



**MINISTRY OF HEALTH OF UKRAINE
NATIONAL UNIVERSITY OF PHARMACY
Department of Clinical Pharmacology and Clinical Pharmacy**

CLINICAL PHARMACY AND PHARMACEUTICAL CARE

(Course Unit Name)

WORK PROGRAM of a subject

educational background	Master (Level of Educational Background)
program subject area	1202 Pharmacy (Program Subject Area Title and Code)
in specialty	8.12020101 Pharmacy for foreign students, term of study 5.0 years, full-time study (Language of Instruction — English) (Specialty Title and Code)
of educational program	— (Educational Program Title)
specialty(ies)	— (Educational Program Title)

2017 year

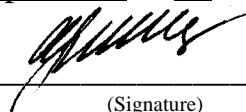
The work program of a subject «Clinical Pharmacy and Pharmaceutical Care» in speciality 8.12020101 «Pharmacy», master degree, for foreign students (Language of Instruction — English), term of study 5.0 years, full-time study, of educational program _____specialty(ies) _____
for the students of 4-5 years.

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(Enter the printed name and academic rank of the authors)

The work program was considered and developed at the Meeting of the Department of Clinical Pharmacology and Clinical Pharmacy of NUPh.
Examination Record from «01» September 2017 № 1

Department Chairman

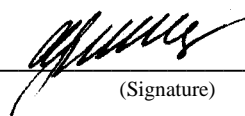

(Signature)

Prof. Zupanets I.A.

(Printed Name)

The work program was approved at the Meeting of the Methodical Commission on Biomedical Disciplines of NUPh.
Examination Record from «01» September 2017 № 1

Head of the Commission


(Signature)

Prof. Zupanets I.A.

(Printed Name)

1. Course Title Description

Clinical pharmacy is the integrative applied science, combining the pharmaceutical and clinical aspects of the pharmacology, the main task of which is to provide a reliable theoretical basis and methodological approaches to the rational use of medicines.

«Clinical pharmacy and pharmaceutical care» is normative academic subject. which provides theoretical knowledge and practical skills in the field of clinical medicine and clinical pharmacology, analysis and correction of medical therapy, selection of the most rational drug and their combinations for a particular patient, contributes to the formation of skills to apply knowledge of clinical pharmacy in professional activities during the pharmaceutical care provide.

Subject matter «Clinical Pharmacy and Pharmaceutical Care» is the principles of rational use of drugs, ways of prevention of adverse drug reactions, approaches to pharmaceutical care.

Interdisciplinary links. The academic subject «Clinical Pharmacy and Pharmaceutical Care» is based on the study of biology and genetics fundamentals, physiology and human anatomy, microbiology with immunology fundamentals, pathological physiology, biochemistry, pharmacology, laboratory diagnostics, pharmacotherapy with pharmacokinetics, as well as a unit of chemical subjects and medicine technology and integrates with these disciplines.

Information volume of subject. Total hours to study the subject is 315 or 10.5 ECTS credits.

2. Subject Goals and Objectives

Teaching goal of a subject «Clinical pharmacy and pharmaceutical care» is to train pharmacists who would have a sufficient theoretical knowledge and practical skills to work with the doctor in providing the most efficient therapy for a particular patient, as well as the pharmaceutical care of patients in the pharmacy.

Basic goals of a subject «Clinical Pharmacy and Pharmaceutical Care» are:

- acquisition of general syndromology and symptomology of the most common diseases in the clinic of internal diseases;
- acquisition of the main signs and symptoms that can be treated with OTC drugs within the concept of self-medication (runny nose, headache, diarrhea, etc.);
- study of the signs of the main syndromes that require the obligatory intervention of the doctor;
- study of the general principles of diagnostics and methodology of differential diagnostics of internal organ diseases, acquisition of general principles of interpretation of the results of a patient examination;
- acquisition of the general methodology and principles of the drug choice for effective and safe therapy, taking into account the functional state of a patient and the pharmacological features of the drugs;
- study of risk factors of development of drug side effects, clinical manifestations of side effects of drugs and their combinations, acquisition of the main approaches to reducing the side effects of drugs in their appointment to the particular patient;
- acquisition of principles for assessing the effectiveness and safety profile of the particular pharmacological groups and drug;
- acquisition of the basic principles of symptomatic treatment of diseases and pathological states in which responsible self-medication is possible;
- acquisition of principles and skills for the pharmaceutical care of patients in the treatment of OTC and prescription drugs;
- acquisition of skills for obtaining, analyzing and presenting the information about the pharmacological properties of drugs, ie conducting the consulting work about drugs among medical professionals and different population groups;
- acquisition of the principles of medical deontology, ethical norms of the pharmacist's behavior in the clinic, the relationship between the pharmacist and the doctor, pharmacist and patient;
- familiarization with the main types of medical documentation and methods of clinical examination of patients.

3. Competency and Scheduled Educational Outcome

Subject «Clinical pharmacy and pharmaceutical care» provides the following *competences* to education-seeking students:

general

GC 1. Ability to act socially responsible and civic consciously.

GC 2. The desire to preserve the environment, maintain and promote a healthy life style.

GC 3. Ability of abstract thinking, analysis and synthesis; the ability to learn and be continuously trained, to choose the communication strategy, the ability to work in a team.

GC 4. Knowledge and understanding of the subject area and understanding of the profession, ability to apply knowledge in practical situations.

GC 5. Ability to adapt and act in a new situation, the spirit of entrepreneurship, the ability to take the initiative.

GC 8. Ability to conduct research at the appropriate level, to assess and ensure the quality of performed work.

professional

KF 1. Ability to use the knowledge of normative legal, legislative acts of Ukraine and recommendations of good pharmaceutical practices in professional activity.

PC 15. Ability to monitor the effectiveness and safety of the use of medicinal products by population based on the clinical and pharmaceutical features of drugs, as well as subjective attributes and objective clinical, laboratory and instrumental criteria of patient examination.

PC 16. Ability to ensure the rational use of prescription and non-prescription drugs according to their physical, chemical and pharmacological features, biochemical, pathophysiological features of a particular disease and pharmacotherapeutic regimen of treatment.

PC 17. Ability to provide pre-medical care to patients and victims in extreme situations; to educate the population in sanitary safety in order to prevent common diseases.

PC 18. Ability to provide counseling and pharmaceutical care during the choosing and dispensing of a non-prescription medicinal product by assessing the risk/benefit ratio, indications and contraindications, based on the health status of a particular patient, taking into account biopharmaceuticals, pharmacokinetics, pharmacodynamics and physical and chemical properties of the medicinal product.

As a result of learning activity a education-seeking student has to *know*:

- the fundamentals of deontology, the ethics of communication with medical staff, patients;
- the main clinical symptoms and syndromes of the most common diseases;
- approaches to medical treatment of the most common diseases;
- specific clinical symptoms of the most common diseases that require obligatory consultation by a physician;
- a list of diseases and pathological conditions when the responsible self-medication is possible, clinical manifestations which are typical for them;
- the basic principles of symptomatic treatment of diseases and pathological conditions when responsible self-medication is possible;
- features of innovative and generic drugs; requirements for generic drugs;
- clinical and pharmacological features of modern drugs of various pharmacological groups, including combined drugs;
- the influence of physical and chemical properties of drugs on their pharmacokinetic and pharmacodynamic properties;
- the ways of drug interaction in the patient body;
- advantages and disadvantages of the different dosage forms of the same drug of various pharmacological groups;

- the methods and criteria for assessment of the clinical efficacy of the main pharmacological groups;
- the clinical manifestations of possible side effects of various drugs, the ways of their correction and prophylaxis;
- the principles of classification of drugs on the prescribing and non-prescribing (over-the-counter, OTC) and the criteria for drug selection to include them in the non-prescription category;
- the algorithm of the proper OTC-drug choice for the treatment of diseases and pathological conditions when responsible self-medication is possible;
- the pharmacist's duties and degree of his responsibility for the effectiveness of pharmacotherapy during the pharmaceutical care providing.

be able to:

- adhere to the rules of pharmaceutical ethics and deontology; to solve a complex of tasks related to the relationship between the doctor and the patient;
- identify the known drugs using an international, trade, chemical name to refer them to a particular pharmacological and pharmacotherapeutic group;
- use regulatory documents and literature references about medicinal products;
- to determine the features of medicinal products, which are necessary to conduct a comparative characterization of medicines taking into account the chemical composition, mechanism of action and pharmacological properties based on the literature data and accompanying documentation;
- to collect a medical history of a patient;
- with the doctor in a particular clinical situation to provide the choice of the optimal drugs in every pharmacological group, their dosage form, doses and routes of administration, taking into account the peculiarities of their pharmacodynamics and pharmacokinetics, their interaction with simultaneous or earlier prescribed medicines, food, etc.,
- on the basis of the clinical diagnosis, taking into account the individual features of the patient (gender, age, concomitant diseases) to carry out the analysis of medical appointments and their correction;
- to determine the relationship of physicochemical properties with the pharmacokinetic and pharmacological parameters of drugs (bioavailability, route of administration, the possibility of penetration through histohematological barriers, etc.);
- to determine the main types of possible interaction (physical, chemical, pharmacological, pharmacodynamic) of medicinal products for optimization of combined therapy taking into account the pharmacological properties of drugs and the features of clinical pathology. To find the incompatibility of medicinal products according their physical, chemical, pharmacological and biopharmaceutical properties;
- to carry out, if necessary, with the doctor the replacement of one medicinal product with others;
- to determine the modulating effect of food on the pharmacokinetic and pharmacological properties of drugs (time and amount of absorption, duration of action, route of elimination, the possibility of manifestation of undesirable action, etc.);
- to determine the advantages and disadvantages of particular dosage form of particular medicinal products of various pharmacological groups taking into account the biopharmaceutical, pharmacokinetic and pharmacological features of the medicinal product, as well as the anatomical and physiological features of the patient (age, sex, physical condition, etc.);
- to calculate one-time, daily and course doses using of the regulatory documentation and taking into account the individual features of a person (age, sex, body weight, severity of the disease, adjacent pathology, etc.);

- interpret the instructions of the physician regarding the possible interaction of medicinal products prescribed for the patient, taking into account the history of the disease, clinical diagnosis, the condition of the patient and the results of his laboratory tests;
- to consult patients and doctors about the proper use of medicinal products;
- among the visitors of a pharmacy to determine a category of persons, which are requiring an obligatory consultation of a doctor and persons who may use self-medication;
- provide recommendations for the choosing of OTC drugs for symptomatic treatment: heartburn, constipation, diarrhea, flatulence, bacterial overgrowth syndrome (dysbiosis), colds, sore throat, cough, fever, headache, muscle aches, joint pain, asthenia, dyssomnia, anxiety states, local disorders of the blood circulation, traumatic skin lesions (burns, frostbites, cuts, bruises, abrasions, scratches), infectious skin lesions (acne, herpes, mycoses), as well as the prevention of colds;
- to carry out the pharmaceutical care of patients, to consult doctors and patients about rational use of over-the-counter drugs of various pharmacological groups: manifestations of clinical action, route and time of administration, interaction with food, etc.;
- to inform a doctors about all cases of inappropriate use of medicines.
- to fill out an adverse drug reaction registration form.

acquire:

- methods of searching, collecting, analyzing, interpreting and providing medical information, collecting medical and allergic anamnesis;
- communicative technologies.

4. Subject structure

Thematic Modules and Topics	Hours					
	Foreign students (Language of Instruction – English)					
	full-time, 5.0 years					
	total	including				
		lectures	practical classes	seminars	laboratory classes	individual work
<i>1</i>	2	3	4	5	6	7
MODULE 1						
Thematic module 1. The basic principles of clinical pharmacy and clinical pharmacology. Clinical pharmacy in rheumatology, pulmonology						
Topic 1. Basic principles of clinical pharmacy and clinical pharmacology. Adverse drug reactions. Principles of Good Clinical Practice	20	1	9			10
Topic 2. Clinical pharmacy in rheumatology	20	2	9			9
Topic 3. Clinical pharmacy in pulmonology	20		9			11
Total under thematic module 1	60	3	27			30
Thematic module 2. Clinical pharmacy in cardiology, nephrology						
Topic 4. Clinical pharmacy in cardiology	31	4	15			12
Topic 5. Clinical pharmacy in nephrology	22	2	9			11
Total under thematic module 2	53	6	24			23
FINAL MODULAR CONTROL	7		3			4
Total under Module	120	9	54			57
MODULE 2						
Thematic module 3. Clinical pharmacy in gastroenterology, hepatology, hematology, endocrinology, allergy						
Topic 6. Clinical pharmacy in gastroenterology	20	2	8			10
Topic 7. Clinical pharmacy in hepatology	20	2	8			10
Topic 8. Clinical pharmacy in hematology	20	2	8			10
Topic 9. Clinical pharmacy in endocrinology	20	2	8			10
Topic 10. Clinical pharmacy in allergy	20	2	8			10
Topic 11. Basic principles of pharmaceutical care	2	2				
Topic 12. Pharmaceutical care during OTC-drugs dispensing for symptomatic treatment and prevention of cold	4	4				
Topic 13. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of indigestion	4	4				
Topic 14. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of headache	2	2				
Total under thematic module 3	112	22	40			50
FINAL MODULAR CONTROL	8		4			4
Total under Module	120	22	44			54
MODULE 3						
Thematic module 4. Basic principles of pharmaceutical care. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of different disorders of well-being (1 st cycle)						
Topic 11. Basic principles of pharmaceutical care	7		4			3
Topic 12. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment and prevention of cold	8		6			2

<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
Topic 13. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of indigestion	8		6			2
Topic 14. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of headache	7		4			3
Topic 15. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of joint and muscle pain	4	1				3
Topic 16. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of disorders of the nervous system activity	3	1				2
Topic 17. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of skin lesions	4	2				2
Topic 18. Pharmaceutical care of patients with local disorders of blood circulation	4	1				3
Total underthematic module 4	45	5	20			20
Thematic module 5. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of different disorders of well-being (2 nd cycle)						
Topic 15. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of joint and muscle pain	4			4		
Topic 16. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of disorders of the nervous system activity	2			2		
Topic 17. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of skin lesions	4			4		
Topic 18. Pharmaceutical care of patients with local disorders of blood circulation	2			2		
Topic 19. Pharmaceutical care during OTC drugs dispensing for special groups of patients	5	1		4		
Topic 20. Pharmaceutical care during OTC drugs dispensing for preventive and therapeutic using of antihelminthic drugs	2	1				1
Topic 21. Pharmaceutical care during OTC drugs dispensing for elimination and prevention of vitamin deficiency	2	1				1
Topic 22. Clinical and pharmaceutical aspects of antibacterial drugs application in internal diseases	2	1				1
Topic 23. Interaction of drugs with food and alcohol	2	1				1
Total under thematic module 5	25	5		16		4
FINAL MODULAR CONTROL	5			2		3
Total Hours	30	5		18		7
Total under Module	75	10	20	18		27
Total Subject Hours	315	41	118	18		138

5. Detailed Subject Outline

MODULE 1

THEMATIC MODULE 1. Basic principles of clinical pharmacy and clinical pharmacology. Clinical pharmacy in rheumatology, pulmonology

Topic 1. Basic principles of clinical pharmacy and clinical pharmacology. Adverse drug reactions. Principles of Good Clinical Practice

The content of clinical pharmacy and its tasks. The relationship of clinical pharmacy with related academic subjects. The role of clinical pharmacy in the system of pharmaceutical education. The world experience of clinical pharmacy development. Ethics and deontology in medicine and pharmacy. De-

ontological aspects of "pharmacist – doctor", "pharmacist – patient", "pharmacist – visitor" of a chemists relationships. The role of a pharmacist in carrying out the rational medicinal therapy, increase of its efficiency and safety.

Definitions of the concepts "chemical name", "international non-proprietary name", "trade name" of a medicine. Original (brand) and generic medicines – definition of the concept, advantages and disadvantages, requirements to generic medicines. The modern concept of self-medication. OTC-drugs. The role of a pharmacist in the self-medication system. The concept of pharmaceutical care.

Principal aspects of medical documentation: the out-patient card of patient, the case record of an in-patient, the list of medical prescription.

Introduction to clinical pharmacology. Kinds of medicinal therapy. Clinical aspects of pharmacodynamics, pharmacokinetics of drug, definition of the concepts of "clinical effect", "side effect". Modern methods of assessment of pharmacological action of drugs in clinical pharmacology. Clinical efficiency of drugs. Selectivity of drug action and its clinical value. The factors affecting the clinical efficiency of drugs. Peculiarities of a human body (physiological peculiarities, the age periods, the presence of an concomitant pathology, etc.), which affect the pharmacokinetics and pharmacodynamics of drugs. Modern methods of drug therapeutic action control. Clinical pharmacological tests. Concept of "width of the therapeutic action", "therapeutic index", "minimal dose", "maximal dose", "course dose" in clinical pharmacology. Principles of control of the efficiency and safety of drug administration. The importance of clinical, laboratory and instrumental methods of patient's examination as criteria of efficiency and safety of medicinal therapy. Methodical approaches to the choice of adequate methods of efficiency control of the prescribed drugs of different pharmacological groups.

Drug monitoring, its importance. Therapeutic and toxicological monitoring; importance for clinical practice.

Interaction of the combined application of drugs: types of interaction (pharmaceutical, pharmacokinetic, pharmacodynamic) and the character of interaction manifestation (antagonistic, synergistic – potentiation, summation, additive, sensitive). Clinical manifestations of drug interaction. Combined medicines, their advantages and disadvantages.

Classification of types of adverse drug reactions (pathogenetic, by character of occurrence, forecasting, localization of manifestations, by character of the course, severity). Mechanisms of occurrence and methods of forecasting of possible development of negative effects of drugs. Dependence of negative effects on the dose, way and introduction mode. The concept of toxicodynamics and toxicokinetics of drugs. Clinical manifestations of negative effects of drugs. The basic undesirable phenomena of drug administration ("a ricochet" phenomenon, tolerance to therapy, drug dependence, etc.). The concept of placebo. Placebo-effectors. Negative placebo-effectors as a group of risk of adverse drug reaction development.

Drug effect on clinical laboratory indices and results of functional tests. Typical changes in the general analysis of blood, urine, the biochemical analysis of blood in case of various drugs administration. Ways of possible effect of drugs on laboratory indices. Chemical and pharmacological interference. Drug effect on functional tests results. Undesirable consequences of incorrect interpretation of laboratory research results. Ways of drug action reduction on results of clinical and laboratory researches. The role of a pharmacist in the process of increasing the diagnostic importance of clinical and instrumental methods of the patient's examination.

Prevention of occurrence and ways of correction of drug negative effects. The role of a pharmacist in decreasing the undesirable drug effect.

The medicinal anamnesis: definition of the concept, rules and technique of collecting, importance for increasing of the medicinal therapy efficiency.

Psychological aspects of mutual relations between a pharmacist and a patient. Compliance. Factors affecting the patients' compliance during the medicinal therapy, ways increasing compliance. The concept "quality of life" concerning patients with chronic diseases and disorders of general state. Drug effect on life duration, the life forecast and quality of life of patients. Importance of pharmaceutical care for improvement of patient's quality of life and population's level of health.

Good clinical practice (GCP) is international rules and standards of carrying out clinical trials of drugs. Phases and types of clinical trials. Ethical aspects and the acts that regulate the performance of clinical studies. The role of a pharmacist in carrying out clinical trials of drugs.

Topic 2. Clinical pharmacy in rheumatology

Symptoms and syndromes in the basic systemic diseases of the connective tissue and exchange dystrophic diseases of joints: pain in joints and muscles, morning constraint, deformation of joints, "butterfly" symptom, acne rash, fever, tofus, chorea, articular syndrome, Raynaud's syndrome, dysfunction of joints, gouty attack.

Systemic diseases of the connective tissue and exchange dystrophic diseases of joints requiring obligatory intervention of a doctor (osteoarthritis, gout, osteoporosis; rheumatism / acute rheumatic fever, chronic rheumatic heart disease/, systemic lupus erythematosus, rheumatoid arthritis, scleroderma systemica*). Dysfunctional condition of the locomotor system which can be treated with OTC drugs in terms of responsible self-medication with the advisory help of a pharmacist.

Approaches to medicinal treatment of locomotor system diseases.

Bicillin prevention and bicillin therapy in treatment of acute rheumatic fever and chronic rheumatic heart disease.

Clinical pharmacology of steroid and non-steroid anti-inflammatory drugs; basic anti-inflammatory drugs (derivatives of quinoline, cytostatics, medicines of gold), including drugs suppressing proliferation of the connective tissue.

Clinical pharmacology of metabolism correctors of the connective tissue (chondroprotectors), drugs of uricosuric actions; drugs affecting the structure and mineralization of the bone tissue (calcium drugs, etc.).

Approaches to the rational choice of drugs for treating the locomotor system diseases. Simultaneous administration of drugs used for the locomotor system diseases; interaction with drugs of other pharmacological groups; peculiarities of drug application in case of accompanying pathology. Drugs with a toxic effect on the condition of joints (chondrotoxic drugs).

Adverse reactions of drugs used for treating the locomotor system diseases. Forecasting, clinical manifestations, prevention and ways of elimination. The concept of NSAID-gastropathy. Reye's syndrome.

Modern special dosage forms used for treating the locomotor system diseases (soft dosage forms and solutions for intra-articular administration), their clinical and biopharmaceutical peculiarities, principles of the rational use.

Criteria of efficiency and safety of medicinal therapy for treating the locomotor system diseases.

Principles of pharmaceutical care of patients with pathology of the locomotor system that receive drugs according to doctor's prescription. OTC drugs for articular and muscular pain.

Topic 3. Clinical pharmacy in pulmonology

Symptoms and syndromes of the respiratory organs diseases: cough, dyspnea, thorax pain, fever, cyanosis, bronchoobstruction syndrome, respiratory distress syndrome.

The respiratory system diseases requiring obligatory intervention of a doctor (pneumonia, acute bronchitis, chronic bronchitis, bronchial asthma, chronic obstructive diseases of lungs / chronic obstructive bronchitis, emphysema of lungs*, illness of smokers' small respiratory tracts*, pleurisy*, bronchoectatic disease*, lung abscess*). Dysfunctional condition of respiratory organs, can be treated with OTC drugs in terms of responsible self-medication with the advisory help of a pharmacist. Approaches to medicinal treatment of the respiratory organs diseases.

Clinical pharmacology of antimicrobial drugs for the respiratory organs diseases (penicillin, cephalosporins, carbapenems, macrolides, fluoroquinolones). Approaches to the rational choice of AB drugs for the respiratory organs diseases.

Clinical pharmacology of bronchodilators (β_2 -adrenomimetics, cholinolytics, derivatives of xanthine).

Clinical pharmacology of mucolytics, expectorants, anticough drugs of the central and peripheral action.

Clinical pharmacology of corticosteroids (systemic, inhalation), stabilizers of membranes of mastocytes.

Approaches to the rational choice of drugs for treating the respiratory organs diseases. Simultaneous administration of drugs used for the respiratory organs diseases; interaction with drugs of other pharmacological groups.

* It is studied as a definition.

Peculiarities of drugs application for respiratory system diseases in case of accompanying pathology. Drugs with a negative affect on the respiratory organs.

Combined drugs for treating bronchoobstructive syndrome.

Adverse effects of drugs used to treating the respiratory system diseases. Forecasting, clinical manifestations, prevention and ways of elimination.

Modern special dosage forms used for treating the respiratory system diseases (the dosed aerosol and powder inhalers, spacers, nebulizers, etc.), their clinical and biopharmaceutical peculiarities, rules and conditions of the rational use.

Criteria of efficiency and safety of medicinal therapy in pulmonology.

Principles of pharmaceutical care for symptomatic treatment of respiratory organs dysfunction. OTC drugs for symptomatic treatment of respiratory organs dysfunction.

THEMATIC MODULE 2. Clinical pharmacy in cardiology, nephrology

Topic 4. Clinical pharmacy in cardiology

Symptoms and syndromes of basic diseases of the cardiovascular system: dyspnea, orthopnea, acrocyanosis, palpitation, headache, pain syndrome, intermittent claudication syndrome, hydrops syndrome, dislipoproteinemia, arterial hypertension.

The cardiovascular system diseases requiring the obligatory intervention of a doctor (atherosclerosis, ischemic heart disease /angina pectoris, acute myocardial infarction, cardiosclerosis*, essential arterial hypertension, symptomatic arterial hypertension, hypertensive crisis, chronic heart failure, abnormalities of the heart rhythm). Approaches to medical treatment of the cardiovascular system diseases.

Clinical pharmacology of anti-anginal and hypotension drugs: nitrates and nitrate-like drugs, β -adrenoblockers, antagonists of calcium, blockers of peripheral adrenoreceptors, hypotension drugs of central action, blocker of ACE, blockers of angiotensin II receptors, diuretics.

Clinical pharmacology of hypolipidemic drugs (inhibitors of GMG-CoA reductase, fibric acid derivatives, nicotinic acid and its derivatives).

Clinical pharmacology of anti-coagulants, antiaggregants, fibrinolytics.

Clinical pharmacology of drugs which improve cerebral circulation; angioprotectors and antioxidants; drugs of metabolic action.

Combined drugs for arterial hypertension treatment.

Clinical pharmacology of cardiac glycosides, non-glycosides of positive inotropic agents. The problem of efficiency and safety of cardiac glycosides application. Clinical manifestations of cardiac glycosides intoxication, its treatment and prevention.

Clinical pharmacology of antiarrhythmic drugs.

Approaches to the rational choice of drugs for treating the cardiovascular system diseases. Simultaneous application of drugs used in cardiovascular system diseases; interaction with drugs of other pharmacological groups; peculiarities of drug application in case of accompanying pathology. Drugs having a negative effect on the safety of the cardiovascular system.

The adverse effects of drugs used in cardiology. Forecasting, clinical manifestations, prevention and ways of elimination.

Modern special dosage forms used in cardiology (retard, with the modified release of an active substance), their clinical and biopharmaceutical peculiarities, rules and conditions of their rational use.

Criteria of efficiency and safety of medicinal therapy in cardiology.

Principles of pharmaceutical care of the cardiologic profile patients receiving drugs according to doctor's prescription. OTC drugs used in cardiology.

Topic 5. Clinical pharmacy in nephrology

Symptoms and syndromes of basic diseases of kidneys and urinary ways: Pasternatsky's symptom, pain syndrome, uric syndrome, nephrotic syndrome, hydropic syndrome, syndrome of arterial renal hypertension, renal anemic syndrome, dysuric syndrome, syndrome of the chronic renal failure.

Diseases of kidneys and urinary ways requiring obligatory intervention of a doctor (acute kidney damages: acute pyelonephritis, acute glomerulonephritis; chronic renal disease: chronic pyelonephritis,

* It is studied as a definition.

chronic glomerulonephritis; infections of the urinary tract: acute cystitis, chronic cystitis; urolithiasis). Complications of renal diseases: symptomatic arterial hypertension (renoparenchymatous and renovascular one), chronic renal failure, renal anemia. Approaches to medicinal treatment of diseases of kidneys and urinary tract.

Clinical pharmacology of main drugs for treating infectious and immune-inflammatory diseases of kidneys and urinary tract (AB drugs/ β -lactams, fluoroquinolones, aminoglycosides, derivative of 8-oxychinoline, nitrofurans, steroid and non-steroid anti-inflammatory drugs, immunosuppressants, direct anticoagulants, antiaggregants, uroantiseptics, urolytics, spasmolytics, analgesics, diuretics, hypototics).

Approaches to the rational choice of AB drugs for infectious diseases of kidneys and urinary tract. Approaches to the rational choice of drugs for treating diseases of kidneys and urinary tract. The Simultaneous administration of drugs affecting the function of kidneys and urinary tract; interaction with drugs of other pharmacological groups. Peculiarities of drugs used in nephrology in case of accompanying pathology. Drugs with toxic effect on the condition of kidneys. The influence of functional condition of kidneys on the clinical efficiency of drugs, correction peculiarities of the dose regimen and administration.

Principles of treatment of kidney diseases complications: use of anti-hypertensive detoxification drugs, recombinant erythropoietins.

Adverse effects of drugs used for treating the urinary system diseases. Forecasting, clinical manifestations, prevention and ways of elimination.

Criteria of efficiency and safety of medicinal therapy in nephrology.

Principles of pharmaceutical care of patients with diseases of kidneys and urinary tract. OTC drugs used for the urinary system diseases.

FINAL MODULAR CONTROL

MODULE 2

THEMATIC MODULE 3. Clinical pharmacy in gastroenterology, hepatology, hematology, endocrinology, allergy

Topic 6. Clinical pharmacy in gastroenterology

Symptoms and syndromes of basic diseases of the gastro-intestinal tract: appetite disorder, eructation, heartburn, nausea, vomiting, constipation, diarrhea, flatulency; syndromes of gastric dyspepsia, intestinal dyspepsia, exocrine pancreatic impairment, insufficiency of digestion (maldigestion) and absorption (malabsorption), polyhypovitaminosis, asthenoneurotic, painful, anemic; bacterial overgrowth syndrome (dysbiosis).

Diseases of GIT and pancreas requiring obligatory intervention of a doctor (gastritis and duodenitis; chronic Helicobacter-associated gastritis; stomach ulcer, duodenal ulcer, chronic pancreatitis, dyspepsia, non-infectious gastroenteritis and colitis*). Complications of diseases of GIT organs: bleeding, penetration, perforation, malignancy, stenosis, vitamin B₁₂-deficiency anemia. Disorders of digestion, which can be treated with OTC drugs in terms of responsible self-medication with the advisory help of a pharmacist. Approaches to medicinal treatment of diseases of GIT and pancreas.

Clinical pharmacology of drugs used for treating hypoacid conditions. Drugs of replacement and stimulating therapy.

Clinical pharmacology of antacids and anti-secretion drugs (antacids, selective M₁-anticholinergic drugs, blockers H₂-histamine receptors, H⁺, K⁺-ATPase inhibitors).

Clinical pharmacology of drugs which increase protective properties of the mucous membrane of the stomach and promote its regeneration (reparants and gastrocytoprotectors).

Clinical pharmacology of drugs for Helicobacter pylori eradication (AB drugs of group of macrolides, penicillins, tetracyclines, nitroimidazol derivatives). Combined drugs.

Clinical pharmacology of drugs, which increase the tonus and stimulate motility of GIT (agonists of acetylcholine, antagonists of dopamine receptors), as well as antiemetic, antidiarrheal and laxative drugs.

* It is studied as a definition.

Clinical pharmacology of polyenzymatic drugs.

Drugs for elimination of the pain syndrome in diseases of GIT (spasmolytics).

Approaches to the rational choice of drugs in diseases of GIT and pancreas. Simultaneous administration of drugs affecting the function of GIT and pancreas; interaction with drugs of other pharmacological groups. Peculiarities of drug administration in gastroenterology in case of accompanying pathology. Drugs that have a toxic effect on condition of GIT and pancreas. The influence of the functional condition of the stomach, intestines and pancreas on clinical efficiency of drugs.

Adverse effects of drugs in diseases of GIT and pancreas. Forecasting, clinical manifestations, prevention and ways of elimination.

Modern special dosage forms used for treating diseases of GIT and pancreas (suspensions, gels for intake, tablets for chewing, capsules with minimicrospheres, etc.), their clinical and biopharmaceutical peculiarities, rules and conditions of the rational use.

Criteria of efficiency and safety of medicinal therapy in gastroenterology.

Principles of pharmaceutical care of patients with the gastroenterological profile. OTC drugs in diseases of the GIT and pancreas.

Topic 7. Clinical pharmacy in hepatology

Symptoms and syndromes of basic diseases of the hepatobiliary system: skin itch, fever, ascites; pain syndrome, jaundice syndrome, cholestasis, portal hypertension, hepatic impairment, intestinal dyspepsia, hepatolienal syndrome, hemorrhagic syndrome, laboratory syndromes (cytolysis, cholestasis, hepatic-cellular insufficiency).

Diseases of the hepatobiliary system requiring obligatory intervention of a doctor (chronic hepatitis, cirrhosis, cholelithiasis, chronic cholecystitis). Disorders of the functional condition of the hepatobiliary system, which can be treated with OTC drugs in terms of responsible self-medication with the advisory help of a pharmacist. Approaches to medicinal treatment of the diseases of liver and gallbladder.

Clinical pharmacology of hepatoprotectors, choleretics, cholekinetics, cholelytics, vitamins.

Clinical pharmacology of immunodepressive (corticosteroids) and hypoammoniemia drugs.

Clinical pharmacology of drugs for treating viral and bacterial infections of the hepatobiliary system (α -interferons, nucleotide analogues; penicillins, tetracyclines, cephalosporins, fluoroquinolones).

Clinical pharmacology of desintoxication therapy agents (enterosorbents, combined infusion solutions).

Clinical pharmacology of drugs for elimination of the pain syndrome (myotropic spasmolytics, M-anticholinergic drugs).

Approaches to the rational choice of drugs in diseases of the hepatobiliary system. Simultaneous administration of drugs affecting the function of the hepatobiliary system; interaction with drugs of other pharmacological groups; peculiarities of drug administration in case of accompanying pathology. Drugs that have a toxic effect on the liver condition. The influence of the functional condition of liver on the bioavailability and clinical efficiency of drugs.

Adverse effects of drugs used in hepatology. Forecasting, clinical manifestations, prevention and ways of elimination.

Modern special dosage forms in diseases of the hepatobiliary system, their clinical and biopharmaceutical peculiarities (combined infusion solutions), rules and conditions of the rational use.

Criteria of efficiency and safety of medicinal therapy in hepatology.

Principles of pharmaceutical care of patients with pathology of the hepatobiliary system. OTC drugs in diseases of the hepatobiliary system.

Topic 8. Clinical pharmacy in hematology

Syndromes of basic diseases of the hemopoietic system: circulatory hypoxic, sideropenic, hematologic, neurologic, hemorrhagic, asthenoneurotic.

Diseases of the hemopoietic system requiring obligatory intervention of a doctor (types of anaemia /iron-deficiency, megaloblastic — vitamin-B₁₂ – and folic acid deficiency anemia, hemolytic/;

hemablastosis*/acute leukemia; myeloleukemia, chronic lymphatic leukemia; erythremia/). Approaches to medicinal treatment of the hemopoietic system diseases.

Clinical pharmacology of drugs of iron and other antianemic drugs.

Clinical pharmacology of drugs stimulating or inhibiting erythro- and leukopoiesis.

Approaches to the rational choice of drugs in the hemopoietic system diseases. Simultaneous administration of drugs affecting hemopoiesis; interaction with drugs of other pharmacological groups; peculiarities of administration in case of accompanying pathology. Principles of the rational use of iron drugs and vitamins of group B. Drugs that have a toxic effect on the condition of the hemopoietic system.

Adverse effects of drugs used in hematology. Forecasting, clinical manifestations, prevention and ways of elimination.

Modern special dosage forms of iron drugs (drops, solutions for oral administration, capsules, etc.), their clinical and biopharmaceutical peculiarities, rules and conditions of the rational use.

Criteria of efficiency and safety of medicinal therapy in hematology.

Principles of pharmaceutical care of patients with pathology of the hemopoietic system.

Topic 9. Clinical pharmacy in endocrinology

Symptoms and syndromes of basic diseases of the endocrine system: polydipsia, polyphagia, polyuria, exophthalmus, goiter, hyperglycemia syndrome, hypoglycemia syndrome, hyperthyroidism syndrome, hypothyroidism syndrome, iodine deficiency syndrome.

Endocrine diseases (diabetes mellitus type I and II, hyperthyroidism, hypothyroidism) requiring compulsory medical intervention. Typical complications of diabetes mellitus (hypo- and hyperglycemic coma, diabetic polyneuropathy, diabetic nephropathy, diabetic retinopathy, diabetic foot syndrome). The states and conditions (the syndrome of iodine deficiency, pregnancy, period of growth, residence in endemic unfavourable areas), when it is possible to use OTC drugs in terms of responsible self-medication with the advisory help of a pharmacist. Approaches to medicinal treatment of the endocrine system diseases.

Clinical pharmacology of insulin drugs. Approaches to the rational choice of insulin drugs. Possible complications of insulin therapy.

Clinical pharmacology of oral hypolipidemic drugs (sulfonylcarbamide derivatives, biguanides, thiazolidinediones, metglitinides, inhibitors of α -glucosidase). Approaches to the rational choice. The interaction of oral hypoglycemic drugs with drugs of other pharmaceutical groups. Peculiarities of oral hypoglycemic drugs application in case of concomitant pathology. Drugs affecting the level of glycemia.

Principles of treatment of diabetes complications: use of insulin antagonists, antihypertensive, hypoglycemic drugs, angioprotectors, antiaggregants, peripheral vasodilators, vitamins.

Clinical pharmacology of hormone drugs of the thyroid gland, antithyroid drugs, iodine drugs.

Adverse effects of drugs used in endocrinology. Forecasting, clinical manifestations, prevention and ways of elimination.

Modern dosage forms used for treating diseases of the endocrine system, their clinical and biopharmaceutical peculiarities, rules and conditions of their rational use.

Criteria of efficiency and safety of medicinal therapy in endocrinology.

Principles of pharmaceutical care of patients with the endocrinological profile. Algorithm of actions of a pharmacist and pharmaceutical care while dispensing drugs for treating iodine deficiency.

Topic 10. Clinical pharmacy in allergy

Symptoms and syndromes of allergy: itch, hyperemia, edema of skin and mucous membranes, skin rash, dyspnea, sneezing, rhinorrhea, lacrimation, bronchospasm, decrease of arterial pressure, tachycardia, hyperemia; skin syndrome, hydropic syndrome, respiratory syndrome, syndrome of acute cardiovascular failure, asthenoneurotic syndrome.

Diseases of allergic origin (acute and chronic urticaria, asthenoneurotic edema, allergic rhinitis, allergic conjunctivitis, anaphylactic shock) requiring the obligatory intervention of a doctor. Symptoms and syndromes of allergic origin, which can be treated with OTC drugs in terms of responsible self-medication with the advisory help of a pharmacist. Approaches to medicinal treatment of allergic conditions.

* It is studied as a definition.

Clinical pharmacology of drugs used for treating allergy (corticosteroids, antihistamines drugs, bronchodilators, drugs of calcium, stabilizers of mastocytes membranes, agonists of α - and β - adreno-receptors). Detoxication therapy.

Approaches to the rational choice of drugs in diseases of the allergic origin. Simultaneous administration of antiallergic drugs; interaction with drugs of other pharmacological groups; peculiarities of antiallergic drugs administration in case of accompanying pathology.

Adverse effects of drugs used in allergology. Forecasting, clinical manifestations, prevention and ways of elimination.

Modern dosage forms used in diseases of the allergic origin, their clinical and biopharmaceutical peculiarities, rules and conditions of the rational use.

Criteria of efficiency and safety of medicinal therapy in allergology.

Principles of pharmaceutical care of allergic patients, OTC drugs used in diseases of the allergic origin.

Drug disease. Difference from other conditions caused by drug administration (overdose, intoxication, bacterial overgrowth syndrome, etc.). The causes of occurrence, basic clinical variants of manifestation of drug disease. Syndromes of drug disease (Lyell's syndrome, Stevens-Johnson syndrome). Polypharmacy as the cause of medicinal therapy complications. Pharmacological features of drugs, which cause drug disease more often. Prevention and medicament approaches to elimination of drug disease manifestations. The role of a pharmacist in drug disease prevention.

FINAL MODULAR CONTROL

MODULE 3

THEMATIC MODULE 4. Basic principles of pharmaceutical care. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of different disorders of well-being (1st cycle)

Topic 11. Basic principles of pharmaceutical care

Definition and the basic concepts of pharmaceutical care. The place of pharmaceutical care in the general system of public health services for the population. Relationship of a pharmacist and other medical workers (doctor, nurse, etc.) when carrying out pharmaceutical care. The algorithm of action of a pharmacist when carrying out the appropriate pharmaceutical care for chemist's shops visitors, patients during OTC drugs dispensing for symptomatic treatment of harmless for life health disorders. The algorithm of presentation of the appropriate drug information to visitors of chemist's/patients by a pharmacist while carrying out pharmaceutical care.

Practical functions of a pharmacist that are necessary for care realization (procedure of drug anamnesis gathering, working out the plan of monitoring of adverse drug reactions, preventive actions in possible manifestations of adverse drug reactions, etc.).

OTC-drugs. Criteria according to which medicines are classified as prescription or OTC drugs. Normative and legislative acts concerning OTC drugs dispensing.

The concept of generic and therapeutic replacement. The pharmacist's competence when choosing OTC drugs for responsible self-medication and in replacement of OTC drugs.

Categories of problems which arise during the patient's intake of drugs; problems belonging to the competence of a pharmacist and a doctor, algorithm of their definition.

Topic 12. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment and prevention of cold

The basic symptoms of cold (cough, rhinitis, sore throat, fever, etc.) which can be treated with OTC drugs in terms of responsible self-medication. «Threatening» symptoms of cold when the intervention of a doctor is necessary (the algorithm of choosing patients for obligatory examination of a doctor).

Approaches and remedies of symptomatic medicinal therapy of colds. The algorithm of carrying out pharmaceutical care of the visitors of chemist's shops/patient with cold symptoms. The algorithm of presentation of the appropriate information about OTC drugs by a pharmacist for treating cold when carrying out pharmaceutical care of visitors of chemist's shops/patients.

Modern dosage forms for treatment of cold and peculiarities of their use. The interaction of OTC drugs used for symptomatic treatment of colds with food, and alcohol; peculiarities of their administra-

tion in various age periods; requirements for storing drugs at home. Criteria of efficiency of the therapy with OTC drugs used for symptomatic treatment of cold.

Non-medicament methods of elimination of symptoms of cold.

Approaches to prevention of colds. The algorithm of carrying out pharmaceutical care of visitors of chemist's shops/patient while choosing drugs for prevention of colds. The algorithm of presentation the appropriate information about OTC drugs by a pharmacist for cold prevention when carrying out pharmaceutical care of visitors of chemist's shops/patients. Modern dosage forms for cold prevention, peculiarities of their use.

Non-medicament methods of cold prevention.

Topic 13. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of indigestion

The basic symptoms of indigestion (heartburn, constipation, diarrhea, flatulence, bacterial overgrowth syndrome/dysbiosis), which can be treated with OTC drugs in terms of responsible self-medication. «Threatening» symptoms of indigestion when the intervention of a doctor is necessary (the algorithm of choosing patients for obligatory examination of a doctor).

Directions and remedies of symptomatic medicinal therapy of heartburn, constipation, diarrhea, flatulency, bacterial overgrowth syndrome (dysbiosis). The algorithm of carrying out pharmaceutical care for visitors of chemist's shops/patients with indigestion symptoms. The algorithm of the appropriate information presentation by a pharmacist about OTC drugs for treating indigestion while carrying out pharmaceutical care for visitors of chemist's shops/patients.

Modern dosage forms for treatment of indigestion and peculiarities of their use. The interaction of OTC drugs used for symptomatic treatment of indigestion with food, alcohol; peculiarities of their application in various age periods; requirements for storing drugs at home. Criteria of efficiency of therapy with OTC drugs used for symptomatic treatment of indigestion.

Non-medicament methods of elimination of symptoms of indigestion.

Topic 14. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of headache

The concept about primary (migraine, strain headache) and a secondary (symptomatic) headache. Pathological conditions and diseases accompanied with headache. Factors which promote headache development.

Types of headache which can be treated with OTC drugs in terms of responsible self-medication. «Threatening» symptoms of headache requiring intervention of a doctor (the algorithm of choosing patients for obligatory examination of a doctor).

Approaches and remedies of symptomatic medicinal therapy of headache. The algorithm of carrying out pharmaceutical care for visitors of chemist's shops/patients with headache. The algorithm of appropriate information about OTC drugs presentation by a pharmacist for treating headache while carrying out pharmaceutical care for visitors of chemist's shops/patients.

Modern dosage forms for treatment of headache (quick-soluble tablets, capsules of the prolonged action, etc.) and peculiarities of their use. The interaction of OTC drugs used for symptomatic treatment of headache with food and alcohol; peculiarities of their administration in various age periods; requirements for storing drugs at home. Criteria of efficiency of the therapy with OTC drugs used for symptomatic treatment of headache.

Non-medicament methods of elimination of the headache.

THEMATIC MODULE 4. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of different disorders of well-being (2nd cycle)

Topic 15. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of joint and muscle pain

Basic symptoms of the musculoskeletal system dysfunction (joint and muscle pain), which can be treated with OTC drugs in terms of responsible self-medication. «Threatening» symptoms of the musculoskeletal system dysfunction for when intervention of a doctor is necessary (the algorithm of choice of patients for an obligatory examination of a doctor).

Directions and remedies of symptomatic medicinal therapy of pain in muscles and joints. The algorithm of carrying out pharmaceutical care for visitors of chemist's shops/patients with symptoms of the musculoskeletal system dysfunction. The algorithm of presentation the appropriate information about OTC drugs by a pharmacist for treating pain in muscles and joints while carrying out pharmaceutical care for visitors of chemist's shops/patients.

Modern dosage forms for treatment of dysfunction of the musculoskeletal system (creams, gels) and peculiarities of their use. The interaction of OTC drugs used for symptomatic treatment of pain in muscles and joints with food and alcohol; peculiarities of their administration in various age periods; requirements for storing drugs at home. Criteria of efficiency of OTC drugs therapy used for symptomatic treatment of dysfunction of the musculoskeletal system.

Non-medicament methods of elimination of muscle and joint pain.

Topic 16. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of disorders of the nervous system activity

The basic symptoms of disorders of the nervous system activity (anxiety, asthenia, dyssomnia) which can be treated with OTC drugs in terms of responsible self-medication. «Threatening» symptoms of disorders of the nervous system activity when the intervention of a doctor is necessary (the algorithm of choosing patients for obligatory examination of a doctor).

Approaches and remedies of symptomatic medicinal therapy of anxiety, asthenia, dyssomnia. The algorithm of carrying out pharmaceutical care for visitors of chemist's shops/patients with symptoms of disorders of the nervous system activity. The algorithm of the appropriate information about OTC drugs presentation by a pharmacist for treating disorders of the nervous system activity while carrying out pharmaceutical care for visitors of chemist's shops/patients.

Modern dosage forms for treatment of disorders of the nervous system activity and peculiarities of their use. The interaction of OTC drugs used for symptomatic treatment of disorders of the nervous system activity with food, alcohol; peculiarities of their administration in various age periods; requirements for storing drugs at home. Criteria of efficiency of therapy with OTC drugs used for symptomatic treatment of disorders of the nervous system activity.

Non-medicament methods of elimination of symptoms of the nervous system activity disorders.

Topic 17. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of skin lesions

Lesions of integuments: microtraumas (cuts, abrasions, scratches), thermal and chemical damages of surface skin layers (burns, frostbite), acne (acne rash), infectious damages (herpes of lips, mycoses, scabies, pediculosis), seborrhea, etc. which can be treated with OTC drugs in terms of responsible self-medication. «Threatening» symptoms of skin lesions requiring obligatory examination of a doctor.

The algorithm of carrying out pharmaceutical care for visitors of chemist's shops/patients with symptoms of skin lesions. Approaches to symptomatic treatment of skin lesions. OTC drugs used for skin lesions. The algorithm of the appropriate information about OTC drugs presentation by a pharmacist when carrying out pharmaceutical care for visitors of chemist's shops/patients for symptomatic treatment of skin lesions.

Modern dosage forms for treatment and prevention of traumatic, infectious and parasitic skin lesions, peculiarities of their use. Non-medicament methods of elimination of symptoms of traumatic, infectious and parasitic skin lesions

Topic 18. Pharmaceutical care of patients with local disorders of the blood circulation

Local disorders of the blood circulation: varicose veins of the lower extremities, hemorrhoid. Symptoms which are typical for local blood circulation disorders that can be treated with OTC drugs in terms of responsible self-medication. «Threatening» symptoms of varicose veins of the lower extremities and hemorrhoid requiring obligatory examination of a doctor (the algorithm of choosing patients for obligatory examination of a doctor).

The algorithm of carrying out pharmaceutical care for visitors of chemist's shops/patients with complaints of local disorders of the blood circulation.

The algorithm of the appropriate information about OTC drugs presentation by a pharmacist about OTC drugs for treating local blood circulation disorders while carrying out pharmaceutical care for visitors of chemist's shops/patients.

Modern dosage forms for treatment of local disorders of the blood circulation and peculiarities of their use. The interaction of OTC drugs used for symptomatic treatment of local disorders of the blood circulation with food, alcohol; peculiarities of their administration in various age periods; requirements for storing drugs at home. Criteria of efficiency of OTC drugs therapy used for symptomatic treatment of local disorders of the blood circulation.

Non-medicament methods of elimination of symptoms of blood circulation local disorders.

Topic 19. Pharmaceutical care during OTC drugs dispensing for special groups of patients

Pharmaceutical care as the pharmacist's responsibility for efficiency of the medicinal therapy to the individual visitor of chemist's shop/patient. Categories of the population requiring special attention during responsible self-medication. Approaches to pharmaceutical care of elderly and old people, teenagers, newborn, pregnant women and women in the period of lactation. Physiological factors stipulating the peculiarities of pharmacokinetics and pharmacodynamics of drugs in pregnant women. Modern dosage forms for children, their advantages, peculiarities of administration. Possible effect of drugs on the course of pregnancy, delivery and lactation.

Topic 20. Pharmaceutical care during OTC drugs dispensing for preventive and therapeutic using of antihelmintic drugs

Definition of helminthiasis. «Threatening» symptoms of helminthiasis requiring intervention of a doctor. Approaches of antihelmintic therapy. The algorithm of carrying out pharmaceutical care of the visitors of chemist's shops/patient with helminthiasis. The algorithm of the appropriate information presentation by a pharmacist about OTC drugs for treatment of helminthiasis while carrying out pharmaceutical care for visitors of chemist's shops/patients.

Topic 21. Pharmaceutical care during OTC drugs dispensing for elimination and prevention of vitamin deficiency

Pathological conditions and factors promoting development of vitamin deficiency. «Threatening» symptoms of vitamin deficiency requiring intervention of a doctor (the algorithm of choosing patients for obligatory examination of a doctor).

Approaches and remedies of elimination and prevention of vitamin deficiency. The algorithm of address choice of OTC vitamin-containing drugs, the dosage forms and the routes of administration. The algorithm of the appropriate information about OTC drugs presentation by a pharmacist for elimination and prevention of vitamin deficiency when carrying out pharmaceutical care for visitors of chemist's shops/patients.

Modern dosage forms for elimination and prevention of vitamin deficiency (gels, syrups, drops, etc.) and peculiarities of their use. The interaction of OTC vitamin-containing drugs with food, alcohol; peculiarities of their use for different groups of population (newborns, children, teenagers, elderly and old people, individuals with concomitant pathologies, pregnant and breast-feeding women). Requirements for storing vitamin-containing drugs at home. Criteria of efficiency of therapy with OTC drugs for elimination and prevention of vitamin deficiency. Signs of vitamin overdose, ways of its prevention and treatment

Topic 22. Clinical and pharmaceutical aspects of antibacterial drugs application in internal diseases

The main principles of antibacterial (AB) therapy.

Clinical pharmacology of benzylpenicillin drugs with short and prolonged action, semisynthetic penicillin, cephalosporins, tetracyclines, aminoglycosides, macrolides, fluoroquinolones and chemotherapeutic AB drugs of other groups. Pharmacokinetic peculiarities of AB drugs of different pharmacological and chemical groups. Prevention of antibiotics resistance.

Adverse effects of AB drugs. Specific adverse effects of AB drugs of different groups. Forecasting, clinical manifestations, prevention and ways of elimination. Simultaneous administration of AB drugs. The interaction of AB drugs with drugs of other pharmacological groups. Principles of the ra-

tional choice of AB drugs for visceral diseases of infectious origin. The choice of an optimal routes of administration and dose regimen. The conditions affecting the clinical effect of AB drugs.

Topic 23. Interaction of drugs with food and alcohol

The interaction of drugs and food, clinical and pharmacological aspects of interaction. The major factors, which are important for interaction of drugs and food. The ways of a possible effect of food on pharmacological properties of drugs.

Clinical and pharmacological aspects of using alcohol in medicine. Clinical and pharmacological features of alcohol. The interaction of ethanol with drugs. Clinical and pharmacological aspects of chronic alcohol abuse.

The role of a pharmacist and the place of pharmaceutical care in prevention of undesirable interaction of drugs with food and alcohol.

FINAL MODULAR CONTROL

6. Lecture topic

№	Topic	Hours
1.	Topic 1. Basic principles of clinical pharmacy and clinical pharmacology. Adverse drug reactions. Principles of Good Clinical Practice	1
2.	Topic 2. Clinical pharmacy in rheumatology	2
3.	Topic 3. Clinical pharmacy in pulmonology	—
4.	Topic 4. Clinical pharmacy in cardiology	4
5.	Topic 5. Clinical pharmacy in nephrology	2
6.	Topic 6. Clinical pharmacy in gastroenterology	2
7.	Topic 7. Clinical pharmacy in hepatology	2
8.	Topic 8. Clinical pharmacy in hematology	2
9.	Topic 9. Clinical pharmacy in endocrinology	2
10.	Topic 10. Clinical pharmacy in allergy	2
11.	Topic 11. Basic principles of pharmaceutical care	2
12.	Topic 12. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment and prevention of cold	4
13.	Topic 13. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of indigestion	4
14.	Topic 14. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of headache	2
15.	Topic 15. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of joint and muscle pain	1
16.	Topic 16. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of disorders of the nervous system activity	1
17.	Topic 17. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of skin lesions	2
18.	Topic 18. Pharmaceutical care of patients with local disorders of blood circulation	1
19.	Topic 19. Pharmaceutical care during OTC drugs dispensing for special groups of patients	1
20.	Topic 20. Pharmaceutical care during OTC drugs dispensing for preventive and therapeutic using of antihelmintic drugs	1
21.	Topic 21. Pharmaceutical care during OTC drugs dispensing for elimination and prevention of vitamin deficiency	1
22.	Topic 22. Clinical and pharmaceutical aspects of antibacterial drugs application in internal diseases	1
23.	Topic 23. Interaction of drugs with food and alcohol	1
Total hours		41

Detailed Lecture Outline

Topic 1. Basic principles of clinical pharmacy and clinical pharmacology. Adverse drug reactions. Principles of Good Clinical Practice

Outline:

- 1.1. The place of Clinical Pharmacy in the structure of biomedical subjects
- 1.2. Clinical pharmacology and pharmaceutical care as components of clinical pharmacy, their definition and place
- 1.3. Rational use of drugs (advantages, chemical, pharmaceutical, medical, biological and technologic aspects)
- 1.4. Clinical pharmacy – the basis of drug choice for special groups of patients

Topic 2. Clinical pharmacy in rheumatology

Outline:

- 2.1. Background. Epidemiology.
- 2.2. Complaints of patients with pathology of the bone and muscular system and methods of objective examination
- 2.3. Clinical syndromes in rheumatology (pain, articular syndrome, Raynaud's syndrome)
- 2.4. Peculiarities of diffuse connective tissue diseases and metabolic degenerative diseases of the bone and muscular system
- 2.5. Approaches to the treatment of diffuse connective tissue diseases and metabolic degenerative diseases of the bone and muscular system
- 2.6. Clinical pharmacology of non-steroid and steroid anti-inflammatory drugs; drugs suppressing the proliferation of connective tissue; chondroprotectors, anti-gout agents. Recommendations of the European League Against Rheumatism
- 2.7. Pharmaceutical care while dispensing the non-steroid and steroid anti-inflammatory drugs, chondroprotectors

Topic 4. Clinical pharmacy in cardiology

Outline:

- 4.1.1. Background. Epidemiology.
- 4.1.2. Complaints of patients with pathology of the cardiovascular system and methods of objective observation
- 4.1.3. Clinical syndromes in cardiology (chronic heart failure)
- 4.1.4. Features of the main cardiovascular system diseases (atherosclerosis, stable angina pectoris, arterial hypertension)
- 4.2.1. Approaches to the treatment of atherosclerosis, stable angina pectoris, arterial hypertension, chronic heart failure
- 4.2.2. Clinical pharmacology of hypolipidemic, antianginal and antihypertensive drugs. Recommendations of the European Society of Cardiology
- 4.2.3. Pharmaceutical care while dispensing the hypolipidemic, antianginal and antihypertensive drugs

Topic 5. Clinical pharmacy in nephrology

Outline:

- 5.1. Background. Epidemiology.
- 5.2. Complaints of patients with pathology of the kidneys and urinary system and methods of objective examination
- 5.3. Clinical syndromes in nephrology (edema, nephrotic syndrome)
- 5.4. Features of the kidneys and the urinary system diseases
- 5.5. Approaches to the treatment of infectious and immune-inflammatory diseases of the kidneys and urinary system

5.6. Clinical pharmacology of antibacterial agents. Principles of rational choice of antimicrobial agents. Recommendations of the International Society of Nephrology

5.7. Pharmaceutical care while dispensing of antibacterial agents, herbal urinary antiseptics

Topic 6. Clinical pharmacy in gastroenterology

Outline:

6.1. Background. Epidemiology

6.2. Complaints of patients with pathology of the gastrointestinal tract and pancreas and methods of objective examination

6.3. Clinical syndromes in gastroenterology (gastric and intestinal dyspepsia, maldigestion and malabsorption)

6.4. Features of diseases of the gastrointestinal tract and pancreas

6.5. Approaches to the treatment of diseases of the gastrointestinal tract and the pancreas

6.6. Clinical pharmacology of agents that affect the acidity of the gastric contents and poly-enzymes. Principles of rational use of antimicrobial agents. International recommendations for the treatment of helicobacter-associated diseases: the Maastricht consensus

6.7. Pharmaceutical care while dispensing the drugs for anti-helicobacter therapy

Topic 7. Clinical pharmacy in hepatology

Outline:

7.1. Background. Epidemiology

7.2. Complaints of patients with pathology of hepatobiliary system and methods of objective examination

7.3. Clinical syndromes in hepatology (portal hypertension)

7.4. Features of the liver and bile ducts diseases

7.5. Approaches to treatment of the hepatobiliary system diseases

7.6. Clinical pharmacology of antiviral agents, hepatoprotectors, choleric drugs. Principles of rational use of hepatotropic agents of plant origin. International recommendations for the chronic hepatitis and liver cirrhosis treatment

7.7. Pharmaceutical care while dispensing hepatotropic agents of plant origin

Topic 8. Clinical pharmacy in hematology

Outline:

8.1. Background. Epidemiology.

8.2. Complaints of patients with anemia and methods of objective examination

8.3. Clinical syndromes in hematology (anemic, sideropenic, hematologic)

8.4. Approaches to the treatment of anemic conditions (IDA and vitamin B₁₂- and folic acid deficiency)

8.5. Clinical pharmacology of iron-containing drugs. International recommendations for the treatment and prevention of iron deficiency

8.6. Pharmaceutical care while dispensing iron- and vitamin B-containing drugs

Topic 9. Clinical pharmacy in endocrinology

Outline:

9.1. Background. Epidemiology

9.2. Complaints of patients with pathology of the organs of the endocrine system and methods of objective observation

9.3. Clinical syndromes in endocrinology (hyper- and hypothyroidism, hyper- and hypoglycemia)

9.4. Features of the thyroid gland diseases and diabetes mellitus

9.5. Approaches to the treatment of the thyroid gland diseases and diabetes mellitus

9.6. Clinical pharmacology of insulin and oral hypoglycemic agents. Principles of rational use of insulin. Recommendations of the European Society of Endocrinology

9.7. Pharmaceutical care while dispensing drugs for people with diabetes mellitus

Topic 10. Clinical pharmacy in allergy

Outline:

- 10.1. Background. Epidemiology
- 10.2. Complaints of patients with allergy and methods of objective examination
- 10.3. Clinical syndromes in allergy
- 10.4. Features of allergic diseases of the anaphylaxis type (anaphylactic shock, urticaria, Quincke's edema/angioedema, pollen disease)
- 10.5. Approaches to the treatment of allergic diseases of the anaphylaxis type
- 10.6. Clinical pharmacology of antiallergic drugs. Principles of rational use of antihistamines. Recommendations of the International Societies on Allergy
- 10.7. Pharmaceutical care while dispensing drugs for the allergic diseases prevention and treatment

Topic 11. Basic principles of pharmaceutical care

Outline:

- 11.1. The place of pharmaceutical care in the system of medical and biological subjects
- 11.2. The evolution of the relationship «doctor-patient-pharmacist»
- 11.3. Responsible self-medication and the preconditions for its occurrence
- 11.4. Non-prescription drugs as a promoters of self-medication. Requirements for OTC drugs
- 11.5. Positive and negative aspects of self-medication

Topic 12. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment and prevention of cold

Outline:

- 12.1.1. The main causes and factors contributing to the development of a cold
- 12.1.2. «Threatening» symptoms that accompany sore throat, cough
- 12.1.3. General guidelines for treating sore throat, cough. Directions of prevention of a cold
- 12.1.4. Clinical and pharmaceutical features of OTC drugs for symptomatic treatment of sore throat, cough
- 12.1.5. Pharmaceutical care while dispensing drugs for the treatment of sore throat, cough; drugs for the prevention of a cold
- 12.2.1. «Threatening» symptoms that accompany rhinitis, fever
- 12.2.2. General guidelines for treating rhinitis, fever
- 12.2.3. Clinical and pharmaceutical features of OTC drugs for symptomatic treatment of rhinitis, fever
- 12.2.4. Pharmaceutical care while dispensing drugs for the treatment of rhinitis, fever; complex anti-cold drugs

Topic 13. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of indigestion

Outline:

- 13.1.1. The main causes and factors that contribute to the development of digestive disorders
- 13.1.2. «Threatening» symptoms that accompany heartburn, constipation
- 13.1.3. General guidelines for treating heartburn, constipation
- 13.1.4. Clinical and pharmaceutical features of OTC drugs for symptomatic treatment of heartburn, constipation
- 13.1.5. Pharmaceutical care while dispensing drugs for the treatment of heartburn, constipation
- 13.2.1. «Threatening» symptoms that accompany diarrhea, flatulence
- 13.2.2. General guidelines for the treatment of diarrhea, flatulence
- 13.2.3. Clinical and pharmaceutical features of OTC drugs for symptomatic treatment of diarrhea, flatulence
- 13.2.4. Pharmaceutical care while dispensing drugs for the treatment of diarrhea, flatulence
- 13.2.5. Approaches of prevention of bacterial overgrowth syndrome (dysbiosis)

Topic 14. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of headache
Outline:

- 14.1. The main causes and factors that contribute to headache
- 14.2. «Threatening» symptoms that accompany headaches
- 14.3. General guidelines for headache treatment
- 14.4. Clinical and pharmaceutical features of OTC drugs for symptomatic treatment of headache
- 14.5. Pharmaceutical care while dispensing drugs to relieve headaches

Topic 15. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of joint and muscle pain
Outline:

- 15.1. The main causes and factors that contribute to back pain, joint and muscle pain
- 15.2. «Threatening» symptoms
- 15.3. General guidelines for the treatment of back pain, joint and muscle pain
- 15.4. Clinical and pharmaceutical features of OTC drugs for symptomatic treatment of back pain, joint and muscle pain
- 15.5. Pharmaceutical care while dispensing drugs for the treatment of back pain, joint and muscle pain
- 15.6. NSAID-gastropathy: ways to prevent and treat

Topic 16. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of disorders of the nervous system activity
Outline:

- 16.1. Causes and factors contributing to the development of anxiety, asthenia, dyssomnia
- 16.2. «Threatening» symptoms that accompany anxiety, asthenia, dyssomnia
- 16.3. General guidelines for treatment of anxiety, asthenia, dyssomnia
- 16.4. OTC drugs for the treatment of anxiety, asthenia, dyssomnia
- 16.5. Pharmaceutical care while dispensing drugs for the treatment of anxiety, asthenia, dyssomnia

Topic 17. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of skin lesions
Outline:

- 17.1. Causes and factors contributing to traumatic, infectious and parasitic skin lesions
- 17.2. «Threatening» symptoms that accompany traumatic, infectious and parasitic skin lesions
- 17.3. General guidelines for the treatment of traumatic, infectious and parasitic skin lesions
- 17.4. OTC drugs for the treatment of traumatic, infectious and parasitic skin lesions
- 17.5. Pharmaceutical care while dispensing drugs for the treatment of traumatic, infectious and parasitic skin lesions

Topic 18. Pharmaceutical care of patients with local disorders of blood circulation
Outline:

- 18.1. Varicose veins of the lower extremities: causes, stages, classification, complications
- 18.2. Approaches of therapy of varicose veins of the lower extremities
- 18.3. Hemorrhoids: contributing factors, symptoms, stages, classification
- 18.4. Ways of hemorrhoids prevention and treatment
- 18.5. Pharmaceutical care while dispensing phlebotropic drug

Topic 19. Pharmaceutical care during OTC drugs dispensing for special groups of patients

- 19.1. Value of problem. Demographic situation in the world and in Ukraine
- 19.2. Problems of medical therapy and approaches to pharmaceutical care of the old and elderly people (problems of complex therapy, complexity of complicity)
- 19.3. Basic principles of pharmaceutical care in perinatology
- 19.4. Special questions about the use of certain groups of drug in pregnant women
- 19.5. Principles of choosing drug therapy in lactating women

Topic 20. Pharmaceutical care during OTC drugs dispensing for preventive and therapeutic using of antihelmintic drugs

- 20.1. Value of the problem of helminthic invasions. Pathogens and epidemiology
- 20.2. Symptoms and syndromes of helminthic invasions, principles of diagnosis
- 20.3. Basic approaches to therapy
- 20.4. Antihelmintic drugs - advantages and disadvantages
- 20.5. Principles of pharmaceutical care

Topic 21. Pharmaceutical care during OTC drugs dispensing for elimination and prevention of vitamin deficiency

Outline:

- 21.1. Pathological conditions and factors which promote development of vitamin deficiency
- 21.2. «Threatening» symptoms of vitamin deficiency which demand intervention of the doctor
- 21.3. Approaches and means of elimination and prevention of vitamin deficiency. The algorithm for address choice of OTC vitamin-containing drugs, dosage form and route of administration.
- 21.4. Pharmaceutical care while dispensing non-prescription vitamin-containing drugs
- 21.5. Signs of vitamin overdose, ways of its prevention and treatment

Topic 22. Clinical and pharmaceutical aspects of antibacterial drugs application in internal diseases

- 22.1. Relevance of the topic and pharmacoepidemiology of antibacterial agents
- 22.2. Factors that affect (suppress or promote) the development of microorganism resistance to antibacterial drugs
- 22.3. Directions of prophylaxis of the side effect of antibacterial drugs and the development of microorganism resistance
- 22.4. Pharmaceutical care of patients during antibacterial drugs dispensing
- 22.5. The role of pharmacist in prevention of undesirable effects of antibacterial agents and the development of microorganism resistance

Topic 23. Interaction of drugs with food and alcohol

- 23.1. Some aspects and main factors of the interaction of drugs with food or alcohol
- 23.2. Ways of possible action of food or alcohol on pharmacological properties of drugs
- 23.3. Some issues of the interaction of certain groups of drugs with food or alcohol
- 23.4. Ways of prevention of undesirable consequences of interaction
- 23.5. Poisoning with alcohol and the direction of prevention of chronic alcohol abuse

7. Seminar Class Topics

№	Topic	Hours
1	Topic 15. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of joint and muscle pain	4
2	Topic 16. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of disorders of the nervous system activity	2
3	Topic 17. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of skin lesions	4
4	Topic 18. Pharmaceutical care of patients with local disorders of the blood circulation	2
5	Topic 19. Pharmaceutical care during OTC drugs dispensing for special groups of patients	4
6	FINAL MODULAR CONTROL	2
Total Hours		18

Seminars Outline

Topic 15. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of joint and muscle pain

Objective: to learn the algorithm of the pharmacist's action during the OTC drugs dispensing for the symptomatic treatment of back pain, joint and muscle pain; principles of consulting and information delivery on issue of responsible self-medication of back pain, joint and muscle pain

Outline:

15.1.1. Factors contributing to the development of back pain and joint pain

15.1.2. «Threatening» symptoms of joint pain, which demand obligatory visit to the doctor

15.1.3. Approaches and rules of symptomatic treatment of joint pain. Algorithm for the pharmaceutical care of a pharmacy visitor / patient with back pain and joint pain

15.1.4. Clinical and pharmacological features of OTC drugs used for symptomatic treatment of joint pain

15.2.1. Factors contributing to the development of muscle pain

15.2.2. «Threatening» symptoms of muscle pain, which demand obligatory visit to the doctor

15.2.3. Approaches and rules of symptomatic treatment of muscle pain. Algorithm for the pharmaceutical care of a pharmacy visitor / patient with muscle pain

15.2.4. Clinical and pharmacological features of OTC drugs used for symptomatic treatment of muscle pain

Topic 16. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of disorders of the nervous system activity

Objective: to learn the algorithm of the pharmacist's action during the OTC drugs dispensing for the symptomatic treatment of anxiety, asthenia, dyssomnia; principles of consulting and information delivery on issue of responsible self-medication of anxiety, asthenia, dyssomnia

Outline:

16.1. The main symptoms of the nervous system disorders, which can be treated with OTC drugs during responsible self-medication

16.2. «Threatening» symptoms accompanying anxiety, asthenia, dyssomnia, which demand obligatory visit to the doctor

16.3. Approaches and rules of symptomatic therapy of anxiety, asthenia, dyssomnia. Algorithm for the pharmaceutical care of a pharmacy visitor / patient with anxiety, asthenia, dyssomnia

16.4. Clinical and pharmacological features of OTC drugs used for the symptomatic treatment of anxiety, asthenia, dyssomnia

Topic 17. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of skin lesions

Objective: to learn the algorithm of the pharmacist's action during the OTC drugs dispensing for the symptomatic treatment of traumatic, infectious and parasitic skin lesions; principles of consulting and information delivery on issue of responsible self-medication of skin lesions

Outline:

17.1.1. The main causes and factors contributing to the development of traumatic skin lesions

17.1.2. «Threatening» symptoms of traumatic skin lesions, which demand obligatory visit to the doctor

17.1.3. Approaches and rules of symptomatic treatment of traumatic skin lesions. Algorithm for the pharmaceutical care of a pharmacy visitor / patient with closed and open surface wounds (cuts, burns, frostbite)

17.1.4. Clinical and pharmacological features of OTC drugs used for symptomatic treatment of closed and open surface wounds (cuts, burns, frostbite)

17.2.1. The main causes and factors contributing to the development of infectious and parasitic skin lesions

17.2.2. «Threatening» symptoms of infectious and parasitic skin lesions, which demand obligatory visit to the doctor

17.2.3. Approaches and rules of symptomatic treatment of infectious and parasitic skin lesions. Algorithm for the pharmaceutical care of a pharmacy visitor / patient with symptoms of herpes, pediculosis, scabies, mycoses

17.2.4. Clinical and pharmacological features of OTC drugs used for symptomatic treatment of infectious and parasitic skin lesions

Topic 18. Pharmaceutical care of patients with local disorders of blood circulation

Objective: to learn the algorithm of the pharmacist's action during the OTC drugs dispensing for patients with local disorders of blood circulation; principles of consulting and information delivery on issue of responsible self-medication of local disorders of blood circulation

Outline:

18.1. Causes and factors contributing to the development of local disorders of blood circulation

18.2. Symptoms of hemorrhoids and chronic vein disease, which can be treated by OTC drugs during responsible self-medication. «Threatening» symptoms of hemorrhoids and varicose veins of the lower extremities, which demand obligatory visit to the doctor (the algorithm of a choice of patients for mandatory referral to a doctor)

18.3. Clinical and pharmacological features of OTC drugs used for symptomatic treatment of local disorders of blood circulation

18.4. Algorithm of appropriate information about OTC drugs for the treatment of local disorders of blood circulation presented by the pharmacist during pharmaceutical care implementation for pharmacy visitor / patients.

Topic 19. Pharmaceutical care during OTC drugs dispensing for special groups of patients

Objective: to learn the algorithm of the pharmacist's action during the OTC drugs dispensing for symptomatic treatment of special groups of patients with different disorders of well-being; principles of consulting and information delivery on issue of responsible self-medication of different disorders of well-being

Outline:

19.1.1. Groups of people requiring special attention during responsible self-medication

19.1.2. Anatomical and physiological features of body of newborns, infants, children of pre-school and primary school age, teenagers, women during pregnancy and lactation

19.1.3. Possible influence of drugs on the course of pregnancy, childbirth, lactation

19.1.4. Features and limitation of self-medication in special groups of patients. Principles of pharmaceutical care of newborn babies, pregnant women and women during lactation

19.2.1. Anatomical and physiological features of the old and the elderly people

19.2.2. Possible influence of drugs on the health of the old and the elderly people

19.2.3. Problems of compliance of the old and the elderly people

19.2.4. Features and limitation of self-medication in special groups of patients. Principles of pharmaceutical care of the old and the elderly people

8. Practical Classes Topics

№	Topic	Hours
1	2	3
1	Topic 1. Basic principles of clinical pharmacy and clinical pharmacology. Adverse drug reactions. Principles of Good Clinical Practice	9
2	Topic 2. Clinical pharmacy in rheumatology	9
3	Topic 3. Clinical pharmacy in pulmonology	9
4	Topic 4. Clinical pharmacy in cardiology	15

1	2	3
5	Topic 5. Clinical pharmacy in nephrology	9
6	Topic 6. Clinical pharmacy in gastroenterology	8
7	Topic 7. Clinical pharmacy in hepatology	8
8	Topic 8. Clinical pharmacy in hematology	8
9	Topic 9. Clinical pharmacy in endocrinology	8
10	Topic 10. Clinical pharmacy in allergy	8
11	Topic 11. Basic principles of pharmaceutical care	4
12	Topic 12. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment and prevention of cold	6
13	Topic 13. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of indigestion	6
14	Topic 14. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of headache	4
15	Topic 15. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of joint and muscle pain	—
16	Topic 16. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of disorders of the nervous system activity	—
17	Topic 17. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of skin lesions	—
18	Topic 18. Pharmaceutical care of patients with local disorders of blood circulation	—
19	Topic 19. Pharmaceutical care during OTC drugs dispensing for special groups of patients	—
20	Topic 20. Pharmaceutical care during OTC drugs dispensing for preventive and therapeutic using of antihelmintic drugs	—
21	Topic 21. Pharmaceutical care during OTC drugs dispensing for elimination and prevention of vitamin deficiency	—
22	Topic 22. Clinical and pharmaceutical aspects of antibacterial drugs application in internal diseases	—
23	Topic 23. Interaction of drugs with food and alcohol	—
24	FINAL MODULAR CONTROL	7
Total Hours		118

Practical Classes Outline

Topic 1. Basic principles of clinical pharmacy and clinical pharmacology. Adverse drug reactions. Principles of Good Clinical Practice

Objective: to form the knowledge about the purpose and tasks of clinical pharmacy and clinical pharmacology, about the place of clinical pharmacy in the system of health care, the structure of clinical pharmacy and its importance for optimization of medical therapy, for professional activity of a pharmacist; to learn the main definitions and the fundamentals of clinical pharmacology; to acquire the skills to identify the advantages and disadvantages of original and generic drugs, to assess the pharmacokinetic parameters, to elaborate a plan for assessing the effectiveness and safety of treatment, to analyze the possible drug interaction

Outline:

1.1.1. The content of clinical pharmacy and its tasks

1.1.2. The basic definitions in fundamentals of clinical medicine. Medical documentation. Methods of clinical examination of a patient

1.1.3. The basic principles of clinical pharmacology. Clinical pharmacokinetics and pharmacodynamics

1.1.4. Drug interaction. Combined drug

1.1.5. Practical work

1.1.6. Test

- 1.2.1. Adverse drug reactions: classification, clinical manifestations, treatment and prevention
- 1.2.2. Basic side effects, which are special for particular pharmacological groups of drugs
- 1.2.3. Pharmacovigilance system in the world
- 1.2.4. Practical work
- 1.2.5. Test

1.3.1. Good Clinical Practice as a system of international rules and standards of carrying out clinical trials of drugs

- 1.3.2. Principles of the choice of study type and volunteers for clinical trials
- 1.3.3. Approaches to the drug efficacy evaluation
- 1.3.4. The value of pharmacology in the drug safety and tolerability assessment
- 1.3.5. Practical work
- 1.3.6. Test

Topic 2. Clinical pharmacy in rheumatology

Objective: be able to identify the symptoms and syndromes of the musculoskeletal system diseases; to choose approaches to treatment, necessary medicines for etiotropic, pathogenic and symptomatic treatment; to determine the criteria of the effectiveness and safety of the chosen therapy

Outline:

- 2.1.1. Symptoms and syndromes of the musculoskeletal system diseases
- 2.1.2. Approaches to the treatment of the musculoskeletal system diseases
- 2.1.3. Practical work
- 2.1.4. Test

2.2.1. Clinical and pharmacological features of drugs used for treatment of connective tissue autoimmune diseases (acute rheumatic fever, rheumatoid arthritis, systemic lupus erythematosus)

- 2.2.2. Criteria of drug efficiency and safety
- 2.2.3. Practical work. Analysis of doctor's prescriptions. Case solution
- 2.2.4. Test

2.3.1. Clinical and pharmacological features of drugs used for the treatment of metabolic and dystrophic diseases of musculoskeletal system (osteoarthritis, osteoporosis, gout)

- 2.3.2. Criteria of drug efficiency and safety
- 2.3.3. Practical work. Analysis of doctor's prescriptions. Case solution
- 2.3.4. Test

Topic 3. Clinical pharmacy in pulmonology

Objective: be able to identify the symptoms and syndromes of the pulmonary system diseases; to choose approaches to treatment, necessary medicines for etiotropic, pathogenic and symptomatic treatment; to determine the criteria of the effectiveness and safety of the chosen therapy

Outline:

- 3.1.1. Symptoms and syndromes of pulmonary system diseases
- 3.1.2. Approaches to the treatment of the pulmonary system diseases
- 3.1.3. Practical work
- 3.1.4. Test

3.2.1. Clinical and pharmacological features of drugs used for treatment of infectious pulmonary system diseases

- 3.2.2. Criteria of drug efficiency and safety
- 3.2.3. Practical work. Analysis of doctor's prescriptions. Case solution
- 3.2.4. Test

3.3.1. Clinical and pharmacological features of drugs used for treatment of asthma and chronic obstructive pulmonary diseases

- 3.3.2. Criteria of drug efficiency and safety
- 3.3.3. Practical work. Analysis of doctor's prescriptions. Case solution
- 3.3.4. Test

Topic 4. Clinical pharmacy in cardiology

Objective: be able to identify the symptoms and syndromes of the cardiovascular system diseases; to choose approaches to treatment, necessary medicines for etiotropic, pathogenic and symptomatic treatment; to determine the criteria of the effectiveness and safety of the chosen therapy

Outline:

- 4.1.1. Symptoms and syndromes of cardiovascular system diseases
- 4.1.2. Approaches to the treatment of the cardiovascular system diseases
- 4.1.3. Practical work
- 4.1.4. Test

4.2.1. Clinical and pharmacological features of drugs used for treatment of atherosclerosis and hypercholesterolemia

- 4.2.2. Practical work. Analysis of doctor's prescriptions. Case solution
- 4.2.3. Test

4.3.1. Clinical and pharmacological features of drugs used for treatment of ischemic heart disease

- 4.3.2. Practical work. Analysis of doctor's prescriptions. Case solution
- 4.3.3. Test

4.4.1. Clinical and pharmacological features of drugs used for treatment of arterial hypertension

- 4.4.2. Practical work. Analysis of doctor's prescriptions. Case solution
- 4.4.3. Test

4.5.1. International recommendation for chronic heart failure treatment

- 4.5.2. Practical work. Analysis of doctor's prescriptions. Case solution
- 4.5.3. Criteria of efficiency and safety of drug used in cardiology
- 4.5.4. Test

Topic 5. Clinical pharmacy in nephrology

Objective: be able to identify the symptoms and syndromes of the kidneys and urinary system diseases; to choose approaches to treatment, necessary medicines for etiotropic, pathogenic and symptomatic treatment; to determine the criteria of the effectiveness and safety of the chosen therapy

Outline:

- 5.1.1. Symptoms and syndromes of the kidneys and urinary system diseases
- 5.1.2. Approaches to the treatment of the kidneys and urinary system diseases
- 5.1.3. Practical work
- 5.1.4. Test

5.2.1. Clinical and pharmacological features of drugs used for treatment of infectious diseases of the kidneys and urinary system

- 5.2.2. Criteria of drug efficiency and safety
- 5.2.3. Practical work. Analysis of doctor's prescriptions. Case solution
- 5.2.4. Test

5.2.1. Clinical and pharmacological features of drugs used for treatment of the autoimmune kidney diseases, urolithiasis

- 5.2.2. Criteria of drug efficiency and safety
- 5.2.3. Practical work. Analysis of doctor's prescriptions. Case solution
- 5.2.4. Test

Topic 6. Clinical pharmacy in gastroenterology

Objective: be able to identify the symptoms and syndromes of the digestive system and pancreas diseases; to choose approaches to treatment, necessary medicines for etiotropic, pathogenic and symptomatic treatment; to determine the criteria of the effectiveness and safety of the chosen therapy

Outline:

6.1.1. Symptoms and syndromes of the digestive system and pancreas diseases

6.1.2. Approaches to the treatment of the digestive system and pancreas diseases. Rules of anti-helicobacter therapy

6.1.3. Practical work

6.1.4. Test

6.2.1. Clinical and pharmacological features of drugs used for treatment of the digestive system and pancreas diseases

6.2.2. Criteria of drug efficiency and safety

6.2.3. Practical work. Analysis of doctor's prescriptions. Case solution

6.2.4. Test

Topic 7. Clinical pharmacy in hepatology

Objective: be able to identify the symptoms and syndromes of the liver and biliary system diseases; to choose approaches to treatment, necessary medicines for etiotropic, pathogenic and symptomatic treatment; to determine the criteria of the effectiveness and safety of the chosen therapy

Outline:

7.1.1. Symptoms and syndromes of the liver and biliary system diseases

7.1.2. Approaches to the treatment of the liver and biliary system diseases

7.1.3. Practical work

7.1.4. Test

7.2.1. Clinical and pharmacological features of drugs used for treatment of the liver and biliary system diseases

7.2.2. Criteria of drug efficiency and safety

7.2.3. Practical work. Analysis of doctor's prescriptions. Case solution

7.2.4. Test

Topic 8. Clinical pharmacy in hematology

Objective: be able to identify the symptoms and syndromes of the hemopoetic system diseases; to choose approaches to treatment, necessary medicines for etiotropic, pathogenic and symptomatic treatment; to determine the criteria of the effectiveness and safety of the chosen therapy

Outline:

8.1.1. Symptoms and syndromes of the hemopoetic system diseases

8.1.2. Approaches to the treatment of anemias

8.1.3. Practical work

8.1.4. Test

8.2.1. Clinical and pharmacological features of iron-containing drugs

8.2.2. Criteria of drug efficiency and safety

8.2.3. Practical work. Analysis of doctor's prescriptions. Case solution

8.2.4. Test

Topic 9. Clinical pharmacy in endocrinology

Objective: be able to identify the symptoms and syndromes of diabetes mellitus and the thyroid glands diseases; to choose approaches to treatment, necessary medicines for etiotropic, pathogenic and symptomatic treatment; to determine the criteria of the effectiveness and safety of the chosen therapy

Outline:

9.1.1. Common symptomology and syndromology of endocrine system diseases

9.1.2. Symptoms and syndromes of the diffuse toxic goiter, the pituitary gland and adrenal glands diseases

9.1.3. Clinical pharmacology of drugs used for treatment of the diffuse toxic goiter, the pituitary gland and adrenal glands diseases

9.1.4. Criteria of drug efficiency and safety

9.1.5. Practical work. Analysis of doctor's prescriptions. Case solution

9.1.6. Test

9.2.1. Symptoms and syndromes of diabetes mellitus and its complications

9.2.2. Approaches of diabetes mellitus treatment, treatment and prevention of its complications

9.2.3. Clinical pharmacology of drugs used for treatment of diabetes mellitus

9.2.4. Practical work. Analysis of doctor's prescriptions. Case solution

9.2.5. Test

Topic 10. Clinical pharmacy in allergy

Objective: be able to identify the symptoms and syndromes of allergy diseases; to choose approaches to treatment, necessary medicines for etiotropic, pathogenic and symptomatic treatment; to determine the criteria of the effectiveness and safety of the chosen therapy

Outline:

10.1.1. Symptoms and syndromes of allergy diseases of the anaphylaxis type

10.1.2. Approaches to the treatment of allergy diseases of the anaphylaxis type

10.1.3. Practical work

10.1.4. Test

10.2.1. Clinical and pharmacological features of drugs used for treatment of allergy diseases of the anaphylaxis type

10.2.2. Criteria of drug efficiency and safety

10.2.3. Practical work. Analysis of doctor's prescriptions. Case solution

10.2.4. Test

Topic 11. Basic principles of pharmaceutical care

Objective: acquisition of the principles of assessment of the possibility of responsible self-medication; an algorithm of the pharmacist's actions in providing of pharmacy visitor / patient consultation in case of responsible self-medication; an algorithm for providing information about a medicinal product chosen for responsible self-medication

Outline:

11.1.1. The concept of pharmaceutical care. The role of pharmacist in providing of appropriate pharmaceutical care

11.1.2. Algorithm of the pharmacist's actions during OTC drugs dispensing for the symptomatic treatment of disorders of well-being

11.1.3. Definition of the concepts of "self-medication" and "responsible self-medication", "self-management", "self-prevention"

11.1.4. Practical work (practicing in algorithm of assessment of the possibility of responsible self-medication; case solution)

11.1.5. Test

11.2.1. Definition of the term "OTC drugs". The main features of OTC drugs. Criteria for the drug distribution in categories (prescribing, over-the-counter)

11.2.2. Definition of the concepts of "generic replacement", "therapeutic replacement". The appropriateness of drug replacement during the therapy

11.2.3. The definition of compliance. The role of a pharmacist in support of compliance

11.2.4. Practical work (comparative assessment of innovative and generic drugs; case solution)

11.2.5. Test

Topic 12. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment and prevention of cold

Objective: acquisition an algorithm of the pharmacist's actions during OTC drugs dispensing for symptomatic treatment and prevention of cold; practicing of pharmacist skills in providing consultation and information about self-medication in treatment and prevention of cold

Outline:

- 12.1.1. Factors contributing to the development of sore throat and cough
- 12.1.2. «Threatening» symptoms of sore throat and cough, which demand obligatory visit to the doctor
- 12.1.3. Approaches and rules of symptomatic treatment of sore throat and cough. Algorithm for the pharmaceutical care of a pharmacy visitor / patient with sore throat and cough
- 12.1.4. Clinical and pharmacological features of OTC drugs used for symptomatic treatment of sore throat and cough
- 12.1.5. Practical work (pharmaceutical care algorithm practicing; case solution)
- 12.1.6. Test

- 12.2.1. Factors contributing to the development of rhinitis and fever
- 12.2.2. «Threatening» symptoms of rhinitis and fever, which demand obligatory visit to the doctor
- 12.2.3. Approaches and rules of symptomatic treatment of rhinitis and fever. Algorithm for the pharmaceutical care of a pharmacy visitor / patient with rhinitis and fever
- 12.2.4. Clinical and pharmacological features of OTC drugs used for symptomatic treatment of rhinitis and fever
- 12.2.5. Practical work (pharmaceutical care algorithm practicing; case solution)
- 12.2.6. Test

- 12.3.1. Approaches of cold prevention. Algorithm for the pharmaceutical care of a pharmacy visitor / patient
- 12.3.2. Clinical and pharmacological features of OTC drugs used for cold prevention
- 12.3.3. Advantages and disadvantages of complex anti-flu drugs
- 12.3.4. Practical work (pharmaceutical care algorithm practicing; case solution)
- 12.3.5. Test

Topic 13. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of indigestion

Objective: acquisition an algorithm of the pharmacist's actions during OTC drugs dispensing for symptomatic treatment of digestion disorders; practicing of pharmacist skills in providing consultation and information about self-medication in digestion disorders

Outline:

- 13.1.1. Factors contributing to the development of heartburn
- 13.1.2. «Threatening» symptoms of heartburn, which demand obligatory visit to the doctor
- 13.1.3. Approaches and rules of symptomatic treatment of heartburn. Algorithm for the pharmaceutical care of a pharmacy visitor / patient with heartburn
- 13.1.4. Clinical and pharmacological features of OTC drugs used for symptomatic treatment of heartburn
- 13.1.5. Practical work (pharmaceutical care algorithm practicing; case solution)
- 13.1.6. Test

- 13.2.1. Factors contributing to the development of constipation
- 13.2.2. «Threatening» symptoms of constipation, which demand obligatory visit to the doctor
- 13.2.3. Approaches and rules of symptomatic treatment of constipation. Algorithm for the pharmaceutical care of a pharmacy visitor / patient with constipation
- 13.2.4. Clinical and pharmacological features of OTC drugs used for symptomatic treatment of constipation
- 13.2.5. Practical work (pharmaceutical care algorithm practicing; case solution)
- 13.2.6. Test

13.3.1. Factors contributing to the development of diarrhea, flatulence, bacterial overgrowth syndrome (dysbiosis)

13.3.2. «Threatening» symptoms of diarrhea, flatulence, bacterial overgrowth syndrome (dysbiosis), which demand obligatory visit to the doctor

13.3.3. Approaches and rules of symptomatic treatment of diarrhea, flatulence, bacterial overgrowth syndrome (dysbiosis). Algorithm for the pharmaceutical care of a pharmacy visitor / patient with diarrhea, flatulence, bacterial overgrowth syndrome (dysbiosis)

13.3.4. Clinical and pharmacological features of OTC drugs used for symptomatic treatment of diarrhea, flatulence, bacterial overgrowth syndrome (dysbiosis)

13.3.5. Practical work (pharmaceutical care algorithm practicing; case solution)

13.3.6. Test

Topic 15. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of headache

Objective: acquisition an algorithm of the pharmacist's actions during OTC drugs dispensing for symptomatic treatment of headache; practicing of pharmacist skills in providing consultation and information about self-medication in headache

Outline:

15.1.1. Concept of primary (migraine, tension type) and secondary (symptomatic) headache. Pathologic conditions and diseases accompanied by headache. Factors contributing to the development of headache

15.1.2. «Threatening» symptoms of headache, which demand obligatory visit to the doctor

15.1.3. Approaches and rules of symptomatic treatment of headache. Algorithm for the pharmaceutical care of a pharmacy visitor / patient with headache

15.1.4. Practical work (practicing in algorithm of assessment the possibility of responsible self-medication; case solution)

15.1.5. Test

15.2.1. Clinical and pharmacological features of OTC drugs used for symptomatic treatment of headache

15.2.2. Clinical and pharmacological features of OTC drugs used for symptomatic treatment of migraine

15.2.3. Practical work (pharmaceutical care algorithm practicing; case solution)

15.2.4. Test

9. Laboratory Practicals Topics

Not provided.

Laboratory Practicals Assignments

Not provided.

10. Individual Work

No	Topic	Hours
1	2	3
1	Topic 1. Basic principles of clinical pharmacy and clinical pharmacology. Adverse drug reactions. Principles of Good Clinical Practice	10
2	Topic 2. Clinical pharmacy in rheumatology	9
3	Topic 3. Clinical pharmacy in pulmonology	11

1	2	3
4	Topic 4. Clinical pharmacy in cardiology	12
5	Topic 5. Clinical pharmacy in nephrology	11
6	Topic 6. Clinical pharmacy in gastroenterology	10
7	Topic 7. Clinical pharmacy in hepatology	10
8	Topic 8. Clinical pharmacy in hematology	10
9	Topic 9. Clinical pharmacy in endocrinology	10
10	Topic 10. Clinical pharmacy in allergy	10
11	Topic 11. Basic principles of pharmaceutical care	3
12	Topic 12. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment and prevention of cold	2
13	Topic 13. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of indigestion	2
14	Topic 14. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of headache	3
15	Topic 15. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of joint and muscle pain	3
16	Topic 16. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of disorders of the nervous system activity	2
17	Topic 17. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of skin lesions	2
18	Topic 18. Pharmaceutical care of patients with local disorders of blood circulation	3
19	Topic 19. Pharmaceutical care during OTC drugs dispensing for special groups of patients	—
20	Topic 20. Pharmaceutical care during OTC drugs dispensing for preventive and therapeutic using of antihelmintic drugs	1
21	Topic 21. Pharmaceutical care during OTC drugs dispensing for elimination and prevention of vitamin deficiency	1
22	Topic 22. Clinical and pharmaceutical aspects of antibacterial drugs application in internal diseases	1
	Topic 23. Interaction of drugs with food and alcohol	1
23	Final modular control	11
Total Hours		138

Students' Individual Work Tasks

Principal aspects of medical documentation: the out-patient card of patient, the case record of an in-patient, the list of medical prescription. Placebo-effectors. Negative placebo-effectors as a group of risk of adverse drug reaction development. The concept "quality of life" concerning patients with chronic diseases and disorders of general state

Definition of scleroderma systematica. Bicillin prevention and bicillin therapy in treatment of acute rheumatic fever and chronic rheumatic heart disease. Clinical pharmacology of basic anti-inflammatory drugs (derivatives of quinoline, cytostatics, medicines of gold), including drugs suppressing proliferation of the connective tissue. Drugs affecting the structure and mineralization of the bone tissue

Definitions of emphysema of lungs, bronchoectatic disease, pleurisy, lung abscess. Clinical pharmacology of carbapenems. Combined drugs for treating bronchoobstructive syndrome. Modern special dosage forms used for treating the respiratory system diseases (the dosed aerosol and powder inhalers, spacers, nebulizers, etc.)

Definition of cardiosclerosis. Clinical pharmacology of drugs which improve cerebral circulation; angioprotectors and antioxidants; drugs of metabolic action. Clinical pharmacology of non-glycosides of positive inotropic agents. Clinical pharmacology of antiarrhythmic drugs. Drugs which affect the condition of cardiovascular system

Chronic cystitis: definition, signs, symptoms, syndromes, approaches to the treatment. Symptomatic arterial hypertension (renoparenchymatous and renovascular): definition, signs, symptoms, syndromes, approaches to the treatment. Clinical pharmacology of hypotensives

Definition of hemoblastosis (acute leukemia myeloleukemia, chronic lymphatic leukemia), erythremia. Clinical pharmacology of drugs which stimulate or inhibit erythro- and leukopoiesis. Drugs which toxically affect the condition of hemopoietic system

Clinical pharmacology of drugs which increase tone and stimulate motility of GIT (agonists of acetylcholine, antagonists of dopamine receptors), and also antiemetic drugs

Drugs that toxically affect the condition of GIT and pancreas

Chronic pancreatitis: symptoms, syndromes. Clinical pharmacology of polyelectrolyte drugs

Chronic cholecystitis: symptoms, syndromes, approaches to the treatment, clinical pharmacology of antibacterial drugs, criteria of efficiency and safety of chosen treatment

Endemic goiter, diabetic polyneuropathy, diabetic nephropathy: clinical manifestations, approaches to the treatment, clinical pharmacology of drugs, criteria of efficiency and safety of chosen treatment

Syndromes of drug disease (Lyell's syndrome, Stevens-Johnson syndrome). Polypharmacy as the cause of medicinal therapy complications

Practical functions of a pharmacist that are necessary for care realization (procedure of drug anamnesis gathering, working out the plan of monitoring of adverse drug reactions, preventive actions in possible manifestations of adverse drug reactions, etc.).

Modern dosage forms for treatment of cold and peculiarities of their use. Non-medicament methods of elimination of symptoms of cold

Modern dosage forms for treatment of indigestion and peculiarities of their use. Non-medicament methods of elimination of symptoms of indigestion

Modern dosage forms for treatment of headache (quick-soluble tablets, capsules of the prolonged action, etc.) and peculiarities of their use. Non-medicament methods of elimination of the headache

Modern dosage forms for treatment of dysfunction of the musculoskeletal system (creams, gels) and peculiarities of their use. Non-medicament methods of elimination of muscle and joint pain

Modern dosage forms for treatment of disorders of the nervous system activity (anxiety, asthenia, dysomnia) and peculiarities of their use. Non-medicament methods of elimination of symptoms of the nervous system activity disorders

Modern dosage forms for treatment and prevention of traumatic, infectious and parasitic skin lesions, peculiarities of their use. Non-medicament methods of elimination of symptoms of traumatic, infectious and parasitic skin lesions

Modern dosage forms for treatment and prevention of local disorders of the blood circulation and peculiarities of their use. Non-medicament methods of elimination of symptoms of local disorders of the blood circulation

The algorithm of the appropriate information presentation by a pharmacist about OTC drugs for treatment of helminthiasis while carrying out pharmaceutical care for visitors of chemist's shops/patients

Criteria of efficiency of therapy with OTC drugs for elimination and prevention of vitamin deficiency. Signs of vitamin overdose, ways of its prevention and treatment

Clinical and pharmaceutical aspects of antibacterial drugs application in internal diseases

The role of a pharmacist and the place of pharmaceutical care in prevention of undesirable interaction of drugs with food and alcohol

11. Individual tasks

Coursework is the search, review and analysis of the literary data and their compilation to an expanded scheme of pharmaceutical care of a physician and/or patient during the recommendation of one of the drugs registered in Ukraine.

Distribution of points:

Chapters of coursework														Design	Presentation	Total points
Ch - I	Ch - II	Ch - III	Ch - IV	Ch - V	Ch - VI	Ch - VII	Ch - VIII	Ch - IX	Ch - X	Ch - XI	Ch - XII	Ch - XIII	Ch - XIV			
3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	6-10	12-20	60-100

12. Teaching Method, Methodology and Technology

During teaching of a Subject "Clinical Pharmacy and Pharmaceutical Care" are used the following:

- teaching methods: verbal (lecture, story, explanation, conversation, discussion, etc.), visual (illustration, demonstration), practical methods (training exercises, practical work, workshops), heuristic, problem, research, reproductive, explanatory and illustrative methods;
- teaching methodology: direct, problem, integrated, traditional and mixed;
- teaching technologies: modular, informative (hypertext), computer, interactive, multimedia, case, research, simulation (game), discussion.

13. Control Techniques

During the assessment of knowledge of students the advantage is given to the standardized quality monitoring — oral and written test, control of practical skills.

The maximum of total points which the student can receive during the studying of each basic module makes 100 points, including those for current educational activity — 60 points, and for results of the final control — 40 points.

The minimum of total points which the student can receive during the studying of each basic module makes 60 points, including those for current educational activity — 36 points, and for results of the final control — 24 points.

The **current control** is done during in-class work and includes the assessment of theoretical knowledge, practical skills and individual work.

In-class work control is done every practical lesson (seminar) and includes oral question, individual conversation, test.

Individual work control estimates the level of knowledge which were acquired by students during the preparation to the lessons, individual work with the questions included in modules. Require the integration of individual work topics and questions in final modular control.

By the final modular control students should have at least 36 points as the results of current educational activity.

Final modular control is carried out after module completion. Students, who completed all types of work provided by the syllabus and have at least minimum points, are admitted to the final modular control. The form of the final modular control is standardized and includes the control of theoretical (25 points) and practical training (control of practical skills and abilities - 15 points), in the form of a test and case solution. The maximum of points for final modular control is 40.

The final modular control is passed, if the student receives at least 24 marks.

Students can get additional points for scientific work (up to 10 points), as well as penalty points.

Module points		
national scale	current module points in-class work	final modular control points
excellent	54-60	36-40
good	45-53	30-35
satisfactory	36-44	24-29
unsatisfactory	0-35	0-23

Rating scale: national and ECTS (European Community Course Credit Transfer System)

Students can get A, B, C, D, E rates if they were granted credits of all modules of academic subject. The quantity of points can be converted to a 4-point scale next way:

Total points	National scale	
	exams, coursework, practice training	credit
90-100 A	excellent	credit
82-89 B	good	
74-81 C		
64-73 D	satisfactory	
60-63 E		
35-59 F	unsatisfactory (with possibility of repeated pass)	unsatisfactory (with possibility of repeated pass)
1-34 FX	unsatisfactory with an obligatory repeated course (additional work is necessary)	unsatisfactory with an obligatory repeated course (additional work is necessary)

Students can get FX or F if they weren't granted at list one modules of academic subject after completing its study.

The FX ("2") is graded to students who have received the minimum quantity of points for the current academic activity, but did not pass a final modular control. They have the rights to repeat the final modular control no more than 2 times within 2 weeks after the end of the semester according to the schedule approved by the rector.

Students who got F (they did not complete a program at least one module or did not receive the minimum quantity of points for the current academic activity) should repeat grade according to an individual curriculum.

14. Form of the final control of the study progress (Credit of test)

Grade.

15. Grading Scheme

Current assessment, test and individual work					Final control	Total
M1. Thematic module 1			M1. Thematic module 2		24-40	60-100
T1	T2	T3	T4	T5		
6-10	6-10	6-10	12-20	6-10		
M2. Thematic module 3					24-40	60-100
T6	T7	T8	T9	T10		
7,2-12	7,2-12	7,2-12	7,2-12	7,2-12		
M3. Thematic module 4 (1 st cycle)			M3. Thematic module 5 (2 nd cycle)		24-40	60-100
T11	T12	T13	T14	T15-T19		
3-5	6-10	6-10	3-5	12-20		

16. Methodological Support**Educational and methodological manuals and recommendations**

1) *Clinical Pharmacy* (educational and methodological manual): manual for student of higher schools / I. A. Zupanets, I. S. Chekman, S. B. Popov et al., edited by I. A. Zupanets, I. S. Chekman. – Kharkiv : NUPh : Golden Pages, 2010. – 184 p.

2) *Bezugla N.P.* Clinical Pharmacy in Rheumatology : method. recommend. for classroom work of stud. spec. 7.12020101 «Pharmacy» of pharm. instit. and pharm. faculties of higher med. schools of the III-IV accred. level / N. P. Bezugla, T. S. Zhulay, S. M. Zimin ; edited by I. A. Zupanets. – Kharkiv : NPhU, 2011. – 40 p.

3) *Propisnova V. V.* Clinical Pharmacy in Pulmonology : method. recom. for classroom work of stud. spec. 7.12020101 «Pharmacy» and 7.12020104 «Technology of Perfumery and Cosmetics» of pharm. higher schools and pharm. faculties of med. higher schools of the III-IVth accred. levels / V. V. Propisnova, K. O. Zupanets ; under the editorship of I. A. Zupanets. – Kharkiv : NUPh, 2013. – 64 p.

4) *Grintsov Ye. F.* Clinical Pharmacy in Cardiology. Atherosclerosis. Ischemic heart disease. Antianginal medicines : method. recommend. for classroom work of stud. spec. 7.12020101 «Pharmacy» and 7.12020104 «Technology of Perfumery and Cosmetics» of higher pharm. educ. instit. and pharm. faculties of higher med. schools of the III-IV-th accred. level / Ye. F. Grintsov, O. O. Tarasenko, O. V. Gerasymenko ; under the editorship of I. A. Zupanets. – Kharkiv : NPhU, 2012. – 60 p.

5) *Clinical Pharmacy in Cardiology: Essential arterial hypertension. Symptomatic arterial hypertension. Antihypertensive drugs* : method. recommend. for in-class work of students / Ye. F. Grintsov, O. O. Tarasenko, O.G. Kolousova, et al. ; edited by I. A. Zupanets. – Kharkiv : NUPh, 2014. – 56 p.

6) *Clinical Pharmacy in Cardiology: Chronic heart failure* : method. recommend. for in-class work of students / Ye. F. Grintsov, O. O. Tarasenko, V. A. Moroz et al. ; edited by I. A. Zupanets. – Kharkiv : NUPh, 2017. – 32 p.

7) *Shebeko S. K.* Clinical Pharmacy in Nephrology : method. recommend. for in-class work of students / S. K. Shebeko, T. S. Zhulay, S. M. Zimin ; edited by I. A. Zupanets. – Kharkiv : NUPh, 2016. – 56 p.

8) *Propisnova V. V.* Clinical Pharmacy in Haematology : method. recommend. for classroom work of stud. spec. 7.12020101 «Pharmacy» and 7.12020104 «Technology of Perfumery and Cosmetics» of pharm. higher schools and pharm. faculties of med. higher schools of the III-IV-th accred. levels / V. V. Propisnova, K. O. Zupanets ; under the editorship of I. A. Zupanets. – Kharkiv : NUPh, 2013. – 64 p.

9) *Zhulay T. S.* Clinical Pharmacy in Gastroenterology : method. recommend. for in-class work of students / T. S. Zhulay, S. M. Zimin ; edited by I. A. Zupanets. – Kharkiv : NUPh, 2014. – 64 p.

10) *Clinical Pharmacy in Hepatology: method. recommend. for in-class work of students* / S. V. Misiurova, K. O. Zupanets, V. E. Dobrova et al. ; edited by I. A. Zupanets. – Kharkiv : NUPh, 2016. – 44 p.

11) *Gerasymenko O.V.* Clinical Pharmacy in Endocrinology : method. recommend. for classroom work of stud. spec. 7.12020101 «Pharmacy» and 7.12020104 «Technology of Perfumery and Cosmetics» of higher pharm. educ. instit. and pharm. faculties of higher med. schools of the III-IV accred. level / O.V. Gerasymenko, K.O. Zupanets ; under the editorship of I.A. Zupanets. – Kharkiv : NPhU, 2012. – 48 p.

12) *Tkachenko K. M.* Clinical Pharmacy in Allergology : method. recommend. for in-class work of students / K. M. Tkachenko, A. M. Semenov, T. S. Zhulay, S. M. Zimin ; edited by I. A. Zupanets. – Kharkiv: NUPh, 2016. – 44 p.

13) *Pharmaceutical care for the symptomatic treatment of headache* : method. recommend. for in-class work of students / T. S. Sakharova, S. V. Misiurova, I. A. Otrishko et al. ; edited by I. A. Zupanets. – Kharkiv : NUPh, 2016. – 28 p.

Handbooks

1) Компендиум 2016 – лекарственные препараты / В.Н. Коваленко, С.В. Сур, И.А. Зупанец и др.; под ред. В.Н. Коваленко. – Киев : Морион, 2016. – 2448 с.

2) Опека пациента в практике врача и провизора. Руководство по применению лекарственных средств : пособие / под ред. И.А. Зупанца, В.П. Черних. – Киев : Украинский

медицинский вестник, 2011. – 480 с. (Рекомендовано ПК «Клиническая фармакология и клиническая фармация» МОЗ и НАМН Украины, Протокол № 8 от 21.11.2011г.).

3) Протоколи провізора (фармацевта) / розроб. : В.П. Черних, І.А. Зупанець, М.М. Нестерчук та ін. ; за ред. В.П. Черних, І.А. Зупанця, О.М. Ліщишиної. – Х. : Золоті сторінки, 2013. – 192 с. (затверджені наказом МОЗ України № 284).

Handouts.

Videos.

- 1) Educational film «Fist patient».
- 2) Educational film «Clinical pharmacy in pulmonology».
- 3) Educational film «Clinical pharmacy in hepatology».
- 4) Educational film «Clinical pharmacy in endocrinology. Diabetes mellitus».
- 5) Educational film «Clinical pharmacy in endocrinology . Iodine deficiency».
- 6) Educational film «Pharmaceutical care in symptomatic treatment of cough»
- 7) Educational film-presentation «Pharmaceutical care in symptomatic treatment of runny nose (rhinitis, rhinosinusitis)»
- 8) Educational film-presentation «Pharmaceutical care of patients with signs of the kidney and urinary system diseases»
- 9) Multimedia lectures according the schedule

17. Bibliographical Guidance

Main

1) *Fundamentals of clinical medicine: symptoms and syndromes in the pharmacy practice : manual* / I. A. Zupanets, S. B. Popov, Yu. S. Rudyk et al. ; ed. by V. P. Chernykh, V. M. Lesovoy, I. A. Zupanets. – Kharkiv : Golden Pages, 2012. – 94 p.

2) *Clinical Pharmacy (educational and methodological manual): manual for student of higher schools* / I. A. Zupanets, I. S. Chekman, S. B. Popov et al., edited by I. A. Zupanets, I. S. Chekman. – Kharkiv : NUPh : Golden Pages, 2010. – 184 p.

3) *Зупанець І.А. Фармацевтичеська опіка : атлас* / І.А. Зупанець, В.П. Черних, С.Б. Попов и др. ; под ред. І.А. Зупанця, В.П. Черних. – Киев : Фармацевт Практик, 2007. – 146 с.

4) *Клиническая фармация : базов. учеб. ; изд. дораб. и доп. / под ред. В.П. Черних, І.А. Зупанця, І.Г. Купновицької. – Харьков : НФаУ : Золотые страницы, 2015. – 1056 с.*

5) *Клінічна фармація : підруч. / І. А. Зупанець, В. П. Черних, І. Г. Купновицька та ін. ; за ред. В. П. Черниха, І. А. Зупанця, І. Г. Купновицької. – Харків : Вид-во НФаУ : Золоті сторінки, 2013. – 912 с.*

6) *Клінічна фармакологія : підручник / О.Я. Бабак, О.М. Біловол, Н.П. Безугла ; за ред. О.Я. Бабака, О.М. Біловола, І.С. Чекмана. – 2-ге вид., перероб. та доп. – Київ : Медицина, 2010. – 776 с.*

7) *Клінічна фармація (фармацевтична опіка) : підруч. для студ. вищ. мед. (фармац.) навч. закл. / І.А. Зупанець, В.П. Черних, Т.С. Сахарова та ін. – Харків : НФаУ : Золоті сторінки, 2011. – 704 с.*

8) *Клінічна фармація : навч. посіб. для студ. вищ. навч. закл. / І.А. Зупанець, І.С. Чекман, С.Б. Попов та ін. ; за ред. І. А. Зупанця, І.С. Чекмана. – Харків : Вид-во НФаУ : Золоті сторінки, 2009. – 176 с.*

9) *Клінічні дослідження. Терміни та визначення : довідник / за заг. ред. В.М. Коваленка, І.А. Зупанця. – Харків : Золоті сторінки, 2016. – 340 с.*

10) *Клінічні лабораторні методи дослідження / І.А. Зупанець, В.Ф. Москаленко, С.В. Місюрьова та ін. ; за ред. І.А. Зупанця, В.Ф. Москаленка. – 2-ге вид., перероб. і доп. – Харків : Вид-во НФаУ : Золоті сторінки, 2001. – 178 с.*

11) *Основи клінічної медицини: симптоми та синдроми в практичній фармації : навч. посіб. / І.А. Зупанець, С.Б. Попов, Ю.С. Рудик та ін. ; за ред. В.П. Черних, І.А. Зупанця. – Харків : Золоті сторінки, 2010. – 92 с.*

12) *Протоколи провізора (фармацевта) / розроб.: В.П. Черних, І.А. Зупанець, О.О. Нагорна та ін. ; за ред. В.П. Черних, І.А. Зупанця, О.М. Ліщишиної. – Харків : Золоті сторінки, 2014. – 232 с.*

Auxiliary

1) *Компендиум 2016 – лекарственные препараты / под ред. В.Н. Коваленко. – Киев : Морион, 2016. – 2448 с.*

2) *ОТС™: ответственное самолечение / под ред. И.А. Зупанца, И.С. Чекмана. – 6-е изд., перераб. и доп. – Киев : Фармацевт Практик, 2010. – 207 с.*

3) *Кукес В.Г. Клиническая фармакология и фармакотерапия / под ред. В.Г. Кукеса, А.К. Стародубцева. – М. : ГЭОТАР-Медиа, 2012. – 840 с.*

4) *Фармацевтична опіка : практичний посібник / І. Зупанець, В. Черних, С. Попов та ін. ; за ред І. Зупанця, В. Черниха. – Київ : Фармацевт Практик, 2016. – 208 с.*

5) *Rx index – довідник еквівалентності лікарських засобів. – Київ : Фармацевт Практик, 2016. – 848 с.*

6) *British Medical Association. New Guide to Medicines and Drugs. – 9th ed. – London : Dorling Kindersley, 2015. – 512 p.*

7) *Clinical Pharmacy and Therapeutics. – 5th ed. / Eds Roger Walker and Cate Whittlesea. – London : Churchill Livingstone, 2012. – 998 p.*

8) *Current Medical Diagnosis and Treatment / S.J. McPhee, M.A. Papadakis, M. Lawrence et al. ; ed. by M. Lawrence. – New York : McGraw-Hill Medical, 2008. – 1672 p.*

9) *Harrison's Principles of Internal Medicine / A.S. Fauci, E. Braunwald, D.L. Kasper et al. – New York : McGraw-Hill Medical, 2008. – 2754 p.*

10) *Koda-Kimble & Young's Applied Therapeutics : The Clinical Use Of Drugs / ed. by B.K. Alldredge, R.L. Corelli, M.E. Ernst et al. – 10th ed. – New York : Wolters Kluwer ; Lippincott Williams & Wilkins, 2013. – 2560 p.*

11) *Standards of Medical Care in Diabetes-2015 : Summary of Revisions // Diabetes Care. – January 2015. – Vol. 38, Suppl. 1. – 93 p.*

12) *Symptoms in the Pharmacy : A Guide to the Management of Common Illness. – 7th ed. / Ed. A. Blenkinsopp, P. Paxton and J. Blenkinsopp. – Oxford : John Wiley & Sons Ltd, 2014. – 384 p.*

13) *Textbook of Therapeutics : Drug and Disease Management / ed. by R.A. Helms. – 9th ed. – Philadelphia : Williams & Wilkins, 2009. – 3000 p.*

18. Information Resources, including on the Internet

1) *Накази МОЗ України. База стандартів медичної допомоги в Україні [Електронний ресурс]. – Режим доступу : http://www.moz.gov.ua/ua/portal/register_standardsofmedicalaid/. – Назва з екрану.*

2) *2013 ESH/ESC Guidelines for the management of arterial hypertension [Електронний ресурс]. – Режим доступу : <http://www.eshonline.org/guidelines/arterialhypertension/arterial-hypertension-guidelines>. – Назва з екрану.*

3) *2016 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure [Electronic resource]. – Access mode : <http://eurheartj.oxfordjournals.org/content/ehj/37/27/2129.full.pdf>. – Title from screen*

4) *Management of Helicobacter pylori infection – the Maastricht IV/ Florence Consensus Report : Guidelines [Електронний ресурс] / P. Malfertheiner F. Megraud, C.A O'Morain et al. // Gut. – 2012. – Vol. 61, 5. – P. 646–664. – Режим доступу : <http://gut.bmj.com/content/61/5/646.long>. – Назва з екрану.*

5) *Standards of Medical Care in Diabetes-2015 : Summary of Revisions // Diabetes Care. — January 2015. — Vol. 38, Suppl. 1. — 93 p.*

Electronic educational publications.

1) *Клінічна фармація : навч. посіб. для студ. вищ. навч. закл. / І.А. Зупанець, І.С. Чекман, С.Б. Попов та ін. ; під ред. І.А. Зупанця, І.С. Чекмана. — Х. : Вид-во НФаУ : Золоті сторінки, 2009. – 176 с.*

2) Основи клінічної медицини: симптоми і синдроми в практичній фармації: навч. посібник / І.А. Зупанець, С.Б. Попов, Ю.С. Рудик та ін.; за ред. І.А. Зупанця, В.П. Черниха. – Х.: Вид-во НФаУ: Золоті сторінки, 2010. – 128 с.

Internet.

1) Syllabuses, schedules, tasks for individual work, requirements for the course work at the site of the Department of Clinical Pharmacology and Clinical Pharmacy –

<http://clinpharm.nuph.edu.ua/servise/klinicheskaya-farmaciya-i-farmaceuticheskaya-opeka>

2) Lectures of the academic subject «Clinical Pharmacy and Pharmaceutical Care» at the site of the Department of Clinical Pharmacology and Clinical Pharmacy –

<http://clinpharm.nuph.edu.ua/article/lekicii-po-kffo>

3) Multimedia lectures, electronic textbooks and manual with hyperlinks at the site of

Technology of Distance Teaching Center of NUPh – <http://www.pharmel.kharkiv.edu/>;

Department of Clinical Pharmacology and Clinical Pharmacy — <http://clinpharm.nuph.edu.ua>.

4) Test for license exam KROK-2 at the site of Technology of Distance Teaching Center of NUPh

<http://krok.nuph.edu.ua/moodle30/enrol/index.php?id=43> or <http://www.pharmel.kharkiv.edu/>;

Department of Clinical Pharmacology and Clinical Pharmacy —

<http://clinpharm.nuph.edu.ua/servise/krok-2-farmaciya>.