, pharmacoeconomics, their content and purpose. The concept of a formulary system. The concept of evidence-based medicine, its main provisions.

Section 2. Private issues of clinical pharmacology

Topic 4. Clinical pharmacology of antimicrobial agents.

The content of the topic:

Principles of rational choice and determination of antimicrobial dosing regimen depending on the type of pathogen, its sensitivity, localization of inflammation, mechanism and spectrum of action of antimicrobial preparation, peculiarities of microbial resistance formation, peculiarities of antimicrobial preparations use in gastrointestinal tract pathology, organs of metabolism and excretion. Methods for evaluating the effectiveness and safety of antimicrobials. Diagnosis, correction and prevention of adverse reactions. Principles of selection of antibacterial drugs for children depending on age, toxicity, tolerability.

Topic 5. Clinical pharmacology of agents affecting bronchial conductivity.

The content of the topic:

Xanthine derivatives, M-choline blockers, adrenostimulants. Expectorant. Mast cell stabilizers, leukotriene receptor inhibitors, antihistamines. Principles of drug selection, determination of routes of administration and rational dosing regimen taking into account the reversibility of

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airway obstruction, the degree and level of bronchospasm, the amount and viscosity of sputum, the presence of intolerance, allergic component, these factors, as well as factors that change the sensitivity to the drug. Methods of efficiency and safety assessment. Diagnosis, correction and prevention of adverse reactions. The concept of compliance. Features of the treatment of broncho-obstructive syndrome in athletes.

Topic 6. Clinical pharmacology of agents affecting vascular tone.

The content of the topic:

Vasoconstrictors. Agonists of the Central β -adrenergic receptors. Ganglioplegics. Angiotensin converting enzyme inhibitors. Angiotensin II receptor antagonists. Blockers of "slow" calcium tubules. β -adrenoblockers. The choice of the drug, the dosage regimen (taking into account its pharmacodynamic, pharmacokinetic features, the severity of the disease, the presence of comorbidities, the state of excretion and metabolism, the effect of the drug on myocardial contractility, total peripheral vascular resistance, peripheral vascular condition). Withdrawal syndrome. Features of the treatment of cardiovascular pathology in athletes.

Topic 7. Clinical pharmacology of drugs affecting the main functions of the myocardium.

The content of the topic:

Cardiac glycoside. Selection of cardiac glycoside, its dosing regimen and route of administration. Clinical pharmacology of antiarrhythmic drugs. Choice of antiarrhythmic agent, its dosing regimen and method of administration.

Topic 8. Clinical pharmacology of agents affecting hemostasis and hematopoiesis. Iron preparation.

The content of the topic:

Anticoagulants. Fibrinolytic agents. Agents that increase blood clotting; fibrinolysis inhibitors, drugs that reduce platelet and erythrocyte aggregation. Preparations of iron and folic acid. Principles of selection and determination of dosing regimen. Diagnosis, correction and prevention of NLR. The use of drugs affecting hematopoiesis in athletes.

Topic 9. Clinical pharmacology of drugs used in endocrinology.

The content of the topic:

Clinical pharmacology of hypoglycemic drugs affecting thyroid function. Clinical and pharmacological approaches to the selection of groups and specific drugs for pharmacotherapy of diabetes mellitus, Hypo- and hyperfunction of the thyroid gland. Oral hypoglycemic agents. Insulins. Therapy of emergency conditions in endocrinology. Features of the use of hormonal drugs in athletes.

Topic 10. Clinical pharmacology of drugs used in diseases of the digestive system.

The content of the topic:

Drugs that reduce the secretion of digestive. Anorexigenic drugs. Antacids. Antiemetic drugs. Indications for use. Choleric and cholekinetic. Hepatoprotectors. Means that change the motility of the gastrointestinal tract. Antispasmodics, laxatives. Antibacterial, enzyme preparations, sorbents. Principles of drug selection, determination of routes of administration and rational dosing regimen. Methods of efficiency and safety assessment. Diagnosis, correction and prevention of adverse reactions. Standards of pharmacotherapy in gastroenterology.

Topic 11. Clinical pharmacology of steroid and nonsteroidal anti-inflammatory drugs.

The content of the topic:

Glucocorticoids are systemic and inhaled, nonsteroidal anti-inflammatory drugs. Selective inhibitors of cyclooxygenase-2 (meloxicam, nimalasuriya). Principles of selection and determination of the dosing regimen of anti-inflammatory drugs (mechanism of action, metabolism and excretion from the body, features of the inflammatory process: localization, intensity, generalization of the process, the state of the gastrointestinal tract, circulatory

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system). Methods of efficiency and safety assessment. Diagnosis, correction and prevention of adverse reactions. The use of steroid and non-steroidal anti-inflammatory drugs in athletes.

Topic 12. Clinical pharmacology of psychotropic drugs and vitamins.

The content of the topic:

Indications and principles of choice, determination of dosage regimen of psychotropic drugs depending on the mechanism of action, metabolism and excretion from the body, features of mental status, age characteristics; interaction with other drugs. Methods of efficiency and safety assessment. Diagnosis, correction and prevention of NLR. Principles of rational choice and determination of vitamin dosing regimen. Indications for use. Methods of efficiency assessment.

6. TOPICS OF PRACTICAL CLASSES AND SEMINARS (FOR DISCUSSING AND SELF-PREPARING OF STUDENTS)

Section 2. Private issues of clinical pharmacology

Topic 4. Clinical pharmacology of antimicrobial agents. Clinical and pharmacological principles of selection of antibacterial drugs.

The purpose of the seminar: Based on modern medical knowledge, to teach students the effective and safe choice of antimicrobial drugs for modern individualized pharmacotherapy using the provisions of evidence-based medicine (EM).

The contents of the seminar:

The study of the principles of rational choice and determination of antimicrobial dosing regimen depending on the type of pathogen, its sensitivity, localization of inflammation, mechanism and spectrum of antimicrobial drug, the formation of microbial resistance, the age of the child, the characteristics of the use of antimicrobial drugs in the pathology of the gastrointestinal tract, organs of metabolism and excretion, methods for assessing the effectiveness and safety of antimicrobial drugs.

Results of the seminar.

Acquisition by students of skills of use of antimicrobial medicines.

Topic 5. Clinical pharmacology of agents affecting bronchial conductivity.

The contents of the seminar:

The study of the features of the use of drugs for the relief of bronchospastic syndrome, expectorants and antihistamines, mast cell stabilizers, leukotriene receptor inhibitors. Mastering the principles of drug selection, determining the ways of administration and rational dosing regimen taking into account the reversibility of airway obstruction, the degree and level of bronchospasm, the amount and viscosity of sputum, the presence of intolerance, allergic component, these factors, as well as factors that change the sensitivity to the drug. Methods for assessing the effectiveness and safety, diagnosis, correction and prevention of adverse reactions.

Results of the seminar.

Students acquire skills of drug therapy in the treatment of diseases of the broncho-pulmonary system.

Topic 6. Clinical pharmacology of agents affecting vascular tone.

The contents of the seminar:

The study of the features of the use of drugs that affect vascular tone: agonists of Central β - adrenoreceptors, inhibitors of angiotensin converting enzyme, antagonists of angiotensin II receptors, blockers of "slow" calcium tubules, β - adrenoblockers.

Results of the seminar.

Acquisition by students of skills of medical therapy of a syndrome of arterial hypertension, a

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collapse, ischemic heart disease.

Topic 7. Clinical pharmacology of drugs affecting the main functions of the myocardium.

The contents of the seminar:

The study of the features of the use of drugs that affect the main functions of the myocardium: cardiac glycosides, antiarrhythmic drugs. Principles of choice of antiarrhythmic agent, its dosing regimen and method of administration.

Results of the seminar.

Acquisition by students of skills of medical therapy of acute and chronic heart failure, arrhythmias.

Topic 8. Clinical pharmacology of agents affecting hemostasis and hematopoiesis. Iron preparation.

The contents of the seminar:

The study of the features of the use of drugs that affect hemostasis and hematopoiesis: anticoagulants, fibrinolytic agents, drugs that reduce platelet and erythrocyte aggregation, agents that increase blood clotting. Features of the use of drugs used to treat anemia: iron preparations, vitamin B12 and folic acid.

Results of the seminar.

Acquisition of skills of medical therapy of thrombophilia, hemorrhagic syndrome, anemia by students.

Topic 9. Clinical pharmacology of drugs used in endocrinology.

The contents of the seminar:

The study of the features of the use of drugs used for treatment of disorders of carbohydrate metabolism and affecting the function of the thyroid gland: insulins, biguanides, sulfonylureas, meglitinides, thiazolidinediones, incretins, drugs that reduce the absorption of carbohydrates in the gastrointestinal tract, thyroid hormones, thyrostatics.

Results of the seminar.

Acquisition of skills of medical therapy of Hypo - and hyperglycemia, Hypo - and hyperthyroidism by students.

Topic 10. Clinical pharmacology of drugs used in diseases of the digestive system.

The contents of the seminar:

The study of the features of the use of drugs used for the treatment of diseases of the digestive tract: antacids, M-holinoblokatorov, proton pump blockers, antispasmodics, antiemetics, cholergics and cholekinetics, prokinetics, hepatoprotectors, laxatives, enzyme preparations. Principles of drug selection, determination of routes of administration and rational dosing regimen. Methods of efficiency and safety assessment. Diagnosis, correction and prevention of adverse reactions. Standards of pharmacotherapy in gastroenterology.

Results of the seminar.

Acquisition of skills of medical therapy of gastroenterological diseases by students.

Topic 11. Clinical pharmacology of steroid and nonsteroidal anti-inflammatory drugs. Features of application in Pediatrics.

The contents of the seminar:

Study of the use of systemic and inhaled glucocorticoids, nonsteroidal anti-inflammatory drugs. Principles of selection and determination of the dosing regimen of anti-inflammatory drugs (mechanism of action, metabolism and excretion from the body, features of the inflammatory process: localization, intensity, generalization of the process, the state of the gastrointestinal tract, circulatory system). Methods of efficiency and safety assessment. Diagnosis, correction and prevention of adverse reactions.

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Students acquire skills in the use of glucocorticoids and non-steroidal anti-inflammatory drugs.

Topic 12. Clinical pharmacology of psychotropic drugs and vitamins.

The contents of the seminar:

The study of the features of the use of psychotropic drugs depending on the mechanism of action, metabolism and excretion from the body, the characteristics of mental status, age characteristics; interaction with other drugs. Methods of efficiency and safety assessment. Diagnosis, correction and prevention of ADR. Principles of rational choice and determination of vitamin dosing regimen. Indications for use. Methods of efficiency assessment.

Results of the seminar.

Acquisition by students of skills of use of psychotropic means and vitamins.

7. LABORATORY CLASSES

Not provided by the curriculum and work plans.

8. SUBJECTS OF COURSE PAPERS, TESTS, ESSAYS

The curriculum does not provide.

9. QUESTIONS FOR EXAM ON DISCIPLINE “CLINICAL PHARMACOLOGY”

1. Basic concepts of pharmacokinetics. The importance of pharmacokinetics and pharmacodynamics of drugs in determining treatment tactics.
2. Antibiotics: definition, classification, principles of rational use of antibacterial drugs, criteria for monitoring the effectiveness and safety of use.
3. Angiotensin converting enzyme inhibitors: pharmacokinetics, pharmacodynamics, classification, indications for use, side effects, criteria for monitoring the effectiveness and safety of use.
4. Direct anticoagulants: pharmacokinetics, pharmacodynamics, classification, indications for use, side effects, criteria for monitoring the effectiveness and safety of use.
5. Proton pump blockers: pharmacokinetics, pharmacodynamics, classification, indications for use, side effects, criteria for monitoring the effectiveness and safety of use.
6. The main groups of bronchodilators. Modern approaches to the tactics of drug therapy of bronchial asthma.
7. The main groups of hypoglycemic drugs. Modern approaches to the tactics of drug therapy of diabetes.
8. Antiarrhythmic drugs: pharmacokinetics, pharmacodynamics, classification, indications for use, side effects, criteria for monitoring the effectiveness and safety of use.
9. Nonsteroidal anti-inflammatory drugs: pharmacokinetics, pharmacodynamics, classification, indications for use, side effects, criteria for monitoring the effectiveness and safety of use.

10. SELF-STUDY WORK OF STUDENTS

№	Name of the section / subject	Types of SSW	Total number of hours	Current control
1	Title of the topic: General questions of clinical pharmacology. The value of FC and FD for rational choice of drugs. Main pharmacokinetic	study of educational material	6	testing

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	processes and parameters, their clinical significance.			
2	Title of the topic: Drug interactions. Possibilities of rational combination of drugs. Undesirable effects of drugs.	study of educational material	6	testing
3	Title of the topic: Formulary system. Pharmacoeconomics. Demonstrative medicine.	study of educational material	6	testing
4	Title of the topic: Clinical pharmacology of drugs used in endocrinology.	study of educational material	8	testing
5	Title of the topic: Clinical pharmacology of drugs used in diseases of the digestive system.	study of educational material	8	testing
6	Title of the topic: Clinical pharmacology of steroid and non-steroidal anti-inflammatory drugs.	study of educational material	8	testing
7	Title of the topic: Clinical pharmacology of psychotropic drugs and vitamins.	study of educational material	8	Testing

11. EDUCATIONAL-METHODICAL AND INFORMATION SUPPORT OF DISCIPLINE

a) List of recommended literature

Main literature:

1 Alyautdin, R. N. Pharmacology. Illustrated textbook / ed. R. N. Alyautdin. - Москва : ГЭОТАР-Медиа, 2020. - 312 с. - ISBN 978-5-9704-5665-1. - Текст : электронный // ЭБС

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b) Software

- 1) OS: Windows
- 2) Antivirus: DrWeb
- 3) Office Suite: Microsoft Office

d) Professed data base, directory and search systems:

Профессиональные базы данных, информационно-справочные системы

1. Электронно-библиотечные системы:

1.1. Цифровой образовательный ресурс IPRsmart : электронно-библиотечная система : сайт / ООО Компания «Ай Пи Ар Медиа». - Саратов, [2024]. – URL: <http://www.iprbookshop.ru>. – Режим доступа: для зарегистрир. пользователей. - Текст : электронный.

1.2. Образовательная платформа ЮРАЙТ : образовательный ресурс, электронная библиотека : сайт / ООО Электронное издательство «ЮРАЙТ». – Москва, [2024]. - URL: <https://urait.ru>. – Режим доступа: для зарегистрир. пользователей. - Текст : электронный.

1.3. База данных «Электронная библиотека технического ВУЗа (ЭБС «Консультант студента») : электронно-библиотечная система : сайт / ООО «Политехресурс». – Москва, [2024]. – URL: <https://www.studentlibrary.ru/cgi-bin/mb4x>. – Режим доступа: для зарегистрир. пользователей. – Текст : электронный.

1.4. Консультант врача. Электронная медицинская библиотека : база данных : сайт / ООО «Высшая школа организации и управления здравоохранением-Комплексный медицинский консалтинг». – Москва, [2024]. – URL: <https://www.rosmedlib.ru>. – Режим доступа: для зарегистрир. пользователей. – Текст : электронный.

1.5. Большая медицинская библиотека : электронно-библиотечная система : сайт / ООО «Букар». – Томск, [2024]. – URL: <https://www.books-up.ru/ru/library/>. – Режим доступа: для зарегистрир. пользователей. – Текст : электронный.

1.6. ЭБС Лань ; электронно-библиотечная система : сайт / ООО ЭБС «Лань». – Санкт-Петербург, [2024]. – URL: <https://e.lanbook.com>. – Режим доступа: для зарегистрир. пользователей. – Текст : электронный.

1.7. ЭБС Znanium.com : электронно-библиотечная система : сайт / ООО «Знаниум». - Москва, [2024]. - URL: <http://znanium.com>. – Режим доступа : для зарегистрир. пользователей. - Текст : электронный.

2. **КонсультантПлюс** [Электронный ресурс]: справочная правовая система. / ООО «Консультант Плюс» - Электрон. дан. - Москва : КонсультантПлюс, [2024].

3. **eLIBRARY.RU**: научная электронная библиотека : сайт / ООО «Научная Электронная Библиотека». – Москва, [2024]. – URL: <http://elibrary.ru>. – Режим доступа : для авториз. пользователей. – Текст : электронный

4. **Федеральная государственная информационная система «Национальная электронная библиотека»** : электронная библиотека : сайт / ФГБУ РГБ. – Москва, [2024]. – URL: <https://нэб.рф>. – Режим доступа : для пользователей научной библиотеки. – Текст : электронный.

5. **Российское образование** : федеральный портал / учредитель ФГАУ «ФИЦТО». – URL: <http://www.edu.ru>. – Текст : электронный.

6. **Электронная библиотечная система УлГУ** : модуль «Электронная библиотека» АБИС Мега-ПРО / ООО «Дата Экспресс». – URL: <http://lib.ulsu.ru/MegaPro/Web>. – Режим доступа : для пользователей научной библиотеки. – Текст : электронный.

Инженер ведущий



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