

**AMENDMENTS AND CHANGES TO THE CURRICULUM IN THE EDUCATIONAL  
DISCIPLINE «CLINICAL PHARMACOLOGY»**


**FOR THE SPECIALTY 1-79 01 01 «GENERAL MEDICINE»**

**2018-2019 ACADEMIC YEAR**

Amendments and changes	Basis/Reason
There aren't any amendments and additions	Educational plan 2018 - 2019

The curriculum is revised and approved at the meeting of the department of Clinical Pharmacology (protocol №2 September, 14, 2018)

Heard of the department,  
PhD, MD, Professor

 A.V. Khapalyuk

APPROVED

Dean of the Medical Faculty of  
International Students

 A.V. Gaiduk

« » 2018r.

## THEMATIC PLAN

Section (topic) name	Number of academic hours	
	lectures	practical classes (laboratory or seminars)
<b>1. GENERAL ISSUES OF CLINICAL PHARMACOLOGY</b>	<b>4</b>	<b>7</b>
1.1. Introduction to the academic discipline "Clinical Pharmacology". Nomenclature of medicines. Original and generic medicines. Clinical trials and state registration of medicines. Types of medicines equivalence. Basis of Evidence-Based Medicine. Prescribing rules.	2	4
1.2. Clinical pharmacokinetics and pharmacodynamics of drugs. Drug Interactions. Unwanted (adverse) reactions to medications. Principles of drug use in women during pregnancy and lactation, elderly patients, patients with liver and kidney disease	2	3
<b>2. Clinical Pharmacology of Drugs</b>	<b>8</b>	<b>49</b>
2.1. Medicines and receptors. Clinical pharmacology of antiallergic drugs. Anaphylaxis, emergency medical care	-	4
2.2. Clinical pharmacology of antibacterial drugs. Basics of rational antibiotic therapy	2	3
2.3. Clinical pharmacology of antiviral, antifungal and antiprotozoal drugs. Principles of treatment of acute respiratory viral infections	2	4
2.4. Clinical pharmacology of steroid and non-steroidal anti-inflammatory drugs, narcotic analgesics	-	3
2.5. Clinical pharmacology of drugs used in the respiratory system diseases	-	7
2.6. Clinical pharmacology of medicines used in cardiology	2	7
2.7. Clinical pharmacology of medicines used in gastroenterology	-	7
2.8. Clinical pharmacology of drugs affecting the hemostatic system	-	7
2.9. Clinical pharmacology of anti-anemia drugs	-	4
2.10. Clinical pharmacology of medicines used for the treatment of type 2 diabetes and thyroid diseases	2	3
<b>Total hours</b>	<b>12</b>	<b>56</b>

## CONTENT OF THE EDUCATIONAL MATERIAL

### 1. General issues of Clinical Pharmacology

#### 1.1. Introduction to the academic discipline "Clinical Pharmacology". Nomenclature of medicines. Original and generic medicines. Clinical trials and state registration of medicines. Types of the medicines equivalence. Basis of Evidence-Based Medicine. Prescribing rules.

Goals and objectives of the educational discipline "Clinical Pharmacology", the main stages of the clinical pharmacology development, the relationship with other science and special educational disciplines. Clinical pharmacology as the basis of rational pharmacotherapy. Basic principles of evidence-based medicine.

Nomenclature of medicinal products (international non-proprietary and trade names). Principles of the medicines development. Original and generic medicines. The purpose, objectives and methods of medicines clinical trials. Medical, methodological and ethical aspects of clinical trials. Ethics Committee, its role and tasks. Types and phases of clinical trials. Biological and therapeutic equivalence of drugs. Principles of the study of generic medicines bioequivalence. State registration of medicines. Basic provisions of evidence-based medicine.

Medicines for prescription and non-prescription drugs. The procedure for issuing a doctor's prescription for medicines, sold at the full cost pharmacy, for narcotic and psychotropic substances, for medicines on preferential terms, including free of charge.

#### 1.2. Clinical pharmacokinetics and pharmacodynamics of drugs. Drug Interactions. Unwanted (adverse) reactions to medications. Principles of drug use in women during pregnancy and lactation, elderly patients, patients with liver and kidney disease

Clinical pharmacokinetics. Ways of drug administration, their characteristics. Distribution of drugs in the human body. Metabolism of medicines. Basic pharmacokinetic parameters. Bioavailability of drugs. Factors affecting the pharmacokinetics of medicines. Features of drugs pharmacokinetics for prolonged use. Clinical pharmacodynamics and evaluation of its main parameters. The dose-effect relationship. The relationship between pharmacokinetics and pharmacodynamics.

Combined use of medicines. Types of drug interactions. Polypharmacy. Peculiarities of pharmacokinetics and pharmacodynamics of medicines in elderly patients, women during pregnancy and lactation, patients with liver and kidney diseases. Identify, register and prevent unwanted (adverse) reactions. Notification of suspected adverse reaction to the drug. Informing patients about possible manifestations of unwanted (adverse) reactions to medicines.

### 2. Clinical Pharmacology of Drugs

#### 2.1. Medicines and receptors. Clinical pharmacology of antiallergic drugs. Anaphylaxis, emergency medical care.

The concept of receptors, the types of receptors. Types of interaction of drugs with receptors. The development mechanism of immediate-type hypersensitivity reactions (urticaria, Quincke's edema, anaphylaxis, etc.).

Clinico-pharmacological characteristics of the main groups of antiallergic drugs. Anaphylaxis, medicinal anaphylactic shock. Clinical manifestation, diagnosis, and prevention of the drug anaphylactic shock. Prehospital and hospital stages of providing emergency medical care for anaphylactic shock.

## **2.2. Clinical pharmacology of antibacterial drugs. Basics of rational antibiotic therapy**

Classification and clinical pharmacology of antibacterial drugs.

Features of the infectious disease course depending on the pathogen nature, the organism reactivity. Principles of combined antibacterial therapy. Monitoring the effectiveness and safety of antibiotic treatment.

## **2.3. Clinical pharmacology of antiviral, antifungal and antiprotozoal drugs. Principles of treatment of acute respiratory viral infections**

Classification of antiviral drugs. Clinico-pharmacological characteristics of anti-influenza drugs, anti-herpes and antiretroviral drugs, interferons, immunobiological drugs. Principles of the treatment of acute respiratory viral infections.

Modern principles of pharmacological therapy of the most common fungal and parasitic diseases.

Classification of antifungal medicines for local and systemic use.

Clinical pharmacology of the main groups of the drugs used to treat parasitic diseases.

## **2.4. Clinical pharmacology of steroid and non-steroidal anti-inflammatory drugs, narcotic analgesics**

Clinical-pharmacological characteristics of non-steroidal anti-inflammatory drugs. Clinical-pharmacological characteristics of glucocorticoids. Narcotic analgesics. Non-opioid medicines of central action with analgesic activity. Analgesics with the action mixed mechanism.

The tactics of using nonsteroidal anti-inflammatory and combined medicines for hyperthermic and pain syndrome.

## **2.5. Clinical pharmacology of drugs used in the respiratory system diseases**

Clinical-pharmacological characteristics of the antitussive drugs of central, peripheral, mixed effect. Expectorant and mucolytic drugs, especially their use. Drugs for the relief of bronchial obstructive syndrome (beta-2-adrenomimetics, M-cholinoblockers, xanthines, combined drugs). Clinical-pharmacological characteristics and features of the use of drugs for the basic anti-inflammatory therapy of bronchial asthma. Application of stabilizers of the mast cells membranes.

Phytotherapy in pulmonology.

## **2.6. Clinical pharmacology of medicines used in cardiology**

Clinical-pharmacological characteristics of antihypertensive drugs: diuretics,  $\beta$ -adrenoblockers, slow calcium channel blockers, angiotensin converting enzyme inhibitors, angiotensin receptor blockers, central  $\alpha_2$  and imidazoline receptor agonists. Representatives of antihypertensive drugs other groups:  $\alpha$ -adrenoblockers, inhibitors of renin synthesis, direct antagonists of aldosterone, etc. Principles of arterial hypertension modern pharmacotherapy.

Clinical-pharmacological characteristics of anti-anginal and anti-ischemic drugs:  $\beta$ -adrenoblockers, slow calcium channel blockers, nitrates, sydnonimines, cardiac cytoprotectors.

Medicines that correct lipid metabolism.

Modern principles of the treatment of ischemic heart disease.

Clinical-pharmacological characteristics of antiarrhythmic drugs, Vogen-Williams classification, mechanisms of antiarrhythmic action, indications and contraindications to their use, safety control.

Medicines used in the treatment of disorders of the heart conduction system.

## **2.7. Clinical pharmacology of medicines used in gastroenterology**

Clinical-pharmacological characteristics of antisecretory drugs, antacids. Medicines that have a protective effect and enhance the regeneration of the gastrointestinal tract mucous membrane. Diagrams of *Helicobacter* eradication. Classification of antiemetic drugs. Drugs affecting the motor function of the gastrointestinal tract. Enzyme drugs of substitution therapy. The use of choleretic drugs and hepatoprotectors. Antidiarrheal and laxative drugs. Drugs that regulate intestinal microbiocenosis.

Phytotherapy of the digestive system diseases.

## **2.8. Clinical pharmacology of drugs affecting the hemostatic system**

The main causes leading to the function disruption of the blood coagulation and anticoagulation systems. Clinical-pharmacological characteristics of antiplatelet agents, direct and indirect anticoagulants, thrombolytic drugs.

Essential medicines used to reduce the activity of the blood coagulation system (proagregants, procoagulants, inhibitors of fibrinolysis), indications and contraindications to the use, methods of assessing the effectiveness.

## **2.9. Clinical pharmacology of anti-anemia drugs**

Classification of anemia. Iron deficiency, B12 and folic deficiency anemia: etiology, clinical manifestations and principles of pharmacotherapy. Clinico-pharmacological characteristics of anti-anemic drugs. Indications and contraindications to the use of iron-containing drugs and cyanocobalamin. Criteria for the effectiveness of ongoing pharmacological therapy.

## **2.10. Clinical pharmacology of medicines used for the treatment of type 2 diabetes and thyroid diseases**

Clinical-pharmacological characteristics of derivatives of sulfonylurea, biguanides, meglitinides, thiazolidinediones and incretins. Derivatives of insulin. Indications and contraindications, methods of monitoring the effectiveness and safety of insulin therapy.

Drugs for replacement therapy for hypothyroidism. Clinico-pharmacological characteristics of antithyroid drugs.

# EDUCATIONAL DISCIPLINE CURRICULAR CHART

Section, topic #	Section (topic) name	number of hours			out-of-class self-studies	Form of control
		lectures	practical classes (laboratory or seminars)			
	11 semester					
1	<b>General issues of Clinical Pharmacology</b>					
1.1	Introduction to the academic discipline "Clinical Pharmacology". Nomenclature of medicines. Original and generic medicines. Clinical trials and state registration of medicines. Types of the medicines equivalence. Basis of Evidence-Based Medicine. Prescribing rules.					<u>Oral form:</u> interview, quiz <u>Written form:</u> control questioning, writing out prescriptions for medicines, filling out the form "Expert evaluation of the conducted pharmacotherapy"
1.2	Clinical pharmacokinetics and pharmacodynamics of drugs. Drug Interactions. Unwanted (adverse) reactions to medications. Principles of drug use in women during pregnancy and lactation, elderly patients, patients with liver and kidney diseases	4	7	8		<u>Oral-written form:</u> accounts of classroom practical exercises with oral defense, evaluation based on the modular- rating system
2	<b>Clinical Pharmacology of Drugs</b>					
2.1	Medicines and receptors. Clinical pharmacology of antiallergic drugs. Anaphylaxis, emergency medical care	2	7	8		<u>Oral form:</u> interview, quiz <u>Written form:</u> control questioning, writing out prescriptions for medicines, filling out the form "Expert
2.2	Clinical pharmacology of antibacterial drugs. Basics of rational antibiotic therapy					

					evaluation of the conducted pharmacotherapy" <u>Oral-written form:</u> accounts of classroom practical exercises with oral defense, evaluation based on the modular-rating system
2	<b>Clinical Pharmacology of Drugs</b>				<u>Oral form:</u> interview, quiz <u>Written form:</u> control questioning, writing out prescriptions for medicines, filling out the form "Expert evaluation of the conducted pharmacotherapy" <u>Oral-written form:</u> accounts of classroom practical exercises with oral defense, evaluation based on the modular-rating system
2.3	Clinical pharmacology of antiviral, antifungal and antiprotozoal drugs. Principles of treatment of acute respiratory viral infections				
2.4	Clinical pharmacology of steroid and non-steroidal anti-inflammatory drugs, narcotic analgesics	2	7	12	
2	<b>Clinical Pharmacology of Drugs</b>				<u>Oral form:</u> interview, quiz <u>Written form:</u> control questioning, writing out prescriptions for medicines, filling out the form "Expert evaluation of the conducted pharmacotherapy" <u>Oral-written form:</u> accounts of classroom
2.5	Clinical pharmacology of drugs used in the respiratory system diseases		7	8	

2 2.6	<b>Clinical Pharmacology of Drugs</b> Clinical pharmacology of medicines used in cardiology	2	7	12	practical exercises with oral defense, evaluation based on the modular-rating system <u>Oral form:</u> interview, quiz <u>Written form:</u> control questioning, writing out prescriptions for medicines, filling out a form "Expert evaluation of the conducted pharmacotherapy" <u>Oral-written form:</u> accounts of classroom practical exercises with oral defense, evaluation based on the modular-rating system
2 2.7	<b>Clinical Pharmacology of Drugs</b> Clinical pharmacology of medicines used in gastroenterology		7	8	<u>Oral form:</u> interview, quiz <u>Written form:</u> control questioning, writing out prescriptions for medicines, filling out the form "Expert evaluation of the conducted pharmacotherapy" <u>Oral-written form:</u> accounts of classroom practical exercises with oral defense, evaluation based on the modular-rating system



2 2.8	<b>Clinical Pharmacology of Drugs</b> Clinical pharmacology of drugs affecting the hemostatic system		7	6	<u>Oral form:</u> interview, quiz <u>Written form:</u> control questioning, writing out prescriptions for medicines, filling out the form "Expert evaluation of the conducted pharmacotherapy" <u>Oral-written form:</u> accounts of classroom practical exercises with oral defense, evaluation based on the modular- rating system
2 2.9 2.10	<b>Clinical Pharmacology of Drugs</b> Clinical pharmacology of anti-anemia drugs Clinical pharmacology of medicines used for the treatment of type 2 diabetes and thyroid diseases		2  7	10	<u>Oral form:</u> interview, quiz <u>Written form:</u> control questioning, writing out prescriptions for medicines, filling out the form "Expert evaluation of the conducted pharmacotherapy" <u>Oral-written form:</u> accounts of classroom practical exercises with oral defense, evaluation based on the modular- rating system
		12	56	72	