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PHARMACOLOGY AND **C**LINICAL **P**HARMACOLOGY **D**EPARTMENT

METHODICAL INDICATIONS (SYLLABUS) FOR CLINICAL PHARMACOLOGY PRACTICAL WORKS

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INTRODUCTION

Methodological indications (Syllabus) aim to systematize, unify and profile teaching of clinical pharmacology and include 4 interrelated devisions.

The first devision reflects ap-to-dateness of the topic, educational task and didactic aims, which are directed to show the learning necessity of the given topic.

The second devision shows the main moments of morphology, physiology, biochemistry, pathological physiology and others, necessary for students for a better understanding and knowledge acquiring in clinical pharmacology domain.

The third devision includes questions for self-training, drug's characteristics of the main pharmacological classes and questions on medical prescriptions.

The fourth devision includes the drugs' selection for the personal doctors' form and for rational utilization of P-medicine to criteria of efficacy, harmless, acceptibility and price.

Questions for self-training are composed and systematized on the base of studed didactic and scientific literature with orientations according to necessities of clinical subjects and practical medicine. They correspond to the topics' plan and contain a definite volume of concrete information.

Characteristics of the main drugs of every pharmacological class concentrate the students' attention on typical drug representativesof respective pharmacological groups, which are used more often in professional activity.

Questions on medical prescriptions are intended for compulsory drugs in different medicinal forms. Medical prescriptions contribute to the formation of drug selection skills for definite diseases and pathological states. In most of the cases the attention is particulary paid to urgent cases or to the most typical pathological states.

Thus, methodical indications (syllabus) a designed for students' individual work organization during practical hours, for additional study of literature, which will contribute to the development of a rational efficient and safe treatment skilles.

Thematic plan

of practical lessons and theoretical courses in clinical pharmacology
for the department of general medicine (V,VIth years)

№	Name of the themes	Number of hours		
	V th year	Altogether	Practical lessons	Theory courses
1.	Clinical pharmacology and its tasks. Pharmacokinetic, pharmacogenetic and pharmacodynamic principles of application for individualization and optimization of rational drugs administration. The concept of rational drugs using. Principles of prescription and rational using of remedies (P – medicines and P - treatment). Form system. Pharmacotherapeutic form. Drugs minimum standard in curing of the most widespread diseases and pathological states.	6	4	2
2.	Pharmacokinetic and pharmacodynamic principles of rational using of general and local anaesthetics, opioid analgesics, and antipyretics.	6	4	2
3.	Pharmacokinetic and pharmacodynamic principles of rational using of hypnotics, anticonvulsives and psychotropic drugs (psycholeptics and psychoanaleptics)	6	4	2
4.	Pharmacokinetic and pharmacodynamic principles of rational using of autonomic drugs.	6	4	2
5.	Pharmacokinetic and pharmacodynamic principles of rational using of anti – inflammatory, antiallergical and influencing immune processes drugs.	6	4	2
6.	Pharmacokinetic and pharmacodinamic principles of rational using of hormones and hormones antagonists drugs.	6	4	2
7.	Pharmacokinetic and pharmacodynamic principles of remedies that influence the uterus. Peculiarites of drugs used during pregnancy and breast-feeding. Drug action on the fetus and the newborn. Pharmacokinetic, pharmacogenetic and pharmacodynamic applicational principles of individualization and optimization of drug rational administration in children.	6	4	2
8.	Pharmacokinetic and pharmacodynamic principles of rational using of remedies that	6	4	2

	influence the general metabolism.			
9.	Pharmacokinetic and pharmacodynamic principles of rational using of antibiotics.	6	4	2
10.	Pharmacokinetic and pharmacodynamic principles of rational using of chemotherapeutic drugs (sulfonamides and substances with diverse chemical structures).	6	4	2
	VIth year			
11.	Pharmacokinetic and pharmacodynamic principles of rational using of remedies affecting the respiratory system.	6	4	2
12.	Pharmacokinetic and pharmacodynamic principles of rational using of cardiac glycosides and other cardiostimulants used in congestive heart failure.	6	4	2
13.	Pharmacokinetic and pharmacodynamic principles of rational using of antiarrthythmic and antianginal drugs.	6	4	2
14.	Pharmacokinetic and pharmacodinamic principles of rational using of drugs used in pathological states with arterial pressure changes. Cerebral and peripherial vasodilators.	6	4	2
15.	Pharmacokinetic and pharmacodynamic principles of rational using of drugs acting on acido-alkaline and hydro-electrolytical balances, on plasma volume expanders and diuretics.	6	4	2
16.	Pharmacokinetic and pharmacodynamic principles of rational using of remedies acting on hemostasis and fibrinolysis.	6	4	2
17.	Pharmacokinetic and pharmacodinamic principles of rational using of remedies used in gastrointestinal tract diseases.	6	4	2
18.	Side effects of the drugs and complications of pharmacotherapy. Drug supervision system. Drug interactions. Intoxications pharmacology.	6	4	2
	Total	**108**	**72**	**36**

Thematic plan

Of practical lessons and theoretical courses on clinical pharmacology for stomatology faculty (IV th years)

1.	Pharmacokinetic and pharmacodynamic principles of rational using of analgesics, general and local anesthetic, sedative,	6	4	2

	hypnotic, tranquillizer and narcoleptic drugs.			
2.	Pharmacokinetic and pharmacodynamic principles of rational using of anti-inflammatory, anti-allergy and drugs acting on immune processes.	6	4	2
3.	Pharmacokinetic and pharmacodynamic principles of rational using of drugs affecting hemostasis and fibrinolysis. Blood and plasma volume expanders.	6	4	2
4.	Pharmacokinetic and pharmacodynamic principles of rational using of antibacterial drugs.	6	4	2
5.	Pharmacokinetic and pharmacodynamic principles of rational using of drugs influencing general and phosphoro -calcium metabolism; Vitamins, enzymes and antienzymes.	6	4	2
6.	Pharmacokinetic and pharmacodynamic principles of rational using of drugs affecting the oral mucus and dental pulp. Drug therapy complication in stomatology.	6	4	2
7.	Differentiated examination.			
	Total	**36**	**24**	**12**

PRACTICAL SKILLES IN CLINICAL PHARMACOLOGY WHICH SHOULD BE GAINED BY THE IVth Vth and VIth YEARS STUDENTS.

1. To make a review of literature dealing with problems of clinical pharmacology.
2. To analyze the results of drugs pharmacodynamic and pharmacokinetic investigations.
3. To select the methods of clinical, paraclinical and laboratory investigations in order to estimate therapeutical effects of the drugs used by patients.
4. To make a suitable election of the most efficient and harmless pharmacological drugs for a certain patient.
5. To select the best regimen of dosing and suitable ways of administration to all patients, according to pharmacokinetic and pharmacodynamic peculiarities of the drugs and physiological (age, sex, etc.) and pathological state of concrete patient.
6. To recommend the most efficient and harmless association of drugs and/or combined drugs in certain clinical situation concerning the basic principles of rational pharmacotherapy (efficiency innocuousness, and cost of treatment).
7. To forecast and reveal at initial stage possible side – effects of prescribed drugs and to make a profylactic treatment.
8. To select the necessary information in order to involve the patient in the curative process and to increase the responsibility for his own health.
9. To implement in practice the new medical data about rational pharmacotherapy, and new pharmacologic groups of drugs.
10. To use the accumulated knowledge in studying of pharmacokinetics, pharmacodynamics, of side – effects and drug interactions for making a rational and differentiate pharmacotherapy.
11. To make a suitable selection of drugs and to prescribe a rational drug treatment which would include the most productive, harmless, suitable and proper medicines.
12. To select the minimum number of investigational methods to estimate the drugs pharmacodynamic effects and the assessment of the obtained results.
13. To know the principles of P – medicines and P – treatment selection.
14. To know the basic principles of clinical investigations of the new imported and native drugs.
15. To know the modality and principles of elaboration and usage of pharmacotherapeutic form and minimum standards of treatment of the most widespread diseases and pathological states as weel as other acts that regulate the drugs prescription and usage.
16. To know and to implement the system of drug supervision.
17. To apply the pharmacokinetic and pharmacodynamic rational usage of drugs according to P – medicine and P – treatment system.

The scheme of patients' case report

The goal: to train the students for a selection done by him/herself of the most efficient and harmless drug for a sertain patient.

1. Passport data (Surname, Name, Patronymic, profession, age).
2. Present history.
3. Diagnosis (basic, complications, associated diseases).
4. Clinical picture and the disease evolution (duration, symptoms).
5. Previous treatment (to enumerate, chronologically the used drugs, their efficiency and side - effects).
6. Clinical and laboratory examination data (to enumerate the pathological changes in the organs and systems; instrumental and laboratory data, the doctors recommendations).
7. Treatment analysis (according to the list of drug therapy, which is based on pharmacokinetics, pharmacodynamics, side – effects, drug interaction, drug election, efficiency and innocuousness of their administration, possible associations according to the patient's age, the severity of the disease, functional state of vital important organs, organism's reactivity, pregnancy, lactation.
8. Daily watching of pharmalogical effect of the prescribed drugs according to general state: subjective, objective, paraclinical and instrumental findings. Treatment efficiency estimation, and if it is necessary, to make the necessary corrections.
9. Conclusion (suggest your own investigation and treatment plan, arguing the most efficient and harmless drugs, doses and dosing regimen, ways of administration selection and possible association).

N O T E: - patient's distribution is done on the first day of the cycle,
- the case report is presented on the last day.

GENERAL MEDICINE

Vth year

The plan and timetable of practical lessons (hours)

1. Organizational moment and introduction in the subject (frequency control, homework etc.)……..…….……..5 min
2. Answers to questions……...……...….10 min
3. Determination of initial level of knowledge (written test)……...……...…20 min
4. Microcuration (elaboration, verification, and filling in a treatment file)……....20 min
5. Discussing and consolidating the knowledge (using of tables, lantern, slides, schemes, lectures, patient's presentation)……60 min
6. Demonstration of new drugs at respective theme and acquainting with their adnotation. Determination of their place within medicines arsenal from the given groups……..10 min
7. Tests and clinical situations……..……...…30 min
8. Essential material generalization……...……....5 min
9. Determination of the final level of knowledge……..…….20 min
10. Theoretical course……...…….90 min

NOTE: 1. The patients are distributed for curing in the first day.
2. Treatment file is marked at the end of the cycle.
3. 2 hours are planned for knowledge control (written test) in the last day.
4. A - 10 - minute - pause is given after every 45min (academic hour).

CLINICAL PHARMACOLOGY AND IT TASKS. APPLICATIONS OF PHARMACOKINETIC, PHARMACOGENETIC AND PHARMACODYNAMIC PRINCIPLES FOR INDIVIDUALIZATION AND OPTIMIZATION OF RATIONAL DRUG ADMINISTRATION. CONCEPT OF RATIONAL USAGE OF DRUGS. PRINCIPLES OF RATIONAL PRESCRIBING AND USING OF DRUGS (P- MEDICINES AND P-TREATMENT). THE FORM SYSTEM. PHARMACOTERAPEUTIC FORM. MINIMUM STANDARD OF DRUGS IN TREATMENT OF THE MOST WIDESPREAD DISEASES AND PATHOLOGICAL STATES.

A. Actuality

Knowing of pharmacokinetic variables of drugs - distribution and transformation parameters in the body, relations between plasmatic concentration and pharmacological effects of preparation will allow to apply a rational selection of the most adequate road of drug administration and to establish the best dosage regimen. Applying the general principles of drugs effects, action place and mechanism of action have a great importance for studying of special pharmacology and elaboration of rational pharmacotherapy.

B. Training aim

To study the general principles of pharmacokinetics, pharmacodynamics, pharmacogenetics for optimization of drugs administration and estimation of drugs efficiency.

C. Didactic aims

The student should be able to:

a) Select a minimum complex of investigational methods for pharmacodynamic effect estimation of various drugs depending on their pharmacological group efficacy.

b) Analyze and estimate pharmacodynamic results of drugs from different pharmacological groups.

c) Prognosticate possible complications and side – effects followed from drugs pharmacodynamics and pharmacokinetics.

d) Prognosticate dependence of side – effects appearance on dosage regimen of drugs and functional state of body organs.

e) Apply ap-to date methods of pharmacological correction of drugs adverse reactions, determined by pharmacokinetic, pharmacodynamic and pharmacogenetic peculiarities of pharmacological groups.

D. Knowledge from other studied tangent subgects

Biochemistry. Regulatory mechanisms of biochemical processes (adenylatcyclasic,"ionic pump" mechanism, etc.) ways of metabolization of chemical compounds of the main pharmacological groups.

Notions: dissociation, ionization. The main types of chemical bounds of organic compounds.

Physiology, physiopathology, histology. Absorption of chemical compounds from the site of administration : enteral (gastrointestinal tract), for parenteral delivery (intramuscularly, intravenous, subcutaneous) and other routes of administration(transdermal, inhalational, etc.). Modification of chemical compounds absorption in functional and morphological lesions of tissues, organs and systems. Functional state of the liver and its role in different chemical substances metabolism. Functional

organization of the autonomic nervous system. Neurotransmitters chemistry of autonomic nervous system, their role in regulation of biological systems.

Clinical subjects. Etiology, pathogeny, clinical picture of the most important diseases, paraclinical and laboratory findings, treatment principles, indications, contraindications for drug administration. Notion of „pathogenic" treatment and „symptomatic" treatment. The main manifestations of drugs' side - effects. Patent's submission to some laboratory investigations (electrocardiograma, spirogramme, pneumotahometria, cycloergomethria, reographia etc.). Selection of necessary laboratory investigations to perform pharmacodynamic study of different groups of drugs.

Pharmacology. Basic principles of pharmacokinetics (absorption, distribution and redistribution, metabolism and elimination). Pharmacogenetics (enzymopathies) and influence of drugs on genetic materials. Pharmacodynamics (notion of receptors, types and subtypes, primary and second pharmacological effects, typical mechanisms of action. Notion of dose and its types, dose – effect relation. Drug interaction in the body (competition, antagonism, synergism).

E. Questions for self training

1. Clinical pharmacology and its tasks. Correlation between pharmacokinetics and pharmacodynamics in clinical evolution of drug effects.
2. Pharmacokinetics. Main parameters of pharmacokinetics, bioavailability, apparent volume of distribution, drug clearance, half-life time, plasma concentration, dosing regimen. Factors that influence pharmacokinetic parameters of drugs.
3. Drug absorbtion. Roads of administration and their pecularietis. Factors that influence the absorbtion, liposolubility and electrolytic dissociation degree. Drug interaction at absorption level.
4. Distribution and redistribution of drugs. Penetration peculiarities across barriers and biological membranes. Plasmatic proteins, formed elements and their importance in drug distribution. Drug interaction at distributional level.
5. Drugs metabolism and clinical importance. Enzymatic reaction of drug metabolism. Changes of metabolism at the associated and repeated drugs administration.
6. Drug elimination from the body. Biotransformation and excretion as elimination modality.
7. Drug excretion. Renal excretion. Drug interaction at excretion level. Peculiarities of drug purge in persons with renal insufficiency.
8. Other routes of drug excretion : lungs, bile, saliva, breast milk, skin, genital secretion.
9. The pharmacokinetics peculiarities in young people (neonate, premature baby, infant, child, young adult) and in old people. Notion of geriatric drugs.
10. Pharmacogenetics and its tasks. Clinical aspects of enzymopathias, enzyme induction and suppression.
11. The pharmacodynamic process. The types and typical mechanisms of drug action. Drug – receptor interaction.
12. Drug action via the inhibition of transport processes (cations, organic acids, neurotransmitters).
13. Drug action at cell level. Peculiarities of the action at cell membrane level. Action of drugs at intracellular structures level.
14. Drug action via enzyme inhibition. Drug action via enzymatic activity or the activation of enzymes.

15. Graded responses to drugs. Dose – response in drug therapy. Doses and its varieties. Dose – effect correlation. Drug dosage regimens according to patients age. Dosage peculiarities in different diseases and pathologic states.

16. Individual factors that modify drug effects: weight, and corporal surface, sex, age, health state or disease psychic factor etc.

17. Phenomena caused by repeated administration of drugs : immunological reactions (drug allergy - type I, II, III, IV reactions). Rebound and withdrawal phenomena (tolerance, dependence), other long-term effects.

18. Basic aspects of cronopharmacology, pharmacotoxicology, pharmacoepidemiology. Surveillance methods used in detecting of adverse drug reaction.

19. Concept of drug rational usage. Principles of prescribing and rational using of drugs (P - medicines and P - treatment).

20. Form system. Pharmacotherapeutic form. Minimum standard of drugs used to treat the most widespread diseases.

F. Supplement for students of

Stomatological faculty.

1. Peculiarities of administrations, absorption, distribution, biotransformation of drugs in stomatological affections.

General medicine

1. Peculiarities of drug usage during pregnancy and breast feeding.
2. Pharmacokinetic, pharmacodynamic and pharmacogenetic peculiarities of drugs in fetus, newborn, suckling infants and children of different age.
3. Drug therapy in old people.

PHARMACOKINETIC, AND PHARMACODYNAMIC PRINCIPLES OF RATIONAL USING OF GENERAL AND LOCAL ANESTHETICS, OPIOID ANALGESICS AND ANTIPYRETICS

A. Actuality

Acute and chronic pain therapy is and will be one of the most important problems of medicine. To now the pharmacokinetics and pharmacodynamics of drugs from different groups used in the treatment of acute or chronic pain, allows a rational selection of anesthetics, adequate associations of different drugs, and establishment of the best dosing regimen.

The study of anaesthetic drugs as well as of those that mitigate the pain, modify psychic state, functional activity of vital organs and presents a great importance for anesthesiology. Anaesthesia assures pain abolition, good functioning of vital important organs and systems, facilitates the operations' performance and post anaesthetic and postoperative recuperation.

B. Training aim

To study the pharmacological and clinical principles underlying the use of analgesics and anesthetics : suitable selection of drugs for pain treatment, dosing adjustment and estimation of general and local anaesthetics, opioids analgesics and antipyretics effectiveness.

C. Didactic aims

The student should be able to:

a) Select the investigational methods in estimating of pharmacodynamic effect of local and general anaesthetic, opioid analgesic and antipyretic drugs

b) Analyze and estimate the studied pharmacodynamic results of drug used in pain therapy, obtained through laboratory and instrumental methods.

c) Prognose the possible complications and side – effects of anaesthetic and analgesic drugs.

d) Prognose the dependence of side – effects reactions on dosing regimen and functional state of body's organs and systems.

D. Knowledge from other studied tangent subjects

Histology, morphopathology, physiology and microbiology.

Vertebral column, peripheral and central nervous system anatomy. Nervous classification, conduction trough the nervous fibers. Notion of pain and pain reception. Notion and classification of nocireceptors. Superior integration of pain, modification of nocireceptive messages in nervous system. The role of P - substance and bradykinin in dolor modulation. Role of endorphins in dolor transmission.

Clinical subjects. Acute and chronic pain pharmacotherapy in internal organs diseases, surgery, anesthesia, and reanimation. Preanaesthetic examination, preoperative and preanaesthetic sedation. Notion of surgery and anaesthetic risk, fundamental criteria of anaesthesia. Preoperative preparations of patients with broncho – pulmonary affections, cardiac failure, diabetes, hemophilia, obesity, nervous and muscles' affections. Signs and stages of general anaesthesia.

Pharmacology. Classifications of general and local anaesthetics, opioid analgesics and antipyretics. Mechanisms of action, clinical effects, indications, adverse -effects reactions: prevention and treatment.

F. Questions for self training

1. General anaesthetics. Classification. Mechanisms of action.
2. Pharmacokynetics and pharmacodynamics of inhalational general anaesthetics (desflurane, halothane, enflurane, nitrous oxide, etc.). Clinical uses, contraindications and side-effect reactions.
3. Peculiarities of inhalational general anaesthetics usage in pediatric, in patients with cardiac and hepatic affections, in obese patients. Dosage regimen and efficiency control.
4. Pharmacodynamic and pharmacokynetic peculiarities of inhalational general anaesthetics used for general anaesthesia in patients with septic and hypovolemic shock.
5. Clinical pharmacology of intravenous general anaesthetics:
   a) barbiturates (hexenal, thiopental);
   b) benzodiazepines (diazepam, flunitrazepam, midazolam, lorazepam);
   c) fenciclidins (ketamine). Dissociative anesthesia.
6. Pharmacokynetic and pharmacodynamic peculiarities of intravenous general anesthetics used in septic patients with hypovolemic (traumatic, hemorrhagic etc.) shock.
7. Interaction of intravenous and inhalational general anaesthetics with drugs from other groups: adrenoceptor activating drugs, cardiac glycosides, antibiotics, myorelaxants, antihypertensive, anticoagulants, hypoglycemic drugs.
8. Side-effect reactions in intravenous and inhalational general anesthetic utilization. Clinical manifestations, prophylaxis and control measures.
9. Clinical pharmacology of local anaesthetics : classification according to activity, toxicity, duration and latency of action. Pharmacokynetic and pharmacodynamic bases of these drugs.
10. Clinical uses of local anaesthetics. Adverse reactions, their prophylaxis and control.
11. Clinical pharmacology of opioid analgesics and antagonists
12. Peculiarities of opioid analgesic administration in children, old people, cardiac, hepatic, obese patients, diabetics, drug addicts. prophylaxis and treatment of side – effects reactions produced by opioids. Non-opioid analgesics with central action.
13. Clinical pharmacology of opioid analgesics antagonists.
14. Clinical pharmacology of non-opioid analgesics with central action.
15. Antipyretic analgesics, classification, role in dolor control, mechanism of action, their association with other analgesics. Side – effects reactions, their prophylaxis and treatment.
16. Peculiarities of anaesthetics and analgesics use in pregnant women.

D. Supplement for students

of stomatological faculty

1. Peculiarities of general and local anaesthetics utilization in stomatological affections.
2. Pharmacodynamic and pharmacokinetic aspects of opioid analgesics and antipyretics usage in stomatological affection.

General medicine

1. Peculiarities of anaesthetics and analgesics application in infants and children.

E. Concise characteristic of main drugs

Vertically: drugs'names

Horizontally: synonyms, delivering forms, administration routs, and doses

(therapeutic, maximum), indications, contraindications, side-effect reactions.

1. Diethyl ether
2. Halotane
3. Cyclopropane
4. Nitrous oxide
5. Enflurane
6. Methoxyflurane
7. Procaine
8. Lidocaine
9. Bupivacaine
10. Thiopental
11. Midazolam
12. Diazepam
13. Ketamine
14. Propanidide
15. Morphine clorhidratum
16. Fentanyl
17. Pentazocine
18. Naloxone
19. Diclofenac
20. Paracetamol
21. Baralgine

F. Exercises on medical prescription

Indicate medicines for:

1) Painful acute myocardial infarction
2) Traumas and burns
3) Acute toothaches
4) Contact anaesthesia
5) Conducting anaesthesia
6) Epidural anaesthesia
7) Infiltrative anaesthesia
8) Analgesic potentiation of anaesthesia
9) Traumatic shock, combustions
10) Incurable cancer
11) Biliary colic
12) Induction of general inhalational anaesthesia
13) Overdosage of opioid agonist analgesics
14) Anaesthesia for short surgery.

I. General and local anaesthetics, opioid analgesics and antipyretics selection according to efficiency, innocuousness, acceptability and cost criterions in order to include them in personal form (P - medicines)

PHARMACOKINETIC AND PHARMACODYNAMIC PRINCIPLES OF RATIONAL USAGE OF HYPNOTICS, ANTICONVULSANT, ANTIPSYCHOTIC AND ANTIDEPRESSANT DRUGS. MANAGEMENT OF PARKINSONISM.

A. Actuality

Hypnotic, anticonvulsive and antipsychotic medication regulates diverse functions of CNS, that is why it is used in treating of different diseases and psycho-pathological states. The most part of these groups of drugs have additional pharmacodynamic effects (antihypertensive, anticonvulsant, antihistaminic, antiarrhythmic etc.). That fact is insufficiently known and used in pharmacotherapy. Adequate knowledge and using of all drugs' properties of hypnotics, anticonvulsants and antipsychotic can improve treatment results of patients with psychic pathology, associated with some organ and systems affections.

B. Training aim

Studying and applying of pharmacokinetic and pharmacodynamic principles for individualization and optimization of hypnotics, anticonvulsants and antipsychotic administration.

C. Didactic aims

*Student should be able to**:***

a) Distinguish hypnotic, anticonvulsant and antipsychotic remedies according to their pharmacokinetic and pharmacodynamic peculiarities.

b) Select these drugs depending on the disease, pathological state and patients age peculiarities.

c) Distinguish the clinical efficiency of drugs from these groups.

d) Prognose the appearance of side-effect reaction depending on dosing regimen.

e) Apply the modern methods of side-effect reactions prophylaxis and treatment.

f) Prognose hypnotic, anticonvulsive drug interaction among them and with other drugs.

D. Knowledge from other studied tangent subjects.

Anatomy and physiology. Functional principles of peripheral CNS.

Properties of CNS functional activity. The peculiarities of somatic and autonomic nervous system. Cerebral cortex physiology. Principles of CNS activity. CNS excitation and inhibition Neuron, receptor, synapse. Anatomical and physiological peculiarities of thalamus, hypothalamus, limbic system. Characterizing of the cognition process. Personality as a result of social and psychological and physiological factors.

Psychopathology and clinical disciplines. Pathogeny of CNS and peripheral nervous system diseases. Neurosis, general characteristics and basic manifestations. The role of social and biological factors in neurosis appearance. Somatic, neurological and psychological manifestations of different clinical pathological states of CNS and peripheral nervous system. Psychosomatic syndromes.

Pharmacology. Classification, mechanisms of action, clinical effects, indications of neuroleptics, antiepileptics, antiparkinsonian drugs, hypnotics, antidepresives, tranquillisers, sedatives, nootropes, CNS excitants, symptomatic, anticonvulsants. Side-effect reactions.

E. Questions for self training

1. The classification of psychotropic drugs.
2. Clinical pharmacology of hypnotic remedies (classification, pharmacokinetics and pharmacodynamics peculiarities, election of drug and dosage principles, side – effect reactions, drug interaction).
3. Clinical pharmacology of symptomatic anticonvulsants (peculiarities of clinical usage).
4. Clinical pharmacology of antiepileptic remedies (classification, pharmacokinetic and pharmacodynamic aspects, drug election and dosing principles, unwanted reactions, drug interaction).
5. Clinical pharmacology of drugs used in Parkinson disease (classification, clinical usage peculiarities, dosing principles, side – effect reactions, drug interaction).

6. Clinical pharmacology of centrally acting muscle relaxants (classification, pharmacokinetics and pharmacodynamics aspects, using principles, side – effect reactions, drug interaction).

7. Clinical pharmacology of neuroleptics (classification, pharmacokinetics and pharmacodynamics peculiarities, election and dosing principles, side – effect reactions, drug interaction).

8. Clinical pharmacology of tranquillizers (classification, pharmacokinetics and pharmacodynamics peculiarities, election and dosing principles, side – effect reactions, drug interaction).

9. Clinical pharmacology of sedatives (classification, pharmacodynamic and pharmacokinetic peculiarities, election and using principles, side – effect reactions, drug interaction).

10. Clinical pharmacology of nootrops (classification, clinical using peculiarities, dosing principles, side – effect reactions, drug interaction).

11. Clinical pharmacology of antidepressants (classification, pharmacokinetic and pharmacodynamic peculiarities, election and using principles, side – effect reactions, interaction with other drugs).

12. General tonizants. Action and using peculiarities.

13. CNS stimulants and psychomimetic drugs. Classification. Pharmacokinetic and pharmacodynamic peculiarities and pharmacological effects. Using and dosing principles.

F. Supplement for students of

Stomatological faculty

1. Using peculiarities of hypnotic, anticonvulsant and antipsychotic remedies in stomatology.

General medicine

1. Using peculiarities of hypnotic, anticonvulsant and antipsychotic drugs depending on child age.

G. Concise characteristic of main drugs

Down: drugs name

Acrossy: synonyms, delivering forms, administration routs, doses (therapeutic, maximum), indications, contraindications, side-effect reactions.

1. Phenobarbital
2. Sodium amobarbital
3. Haloperidol
4. Chloral hydrat
5. Chlorpromazine
6. Levomepromazine
7. Sulpiride
8. Droperidol
9. Chlordiazepoxide
10. Diazepam
11. Fenazepam
12. Alprazolam
13. Medazepam
14. Moclebedine
15. L-Dopa
16. Baclofen
17. Amitriptyline C
18. Litium carbonat
19. Caffeine
20. Amphetamine
21. Aminobutyric acid
22. Phenibut
23. Piracetam
24. Oxibutirat Sodium
25. Vigabatrine
26. Ginseng tincture
27. Sodium valproate
28. Carbamazepine
29. Phenyntoine
30. Trihexifenidil
31. Gabapentine
32. Zolpidem

H. Exercises on medical prescription

Indicate drugs for

1. Induction of sleep
2. Superficial sleep
3. Frequent nocturnal wake up
4. Diminish of sleep duration
5. Generalized and partial seizures
6. Drug induced and idiopathic parkinsonism
7. Psychomotor excitations
8. Schizophrenia
9. Psychosis with deliration and hallucination
10. Vomiting
11. Neurosis
12. Analgesia potentiation
13. Depressions
14. Psychic exhaustion
15. Rehabilitation after traumas, infections, intoxications
16. Nocturne enuresis
17. Hypertensive emergencies.

I. Selection of hypnotic, anticonvulsant and antipsychotic remedies according to efficiency, innocuousness, acceptability and cost criteria in order to include them in personal form (P - medicines).

PHARMACOKINETIC AND PHARMACODYNAMIC PRINCIPLES OF RATIONAL USING OF DRUGS WITH ACTION ON AUTONOMIC NERVOUS SYSTEM.

A. Actuality

Regulation of internal organs function by autonomic nervous system assures the diversity of physiological processes in the body. Thevariety of influences of autonomic nervous system on organs and tissues may be limited or removed by drugs that act on autonomic nervous system, and are used in different diseases and pathological states. That is why to know clinical and pharmacological peculiarities of these drugs is more than obligatory for doctors in their daily practice.

B. Training aim

Studying and applying the pharmacokinetic and phatmacodynamic principles for individualization and optimization of the administration of drugs which affect the autonomic nervous system.

C. Didactic aims

The student should be able to:

a) Distinguish the drugs that acts on autonomic nervous system, depending on pharmacokinetic and pharmacodynamic peculiarities.

b) Prescribe drugs from this group according to the disease, pathological state and age peculiarities.

c) Estimate clinical efficiency of drugs that influence the autonomic nervous system.

d) Prognose adverse effects appearance depending on dosing regimen of drugs that influence the autonomic nervous system.

e) Apply modern methods of prophylaxis and treatment of side effects and unwanted reactions in administration of drugs affecting the autonomic nervous system.

f) Prognose the interaction of drugs affecting autonomic nervous system with drugs from different groups.

D. Knowledge from other studied tangent subjects.

Anatomy and physiology. Anatomical and physiological principles of CNS and peripheral nervous system. Somatic and autonomic nervous system functional peculiarities. Anatomical and physiological peculiarities of neuron, hypothalamus, limbic system, reticular formation. Peculiarities of neuromediators. Sympathetic and parasympathetic nervous system physiology.

Physiopathology. CNS neurotransmitters: acetylcholine, noradrenaline, serotonine, dopamine etc. and their role in evolution of CNS pathological state.

Clinical subjects. Clinical description of following diseases and pathological states: myasthenia, ischemic cardiomyopathy, psycho-autonomic syndrome, ulcerous disease, arterial hypertension, bronchial asthma, acute arterial hypotension, migraine, cardiac arrhythmias, Raynaund's disease, obliterate endarteritis, glaucoma etc.

Pharmacology. Classification of cholinergic and adrenergic remedies. Mechanism of action, indications, clinical effects and adverse reactions of cholinergic agonists, cholinergic antagonists, adrenergic agonists, adrenergic antagonists.

E. Questions for self training

1. Classification of remedies with influence on cholinergic system.
2. M–cholinomimetic clinical pharmacology (pharmacokinetic and pharmacodynamic peculiarities, election and dosage principles).
3. clinical pharmacology of N– cholinomimetics (clinical usage peculiarities).
4. Anticholinesterases agents classification. Pharmacokinetic and pharmacodynamic aspects, election and dosing principles, clinical effects, adverse reactions, interaction with other drugs.
5. M–cholinoblockers (classification, pharmacokinetic and pharmacodynamic peculiarities, election and dosing regimen, side – effects, drug interaction).
6. Clinical pharmacology of ganglion-blocking drugs (classification, clinical effects, usage and dosing principles, side – effects, drug interaction).
7. Neuromuscular blocking drugs. Classification. Pharmacokinetic and pharmacodynamic peculiarities, usage principles, side – effects reactions, drugs interaction.
8. Classification of drugs that influence the adrenergic system (according to mechanisms of action, types of receptors and therapeutic usage).
9. Clinical pharmacology of α- and α-, β- adrenomimetics (classification, pharmacokinetic and pharmacodynamic peculiarities, drug election and usage principles, side – effects, drug interaction).
10. β-adrenomimetics (classification, pharmacodynamic and pharmacokinetics peculiarities, drug election and usage principles, side – effects, drug interaction).

11. Clinical pharmacology of the dopaminomimetics (classification, pharmacodynamic and pharmacokinetic peculiarities, drug election and usage principles, side – effects, interaction with other drugs).

12. α-adrenoblockers (classification, pharmacokinetic and pharmacodynamic peculiarities, drug election and usage principles, side – effects reactions, drug interaction).

13. Classification of the β-adrenoblockers. Pharmacokinetic and pharmacodynamic peculiarities, drug election and using principles, side - effects, drugs interaction.

14. Clinical pharmacology of the α-adrenoceptor antagonists (pharmacokinetic and pharmacodynamic peculiarities, drug election and usage principles, side – effects, drug interaction).

15. Dopaminoblockants. Pharmacodynamic and pharmacokinetic aspects, clinical effects, indications, dosing principles, adverse reaction.

F. Supplement for students of

Stomatological faculty

1. Peculiarities of cholinomimetics and adrenomimetics usage in stomatology.

General medicine

1. Pharmacokinetic and pharmacodynamic peculiarities of the cholinergic and adrenergic drugs administration at children.

G. Concise characteristic of main drugs

Down: drugs names

Across: synonyms, delivering forms, administration roads, doses (therapeutic, maximum), indications, contraindications, side-effect reactions.

1. Neostigmine
2. Galantamine
3. Aceclidine
4. Atropine
5. Platiphiline
6. Hexamethonium
7. Pirenzepine
8. Suxamethonium
9. Epinefrine
10. Dopamine
11. Fenilefrine
12. Salbutamol
13. Orciprenaline
14. Prazosin
15. Propranolol
16. Clonidine
17. Pindolol
18. Guanetidine

H. Exercises on medical prescription

Indicate drugs used in:

1. Glaucoma
2. Stimulation of intestinal motility
3. Myasthenia gravis
4. Overcame of the nondepolarizing blockers action
5. Sequelae of poliomyelitis
6. Premedication
7. Intestine colic
8. Biliary colic
9. Ulcerous disease

10. Retina research
11. Organ phosphoric compounds (insecticide) poisoning
12. Intubations
13. Luxation and fracture reposition
14. Acute arterial hypotension
15. Rhinitis
16. Anaphylactic shock
17. Hypoglycemic coma
18. Cardiac arrest
19. A-V blockade
20. Acute cardiac failure
21. Hypertensive emergencies
22. Ischemic cardiomyopathy
23. Arrhythmias
24. Arterial hypertension of I-II degree
25. III-degree arterial hypertension
26. Obliterante endarteritis
27. Accidental abortion imminence
28. Premature delivery
29. Bronchial asthma emergencies
30. Atropine poisoning

I. Selection of drugs affecting the autonomic nervous system according to efficiency, innocuousness, acceptability and cost criteria in order to include them in personal form (P - medicines).

PHARMACOKINETIC AND PHARMACODYNAMIC PRINCIPLES OF RATIONAL USING OF ANTI-INFLAMMATORY, ANTI-ALLERGIC AND INFLUENCING IMMUNE PROCESSES DRUGS

A. Actuality

Inflammation is an universal reaction of organisms to the action of different endogenous and exogenous harmful factors. Doctors' interest for inflammatory process has increased at the same time with the inflammation mediators' discovery, especially of prostaglandins.

Technical and scientific progress modified significantly the environment, this favoring the vertiginous growth of allergic affections incidence and weakening of immunity.

Nowadays, a large arsenal of anti-inflammatory, antiallergic and immunomodulatory drugs are available. For an efficient and rational using of those drugs it is important to know their pharmacokinetic and pharmacidynamic peculiarities.

B. Training aim

The studying and applying of pharmacokinetic and pharmacodynamic principles for individualization and optimization of anti-inflammatory, immunomodulatory and antiallergic drugs administration.

C. Didactical aims

The student must be able to:

a) Select the minimum complex of investigational methods concerning pharmacodynamic effect estimation of anti-inflammatory antiallergic, immunomodulatory drugs.

b) Analyze and estimate the pharmacodynamic study results of anti-inflammatory, antiallergic, immunomodulatory drugs, obtained by laboratory and instrumental methods.

c) Prognose possible side-effect reactions and complications.

d) Prognose the dependence of side - effect by dosing regimen and functional state of body organs and systems.

e) Apply contemporary methods of pharmacological and non- pharmacological correction of adverse reactions produced by drugs from these groups.

D. Knowledge from other studied and tangent subjects

Biological subjects. Inflammation. Basis components of inflammatory process: alteration, vascular reactions with exudation and phagocytosis, proliferation. Classification of inflammation mediators. Interdependence of alteration and protection and adaptation reactions within inflammatory process.

Pharmacology. Classification of anti - inflammatory remedies according to their pharmacological effect and chemical structure. Mechanism of action. Pharmacodynamics. Pharmacokynetics.

Classification of anti allergic and affecting immune system drugs. Mechanism of action, pharmacological effects, indications, side - effects.

E. Questions for self training

1. Anti – inflammatory drugs classification
    a) steroid anti – inflammatory drugs
    b) non-steroidal anti – inflammatory drugs
        - with immediate effect (short duration)
        - slow- acting (basic, antirheumatic) agents

2. Modern concept about mechanisms of action of anti – inflammatory and immunomodulatory drugs.

3. Steroid anti – inflammatory remedies. Corticosteroids. Classification. Division in natural and synthetic steroids. Anti – inflammatory, immunosuppressive and ant allergic marked possessions.

4. Glucocorticoids. Pharmacokinetics. Important metabolic actions. Indication for glucocorticoid medication. Dosing principles, selection of dose, treatment cure duration depending on disease character and seriousness, functional state of liver, kidneys, adrenal cortex.

5. Drug interactions in case of associated administration of glucocorticoids with other remedies. Rational associations of glucocorticoids with non-steroidal anti-inflammatory drugs.

6. Side - effects in glucocorticoid medication. Corticodependence. Adrenal suppression, clinical manifestations. Prophylactic, control methods.

7. Non - steroidal anti-inflammatory drugs with immediate effect. Their division according to duration of action, activity, tolerance. Salicylic acid derivates: acethylsalicylic acid, salicylamidum, benorilate, diflunisalum, sodium salicylas, aloxiprinum, salsalate. Mechanism of action, indications, contraindications, side – effect reactions, analgesic, antiplatelet and antipyretic properties.

8. Pyrazolone derivatives: phenylbutazone, phenozone, oxiphenbutazone, azapropazone, pheprozone, benetazone, their usage in rheumatoid affections. Side-effect reactions and their prophylaxis. Pharmacokinetic aspects.

9. Indole acid derivatives indomethacin, sulindac. Pharmacokinetic and pharmacodynamic peculiarities, clinical use, possible complications, their prophylaxis.

10. Phenylacetic acid derivatives: diclofenac, alclofenac, tolmetin. Pharmacokinetic and pharmacodynamic, peculiarities of administration. Side – effect reactions.

11. Propionic acid derivates: ibuprofen, ketoprofenum, flurbiprofenum, fenoprofenum, naproxenum, carprofenum. Mechanisms of action, pharmacokinetic aspects. Anti-inflammatory, analgesic and antipyretic properties.

12. Oxicams used as anti-inflammatory drugs: piroxicamum, tenoxicamum, izoxicamum. Their pharmacokinetics. Indications, side-effect reactions.

13. Fenamats and N-arilantranilic derivatives: flufinamic acid, mefenamic acid, niflumic acid. Anti-inflammatory and antipyretic potency. Clinical use. Side - effects.

14. Disease modifying, slow-acting antirheumatic (basic) anti-inflammatory drugs (DMARDs). Classification. Gold compounds: aurotiomalatum sodium, aurotioglucose, aurotiosulfat sodium, auronafinum. Mechanism of action, pharmacokinetics and pharmacodynamics. Peculiarities of clinical use, dosing regimen, adverse reactions.

15. 4-aminoquinoline derivatives (antimalarial drugs) : chloroquine and hydroxychloroquine. Therapeutic benefits of antimalarial drugs in rheumatic affections. Mechanism of action, pharmacokinetic and pharmacodynamic peculiarities. Possible complications at a durable treatment.

16. Penicillamine, action on cell immunity. Indications and usage methods. Drug properties. Administration peculiarities and contraindications. Tiopronine drug-recently introduced in therapy, penicillinamine analog. Usage peculiarities.

17. Sufasalazine and levamizole. Mechanism of action. Action peculiarities and their efficiency in rheumatoid arthritis.

18. New DMARDs - leflunomide, infliximab, etanercept. Mechanism of action, pharmacokinetic and pharmacodynamic peculiarities. Adverse reaction.

19. Classification of drugs used in immediate and delayed allergic reactions. Pharmacokinetics and pharmacodynamics aspects.

20. Immunosuppressive drugs. Classification. Glucocorticoides, cytotoxic – alkylating agents (cyclophosphamide, dopanum, chlorambucilum) and antimetabolites (mercaptopurine, azatioprine, methotrexate). Mechanism of action. Action on immune mechanisms.

21. Clinical usage of immunosuppressive drugs. Their signification in suppression of autoimmune process in allergic and infection diseases, in transplantation tissue incompatibility. Complications that appear during treatment with immunosuppressive drugs.

22. Other drugs with immunosuppressive action: cyclosporine, anti- lymphocytes globulins. Peculiarities of usage in rheumatic diseases and transplantology.

23. Drugs with immunostimulator effect: levamisole, timaline, pirogenal, prodighiozan, sodium nucleinate. Classification, mechanisms of action. Patinet's selection for immunostimulator treatment. Using of immunostimulator drugs in treatment of collagenosis. Treatment and efficiency control. Side-effect reactions.

24. Antihistaminic drugs. Classification. H_1–receptor blockings, pharmacodynamics and pharmacokinetics. Clinical usage and dosing tactics. Side - effects.

25. Remedies blocking the histamine secretion. Mechanism of action. Peculiarities of pharmacokinetic and clinical using.

F. Supplement for students ofstomatological faculty

1. Non-steroidal anti-inflammatory drugs used in stomatology (salicylats, pirazolidinic derivatives, antranilic, phenylacetic acid derivatives etc.) for treating rheumatoid arthritis, temporo - mandibular articulation arthritis, myalgias, neuroalgias and other inflammatory affections of maxilla-facial region, lupus erythematosus and other collagenosis.

2. Application of antranilic acid derivatives (mephenamic acid) in local therapy of ulcerous affections of buccal mucosa for improving regeneration processes.

3. Stomatological complications in non-steroid anti-inflammatory drugs medication. Stomatitis developed after a long period of pirazolidinic derivatives usage.).

4. Glucocorticoids application in stomatology (enteral and local) for treating maxilla-facial inflammations, infection-allergic diseases: paradontosis, cheilitis, lupus erithematosus, arthritis and arthrosis of temporo - mandibular articulation.

5. Anti-inflammatory steroids using in make-up of drugs used for treating pulpits (biological method). Stomatological complications in cortizonic medication (osteoporosis and osteomalacia, dental email necrosis and multiple caries development), calcium and potassium drugs usage for their prophylaxis.

General medicine

Pharmacokinetic and pharmacodynamic disposition of non-steroidal, steroidal anti - inflammatory, antiallergic and immunomodulating agents in infants and children.

G. Concise characteristic of main drugs

Down: drugs names

Across: synonyms, delivering forms, administration roads, doses (therapeutic, maximum), indications, contraindications, side-effect reactions.

1. Acetylsalicylic acid
2. Lizine acetylsalicylat
3. Diflunisal
4. Salicylamide
5. Sodium salicylate
6. Methil salicylate
7. Phenylbuthasone
8. Oxyphenylbuthasone
9. Benethasone
10. Indomethacin
11. Sulindac
12. Diclofenac
13. Tolmetin
14. Ibuprofen
15. Ketoprofen
16. Naproxen
17. Piroxicam
18. Mephenamic acid
19. Flufenamic acid
28. Chlorambucil
29. Mercaptopurine
30. Azathioprine
31. Methotrexat
32. Cyclosporine
33. Antilimfocytis globuline
34. Levamisol
35. Timaline
36. Acetominophen
37. Prednizolon
38. Methylprednizolon
39. Triamcinolone
40. Dexamethasone
41. Betamethasone
42. Hydrocortisone
43. Difenhidramine
44. Prometazine
45. Chloropiramine
46. Clemastine

20. Sodium aurotiomalat
21. Aurotioglucose
22. Auronafine
23. Chlorochine
24. Hydroclorochine
25. Penicilamine
26. Sulfasalazine
27. Cyclofosfamide
47. Quifenadine
48. Chlorfenamine
49. Astemizole
50. Terfenadine
51. Loratadine
52. Ketotifenum
53. Disodoc cromoglicat

H. Exercises on medical prescription

Indicate drugs for

1. Rheumatism
2. Rheumatoid arthritis
3. Primary degenerate arthrosis
4. Lupus erithematosus
5. Sclerodermia
6. Dermatomyositis
7. Ankylosic spondilarthritis
8. Gout
8. Glomerulonephritis
9. Anaphylactic shock
10. Bronchial asthma accesses
11. Urticaria
12. Contact dermatitis
13. Quincke's edema
14. Recovery period after infections.

PHARMACOKINETIC AND PHARMACODYNAMIC PRINCIPLES OF RATIONAL USING OF HORMONES AND HORMONES ANTAGONISTS

A. Actuality.

Hormonal pharmacotherapeutic occupies one of the first places in clinical endocrinology. The successes of the treatment of endocrinological and diseases of other genesis depends on proper selection of hormones or hormones antagonists.

Hormones and hormones antagonists are divided in natural and synthesized. They are widely used to correct endocrine glands secretion, and can be the unique solution in helping and saving patient's life in some diseases and pathological states.

B. Training aim.

The studying of clinical – pharmacological principles of prescription, usage, dosing regimen argumentation of hormonal and antihormonal drugs administration.

C. Didactic aim

The student shouldt be able to:

a) Select the investigational methods for estimating of pharmacodynamic effect of hormones and hormones' antagonists.

b) Analyze and estimate the results of pharmacodynamical study of hormones and hormones antagonists.

c) Prognose possible complications and side - effects after hormones and hormones antagonists utilization.

d) Prognose the dependence of side-effect reactions of hormones and hormones antagonists by dosing regimen and functional state of the body systems and organs.

e) Apply contemporary methods of pharmacological and non-pharmacological correction of the side - effects produced by hormonal and antihormonal drugs.

I. D. Knowledge from other studied tangent subjects

***Biological subjects*:** anatomy and physiology of endocrine glands. Biochemical structure of hormones and active biological substances. Effects of hormones on the bodys' organs and systems.

***Clinical subjects*:** etiology, pathogenesis and clinical symptoms of the main endocrine diseases. Clinical condition caused by hormones malfunction or hormones hypersecretion. Laboratory tests used for diagnosing of endocrinological diseases.

Basic pharmacology: classification, mechanisms of action, pharmacological effects indications, contraindications and adverse reactions of hormones and hormones' antagonists.

Questions for self training

1. Hormones signification as specific pharmacological remedies for treating endocrine affections, age disorder of endocrine glands function, and nonspecific, other diseases. Indications and prescription principles of hormonal drugs. Hormonal application in complex treatment of endocrine affections.

2. Classification of hormonal drugs according to the origin and clinical structures. Hypothalamic hormones and analogues, action and usage principles.

3. Hormones and analogus hormonal drugs of pituitary gland: a) anterior lobe; b) posterior lobe: election, clinical use, determination of correct administration and dosing regimen. Pharmacokinetics. Methods of drug efficiency estimation. Functional tests of adrenal cortex and sexual glands research, their clinical importance.

4. Adrenocorticosteroids. Glucocorticoids, their division according to the origin (natural and synthetic), activity, duration of action, administration route. Pharmacodynamics. Mechanisms of action and clinical effects: anti-inflammatory, antialergic and immunosuppressive action. Dosage schedule depending on the treatment purpose, (replacement therapy, nonadrenal disorders, diagnostic purpose), on disease severity, functional state of the liver, kidneys, adrenals. Pharmacokinetics. Interaction with other drugs. Pharmacotoxicologics: toxicity, clinical manifestations, prophylaxis and treatment measures. Corticodependence. Withdrawal syndrome.

5. Thyroid hormones and analogus remedies. Mechanism of action, effects, indications, side effects. Dosing principles. Pharmacokinetics.

6. Antithyroid drugs. Classification, mechanism of action, effects. Comparative characterization of drugs. Indications, contraindications for administration. Dosing regimen. Action efficiency estimation. Side effects reactions and their correction.

7. Hormones of parathyroid glands. Pharmacodynamic and pharmacokinetic aspects. Calcitonine – effects, indications, principles of usage, dosing regimen.

8. Insulin preparation. Classification. Metabolic effects of insulin. Mechanism of action. Indications, dosage principles. Human insulin, action and administration peculiarities. Hyperglycemic and hypoglycemic reaction (coma), drugs election and dosing schedule. Side-effect reactions and their prophylaxis. Immune insulin resistance. Insulin pharmacokinetics.

9. Oral hypoglycemic agents. Classification. Mechanism of action. Comparative characteristics of drugs. Indications and contraindications. Drug election, dosing principles. Side-effects. Pharmacokinetics.

10. The gonadal hormones (sexual hormone drugs)

a) The estrogens: classification, mechanism of action, effects. Comparative characteristics of drugs. Indications and election. Clinical application. Dosing principles according to endocrine affection. Unwanted effects. Contraindications. Pharmacokinetics.

b) The progestins: classification, mechanism of action, effects. Clinical uses: Dosing principles. Contraindication, cautions and side-effects. Pharmacokinetics.

c) Androgens: classification, mechanism of action, effects. Steroids used predominantly for anabolic effect.

11. Antihormones agents. Estrogen and progestins inhibitors, antithyroid drugs, antagonists of corticosteroids. Principles of action and clinical usage.

12. Classification of anabolic drugs. Anabolic steroids. Mechanism of action. Clinical uses, dosing principles, adverse reactions. Pharmacokinetics.

13. Oral and implanted contraceptives. Classification. Mechanism of action and pharmacological effects. Clinical usage, contraindications, caution and adverse effects (mild, moderate, severe). Drug election.

F. Supplement for students of

Stomatological faculty. Glucocorticoids usage peculiarities in stomatology.

1. Principles of administration of hormones that affect calcium and phosphorus metabolism in stomatological affections (anabolic agents, calcitonine etc).

General medicine

1. Using peculiarities of insulin and corticosteroids administration to children of different age.

G. Succinct characterization of main remedies

Down: drug names.

Across: synonyms, delivering forms, administration, routes, doses (therapeutic, maximum), indications, contraindications, side-effect reactions.

1. Hydrocortisone
2. Prednisolone
3. Methylprednisolone
4. Triamcinolone
5. Dexamethasone
6. Liothyronine
7. Levothyronine
8. Thyreocombe
9. Methylthyoracil
10. Thiamazol
11. Parathyroidine
12. Calcitonin
13. Simple insulin
14. zinc insulin suspension
15. Glibenclamide
16. Methformin
17. Estradiol dipropionat
18. Estrone
19. Diethylstilbestrol
20. Progesterone
21. Hydroxyprogesterone caproat
22. Testosteron propionat
23. Methyltestosteron
24 Nandrolone deconeat

H. Exercises on medical prescription

Indicate medicines for:

1. Lupus erythematosus
2. Insulin dependent and non-insulin dependent diabetes

3. Myxedema
4. Graves disease (diffuse toxic goiter)
5. Dysfunctional uterine hemorrhage
6. Hypogonadotropic hypogonadism
7. Hypothyroidism
8. Diabetic coma
9. Hypoglycemic coma
10. Prevention of accidental abortion
11. Premature labor prevention
12. pregnancy prevention
13. Prostate adenoma
14. Osteoporosis
15. Tetanism
16. Ovarian failure
17. Cahexy.

I. Selection of hormones and hormones' antagonists according to criteria of efficiency, innocuousness, acceptability and cost in order to include them in personal form (P-medicines).

PHARMACOKINETIC AND PHARMADYNAMIC PRINCIPLES OF RATIONAL USAGE OF REMEDIES AFFECTING MYOMETRIUM. PECULIARITIES OF DRUGS USAGE DURING PREGNANCY AND BREAST FEEDING. DRUG ACTION ON FOETUS AND HEW BORN. APPLICATION OF PHARMACOKINETIC, PHARMADYNAMIC AND PHARMACOGENETIC PRINCIPLES FOR INDIVIDUALIZATION AND OPTIMIZATION OF DRUG RATIONAL ADMINISTRATION TO CHILDREN.

A. Actuality

Oxytocics as medicines, that stimulate the uterine musculature are used for inducing and sustaining labor and/or for preventing and stopping postpartum metrorrhagia.

Tocolytics as medicines, that produce myometrium relaxing are used for prevention of accidental abortion and premature labor.

Using of these remedies required a special attention as their irrational usage can influence negatively on fetus development and newborn's health.

B. Training aim

Application of clinical pharmacokinetic and pharmacodynamic principles for individualization and optimization of drug administration affecting myometrium, the fetus and newborn (as their rational usage can influence negatively the fetus and the newborn's health).

C. Didactic aims

The students should be able to:

a) Select the methods of pharmacological establishment for the efficiency of the drugs affecting myometrium, drugs used in pregnant and confined women, agents influencing the newborn.

b) Analyze pharmacodynamic examinational results of the drugs that influence the myometrium, the fetus and the newborn.

c) Prognose the side - effects and complications that can appear in pregnant women and newborns.

d) Determine the dependence of side-effect appearance by dosing regimen of the drugs from different groups.

e) Elucidate the prevention and prophylactic methods of adverse effect of the drugs affecting the myometrium, drugs used in pregnant and confined women, agents influencing the newborn.

D. **Knowledge from other studied tangent subjects**

Histology. Uterine wall structure, Vascularization and innervations.

Biochemistry. Prostaglandin's and hormones role in regulating the uterine tonus and contractility.

Pharmacology. Classification of remedies affecting the motility and the tonus of the myometrium. Oxitocics (oxytocin, dinoprostone, dinoprostol), clinical effects and mechanisms of action peculiarities, indication, contraindications, adverse effects. Tocolytics, classification, clinical effects, indication. Remedies that increase the myometrium tonus - mechanism of action, effects, indications. Remedies that decrease the uterine cervix tonus (atropine, dinoprostol, dinoprostone).

E. Questions for self training

1. Classification of oxitocic and tocolytic remedies.
   1.1. Oxytocics:
      a) Oxytocics that enhance uterine contraction (oxytocin, prostaglandins).
      b) Oxytocics that increase the uterine tonus (ergometrine, methylergometrine).
   1.2. Tocolytics:
      a) β-adrenomimetics (salbutamol, terbutaline, phenotherol).
      b) Other uterine relaxants (ethylic alcohol, magnesium sulfate, non-steroidal anti-inflammatory drugs).
2. Modern concepts referred to mechanisms of action of oxytocics and tocolytics.
3. Oxytocine. Pharmacodynamics, pharmacokinetics. Clinical usage, dosing schedule, side-effect reactions.
4. Prostaglandins (dinoprostone, dinoprostol, sulprastone, carboprostol). Pharmacodynamic and pharmacokinetic peculiarities. Dosing schedule principles. Indications, contraindication, side effects.
5. Oxytocics used in prevention and/or stopping of metrorrhagia (ergometrine, methylergometrine). Pharmacodynamic and pharmacokinetic characterization. Clinical usage and side-effects.
6. β-adrenomimetics used as tocolytic (salbutamol, terbutaline, phenoterol, ritodrine). Pharmacodynamic and pharmacokinetic peculiarities of drugs. Dose regimen, indications, contraindication, side-effects, their prophylaxis and treatment.
7. Other uterine relaxants (ethylic alcohol, magnesium sulfate, non-steroid anti-inflammatory drugs). Characterization. Clinical usage. Dosing regimen, side-effects.
8. Using of the drugs during pregnancy. Drugs effects on embryo and fetus.

a) Pharmacokinetic and pharmacodynamic peculiarities of the drugs used by pregnant women.
b) Drug influence on embryo and fetus (teratogenic, embryo toxic and fetus toxic action).
c) Drug classification according to teratogenic, embryotoxic and fetotoxic risk (moderate, severe).

9. Peculiarities of drug usage (chemotherapeutics, antihypertensive agents, remedies with influence on CNS, hormones, non-steroidal anti-inflammatory drugs etc.) during pregnancy. Side-effects and their complication.
10. Pharmacological aspects of drug administration before and during labor. Consequences of their influence on fetus and newborn (immediate and delated).
11. Peculiarities of drug administration during breast-feeding (lactation) and at newborn.
    a) Pharmacokinetic modification of drugs in newborn.
    b) Drug pharmacodynamic evolution in newborn.
    c) Factors that can modify pharmacokinetics and pharmacodynamics of drugs in newborn administration (metabolic disorders, dehydration).
    d) Clinic-pharmacological aspects of drug prescription during lactation (absolute or relative). Contraindicated and allowed drugs for administration to breast-feeding women. Factors that can influence drug action and probability of side-effects to suckling. Principles of rational, election of drugs during lactation.
    e) Peculiarities of administration routes and pharmacological forms of drugs used by the newborn.
    f) Drugs that influence lactation (milk secretion); action and usage peculiarities.

F. Supplement for students of:

Stomatological faculty

1. Clinical-pharmacological characterization of drugs with moderate and marked dismorphogenic effects on maxilla-facial region.

General medicine

1. Consequences of oxytocics administration to pregnant women. Side-effects on fetus and newborn. Prophylaxis. Treatment.

2. Tocolytics used during pregnancy. Side-effects on fetus and newborn. Prophylaxis and treatment.

G. Succinct characterization of main remedies.

Down: drug names.

Across: synonyms, delivering forms, administration ways, doses (therapeutic, maximum), indication, contraindication, side-effect reaction.

1. Oxytocin.
2. Dinoprostone.
3. Ergometrine.
4. Methylergometrine.
5. Salbutamol.
6. Phenotherol.
7. Magnesium sulfate.
8. Ritodrine.

H. Exercises on medical prescription

1. Insufficiency of uterine contractility.
2. Labor induction.
3. Postpartum and post abortion hemorrhage.
4. Imperfect uterine involution.
5. Abortion impending.
6. Premature labor impending.

I. Selection of drugs affecting the uterus, fetus and newborn according to efficiency, innocuousness, acceptability and cost criteria in order to include them in personal form (P-medicines).

PHARMACOKINETIC AND PHARMACODYNAMIC PRINCIPLES OF RATIONAL USING OF REMEDIES THAT INFLUENCE THE METABOLISM.

A. Actuality

Pharmacodynamic spectrum study of vitamins, enzymes, metabolism stimulants of animal and vegetal origin demonstrate that these substances can be used for treatment goals as remedies of metabolism correction in different diseases and pathological states, thus being able to be named drugs of metabolic therapy.

Hypolipidemiant, angioprotector agents and lipotrop factors can prevent development of atherosclerose process and diminish the risk of atherosclerotic complication appearance: myocardial and cerebral infractions, coronary and peripheral arteries diseases.

B. Training aim

The studying of reasoning of clinical-pharmacological principles of prescription, election, dosage regimen of the drugs with metabolic and hypolipidemiant action and estimating of their efficiency.

C. Didactic aims

The student should be able to:

a) Select a minimum complex of investigational methods in order to estimate the pharmacodynamic effect of drugs with metabolic and hypolipidemiant action.

b) Analyze and estimate pharmacodynamical study results of metabolism activators and hypolipidemiants obtained by laboratory and instrumental methods.

c) Prognose the complications and side-effects of drugs from these groups.

d) Prognose the dependence of side-effects appearance on dosing regimen of drugs from antihyperlipidemiant and metabolic stimulants groups and functional state of the body's organs and systems.

e) apply contemporary methods of pharmacological and non- pharmacological correction of adverse effects produced by drugs with metabolic and hypolipidemiant action.

D. Knowledge from the studied tangent subjects

Histology, morphology and pathological physiology. The cell structure. Mitochondria and ribosome role in assuring of the cell metabolic vital processes. Hormonal regulation of lipid, protein and carbohydrates metabolism. Oxidative phosphorilation - basic mechanism of energy formation in the body. Classification of biological active compounds that regulate essential biological processes. Vitamin and coenzyme role in metabolic processes.

Clinical subjects. Vitamins deficiency. Clinical manifestations. Pathogenesis and clinical manifestations of atherosclerosis. Primary and second hyperlipoproteinemia. Exogen and endogen lipids. Pathogenesis and clinic manifestation of hepatic cirrhosis of pancreatitis and chronic enterocolitis.

Pharmacology. Classification of vitamins, enzymes, coenzymes, metabolic stimulators, hypolipidemiant and other substances that act on tissue metabolism.

E. Questions for self training

1. Vitamins and cofactors' importance as prophylactic and treatment remedies for vitamin deficiency. Vitamins pharmacotherapeutic principles (replacement and prevention goal). Vitamins and coenzymes usage in different diseases, infection and intoxications treatment.
2. Notion of vitamins deficiency - clinic manifestation. Vitamins as remedies to regulate the metabolism.
3. Vitamins classification. Pharmacodynamics. Pharmacokinetics. Pharmacotoxicological bases of vitamins.
4. Hydrosoluble vitamins. Group of B-vitamins. Pharmacodynamic and pharmacokinetic aspects. Mechanism of action.

a) Importance of vitamin B_1 and its active form-cocarboxilaze in regulation of carbohydrates metabolism.

b) Vitamine B_2 and its biologic active forms-flavin-mononucleotid and flavin-adenin-dinucleotide, those exert the coenzyme function of flavoproteins. Their importance for cell oxide-reducing reaction.

c) Group of B_6 vitamins - piridoxine, piridoxal and active form - piridoxalphosphate. Their importance in metabolic reactions of aminoacids

d) The role of panthothenic acid (vitamin B_5) in carbohydrates, lipid and porfirins metabolism regulation.

e) Clinical pharmacology of vitamin B_{12}.

f) Nicotinic acid (vitamin PP) and its biologic active forms - NAD and NADP – as dehydrogenases coenzymes. Nicotinic acid usage in treatment of hyperlipidemias.

5. Ascorbic acid (C-vitamin) participation in oxidation reaction and aminoacids synthesis.
6. Role of folic acid participation in aminoacids synthesis and treatment of anemia.
7. Lipoic acid participation in regulation of lipids' metabolism, its hematotropic action and antitoxic proprieties.
8. Liposoluble vitamins. Pharmacodynamic and pharmacokinetic aspects of liposoluble vitamins. Clinical usage, dosing principles. Complications caused by overdosage.

a) Vitamin-A. Pharmacotherapeutic spectrum.

b) Vitamin-E. Antioxidant peculiarities.

c) The importance of Vitamin-D in calcium and phosphorus homeostasis. Vitamin-D interrelation with parathyroid hormone. Hypvitaminosis D and hypervitaminosis D, clinical description, treatment.

d) Vitamin-K participation in biosynthesis of blood coagulation plasmatic factors. Hypo- and hypervitaminosis K clinical description, treatment

9. Polivitamines (aevit, decamevit, hexavit, kvadevit). Vegetal vitamin preparations. Their importance in prophylaxis and treatment of different diseases associated with hypo- and avitaminosis. Their importance in pediatric and geriatric medicine.

10. Vitaminoids. Characterization, clinical usage.

11. Vitamin classification according to clinical and prophylactic usage.

a) Vitamin preparations that influence the general reactivity of the body (thiamin, riboflavine, nicotinic acid, pyridoxine, calcium pangamat, retinol, ascorbic acid).

b) Vitamin preparation that protect mucous membranes and teguments (retinol, riboflavine, calcium pantotenat, nicotinic acid, pyridoxine, biotin, tocopherol).

c) Antitoxic and anti-infections vitamin preparations (ascorbic acid, retinol, thiamin, riboflavine, calcium pantotenat, nicotinic acid, pyridoxine, cianocobolamine, folic acid.)

d) Vitamin preparation that influence hematopoesis and sanguine coagulation (cianocobolamine, folic acid, ascorbic acid, pyridoxine, ruthin, vit. K).

e) Vitamin preparations that influence the bone and dental mineral homeostasis (ascorbic acid, ergocalciferol, thiamine).

f) Vitamin preparations that influence the vision (retinol acetate, ascorbic acid, tocopherol acetate, riboflavine).

12. Clinical usage of vitamins in pediatric medicine.

13. Vitamins interaction. Rational and irrational vitamins associations. Reciprocal incompatibilities of vitamins and incompatibilities with other groups of drugs.

14. Coenzymes. Classification. Coenzymes of non-vitamin origin. Incompatibility between vitamins and other medicines.

15. Diverse remedies that stimulate metabolic processes. Classifications.

a) Pyrimidine and thiazolidine derivatives. Clinical usage, doses, contraindications.

b) Adenozine and hypoxantine derivatives. Clinical usage, doses, contraindications.

c) Preparations from diverse groups (biogenic stimulators of animal, vegetal, mineral origin). Classification. Clinical usage, doses, contraindications.

16. Clinic pharmacology of enzymes.

a) Digestive ferments. Clinical usage, doses, contraindications.

b) Clinical pharmacology of ferments with application in purulent-suppurative-necrotic processes.

c) Clinical pharmacology of enzymes with fibrinolytic action.

d) Clinical pharmacology of ferments with hialuronidaze action.

17. Pharmacotherapeutic aspects of enzymatic preparation: substitutive, local and resorbtive therapy.

18. Classification of anti-enzymatic preparations.

a) Clinical pharmacology of proteolysis inhibitors.

b) Clinical pharmacology of fyirinoliysis inhibitors.

c) Clinical pharmacology of cholinesterase, monoaminoxidase inhibitors etc.

19. Lipides and lipoproteins' classification. Hyperlipoproteinemes. Antiatherosclerotic medicines. Classification. Clinical usage.

20. Agents used in hyperlipidemia. Classification, pharmacological effects, comparative characterization. Administration peculiarities.

21. Clinical pharmacology of angioprotectors of synthetic, animal and vegetal origin.

22. Clinical pharmacology of lipotropic factors. Mechanism of action, clinical application.

23. Using peculiarities of vitamins by pregnant and age people.

F. Supplement for students of:

Stomatological faculty

Vitamins, biogen stimulants of vegetal, animal and mineral origin, enzymes and anti-enzymes preparations usage in stomatological affections.

General medicine

Vitamins, biogen stimulants of vegetal, animal and mineral origin, enzymes and anti-enzymes usage in pediatric medicine.

G. Succinct characterization of the main remedies.

Down: drug names.

Across: synonyms, delivering forms, administration routes, doses (therapeutic, maximum), indication, contraindication, side-effect reactions.

1. Thiamin.
2. Riboflavin.
3. Piridoxin.
4. Cianocobalamin.
5. Nicotinic acid.
6. Tocopherol.
7. Phytomenadione.
8. Cocarboxilaze.
9. Piridoxalphosphat.
10. Pancreatine.
11. Festal.
12. Tripsine.
13. Ribonucleaze.
14. Acethazolamide
15. Allopurinol
16. Clavulanic acid
17. Methyluracil
18. Ascorbic acid.
19. Folic acid.
20. Lipoic acid.
21. Retinol.
22. Ergocalciferol.
23. Hialuronidaze.
24. Aprotinine
25. Cholesterolamine.
26. Probucol.
27. Simvastatine.
28. Ethamsilate.
29. Neostigmine.
30. Clofibrate
31 Leukogene
32. Colestipol
33. Rumalon
34 Nialamide

H. Exercises on medical prescription

Indicate medicines for:

1. Beri-beri disease
2. Peripheral neuritis
3. Pellagra
4. Nutritional rickets
5. Paradontosis

6. Hepatic cirrhosis
7. Chronic pancreatitis
8. Arterial thrombosis
9. Ischemic cardiomyopathy
10. Bronchiectasia
11. Hypertrigliceridemia
12. Hypercolesterolemia
13. Chronic alcoholism
14. Intestinal digestion disorder
15. Megaloblastic anemia (B_{12} deficiency)
16. Chronic hepatitis
17. Myocardial dystrophy
18. Oral (coumarin) anticoagulant overdosing
19. Scarves

I. Selection of drugs with metabolic and hypolipidemiant effects according to critera of efficiency, innocuousness, acceptability and cost in order to include them in personal form (P-medicines).

PHARMACOKINETIC AND PHARMACODYNAMIC PRINCIPLES OF RATIONAL USAGE OF ANTIBIOTICS

A. Actuality

Today, because the number of patients with serious evolution of infections increases and it appears that microbial populations became more and more resistant to antibacterial therapy that is why antibiotic therapy problem is very actual.

B. Training aim

To study clinical-pharmacological principles of the prescription, usage, dosage regimen and argumentation of antibiotics administration To estimate therapeutic efficiency of antibiotics from different groups.

C. Didactic aims

The student must be able to:

a) Select a minimum complex of investigational methods in order to estimate the pharmacodynamic effect of antibiotics.

b) Analyze and estimate the antibiotics pharmacodynamic study results, obtained through instrumental and laboratory methods.

c) Prognose possible complications and side-effects of antibiotic drugs from different groups.

d) Prognose dependence of side-effects development on dosing regimen and functional state of organs and body systems.

D. Knowledge from other studied and tangent subjects

Histology, morphopathology, physiopathology and microbiology. The structure of pathogen agents. Classification of pathogen microorganisms. Pathogenesis of septic state

Clinical disciplines. Etiology, pathogenesis and clinical evolution of the main forms of infections. Laboratory and functional tests applied in infections diseases (pulmonology, septic surgery etc). Clinical manifestations of the infectious diseases.

Pharmacology. Antibiotic classification according to the origins, chemical structure, mechanism of action. Characterization of antibiotic groups.

E. Questions for self training

1. Antibiotic classification according to the spectrum of antimicrobian action, mechanism and character of action. Clinical usage.
2. Penicillins. Classification. Pharmacokinetic and spectrum of antimicrobian action. Clinical usage and dosing principles, side-effects and their prophylaxis.
3. Cephalosporins. Classification. Peculiarities of different generation of drugs. Clinical usage and dosing principles. Side-effects and their prophylaxis. Oral cephalosporins.
4. Clinical pharmacology of macrolides and lincosamides.
5. Aminoglycosides. Classification. Spectrum of antimicrobial action Clinical usage and dosage peculiarities. Side-effect reactions and their prophylaxis.
6. Tetracyclines and chloramphenicol. Antimicrobian and pharmacokinetic peculiarities. Clinical usage, dosing principles, side-effects.
7. Antimicrobian and pharmacokinetic aspects of rifampicins, polymixins and glycopeptides.
8. Peculiarities of antibioticotherapy according to the age of patients. The usage of antibiotics in pregnant women.
9. Antibiotic prophylaxis. Rational association of chemotherapeutic drugs depending on the mechanism and spectrum of antimicrobial action. Side-effect reactions.
10. Classification of side-effects developed after therapy with antibiotics, prophylaxis and treatment.
11. The origin of drug resistance. Genetic and nongenetic microorganisms resistance to antibiotics. Prevention and removal measures of bacterial resistance.

F. Supplement for students of

Stomatological facultaty

Peculiarities of antibiotics' therapy in stomatology.

General medicine

Peculiarities of antibiotics' pharmacodynamics and pharmacokinetic in pediatric medicine. Dosage principles. Side-effects.

G. Succinct characterization of main drugs

Down: drugs names

Across: synonyms, delivering forms, administration routes, doses (therapeutical, maximum) indications, contraindications, side-effect reactions.

1. Amoxycillin
2. Ampicillin
3. Amikacin
4. Benzilpenicillin
5. Carbenicillin
6. Cefalexin
7. Cefazolin
12. Doxycycline
13. Erythromycin
14. Gentamicin
15. Oxacillin
16. Rifampicin
17. Tobramycin
18. Lincomicin

8. Cefoperazon
9. Cefoxitin
10. Chloramphenicol
11. Clindamycin
19. Tienam
20. Amiclok
21. Azithromycin
22. Vancomycin

H. Exercises of medical prescription

Indicate medicines for:

1. Pneumonia due to penicillin resistant staphylococcus
2. Infections with Bacterioides.fragilis
3. Infections with pyocianic bacillus
4. Abdominal typhus
5. Exanthematous typhus
6. Bacterial dysentery
7. Osteomielitis
8. Tuberculosis
9. Urinary infections
10. Cholera
11. Gaseous gangrene
12. Meningitis caused by H.influenzae
13. Pseudomembranous colitis
14. Syphilis

I. Selection of antibiotics according to the criteria of efficiency, innocuousness, acceptability and cost in order to include them in personal form (P-medicines).

PHARMACOKINETIC AND PHARMACODYNAMIC PRINCIPLES OF RATIONAL USAGE OF CHEMOTHERAPIC REMEDIES (SULFONAMIDES AND PREPARATIONS WITH DIVERSE CHEMICAL STRUCTURES)

A. Actuality

Chemotherapeutic drugs of synthesis – sulfonamides, nafteridine, quinolone nitroimidazole, 8-oxiquinolone, nitrofurane, quinoxaline and tiosemicarbasone derivatives – possess antibacterial, antifungal and antiprotosoal properties and are largely used in infections treatment produced by large rods of pathogenic microorganisms. To know their pharmacokinetics and pharmacodynamics will allow their rational selection and establishing of an optimal dosing regimen.

B. Training aim

To study and apply pharmacokinetical and pharmacodynamical principles for optimization and individualization of chemotherapeutic drugs with diverse chemical structure administration.

C. Didactic aims

The student should be able to:

a) Distinguish the chemotherapeutic remedies with diverse chemical structure according to pharmacodynamic and pharmacokinetic peculiarities

b) Prescribe drugs from these groups, depending on the spectrum of antimicrobial activity of drugs, on disease severity and pathological states and age peculiarities of the patients.

c) Elaborate the criteria of estimation of chemotherapeutic drugs clinical efficiency

d) Elucidate the principles of dosage and prognose the side-effects appearance depending on administration and dosage regimen of chemotherapeutic drugs.

e) Apply contemporary methods of prophylaxis and correction of side-effects appeared at chemotherapeutic drugs administration

f) Forecast possible interactions of chemotherapeutic drugs with diverse chemical structure between them and with other drugs

g) Write down the personal form (P-medicines) of chemotherapeutic drugs with diverse chemical structure.

D. Knowledge from other studied tangent subjects.

Hystology. Morphopathology, physiopathology, microbiology. The structure of pathogenic cell. Classification of pathologic microbes. Stages of inflammatory processes etc.

Clinical subjects. Ethiology, pathogenesis and clinical evolution of the main forms of infections. Clinical manifestations of infections. Functional and laboratory tests applied in infectious diseases to detect pathogen microorganisms and their resistance to chemotherapeutic drugs (surgery, urology etc.).

Pharmacology. Chemotherapeutic remedies of diverse chemical structure (sulfonamides, quinolones, nitrofurans etc): classifications, mechanism and spectrum of actions, indications, side-effects.

E. Questions for auto training

1. Sulfonamides. Classification. Antimicrobian spectrum and mechanism of action. Pharmacokinetics, pharmacodynamics,clinical uses, contraindications, side-effects, principles of dosage and election, drugs interaction. Microbial resistance and ways of fighting.
2. Sulfonamides with systemic action. Classification. Peculiarities of pharmacodynamics and pharmacokinetics. Clinical uses, contraindications, side-effects, their prophylaxis and treatment. Drugs interaction.
3. Sulfonamides with action at intestinal level. Pharmacokinetics peculiarities, side-effects, their prophylaxis and treatment. Drugs interaction.
4. Sulfonamides for topic application. Indications. Side-effects, their prophylaxis and treatment.
5. Combined preparation of sulfonamides. Pharmacokinetic and pharmacodynamic peculiarities, clinical uses, contraindications. Side-effects, prophylaxis and control. Clinical significant drugs interaction.
6. Naftiridine and quinolone derivatives. Classification antimicrobial spectrum and mechanism of action. Pharmacodynamic and pharmacokinetic peculiarities, clinical uses, indications, contraindications. Side - effects, prophylaxis and treatment. Drugs interaction.
7. Nitroimidazole derivatives. Spectrum and mechanism of action. Pharmacodynamic and pharmacokinetic peculiarities, clinical uses, indications, contraindications, side - effects, their prophylaxis and treatment. Drugs interaction.

8. 8-oxiquinoline derivatives. Spectrum and mechanism of action. Pharmacokinetic and pharmacodynamic peculiarities, clinical uses, contraindications, side-effects, their prophylaxis and treatment. Drugs interaction.

9. Nitrofuran derivatives. Spectrum and mechanism of action. Pharmacokinetic and pharmacodynamic peculiarities, clinical uses, contraindications, side-effects, their prophylaxis and treatment. Drugs interaction.

10. Quinoxaline derivatives. Spectrum and mechanism of action. Peculiarities of usage and dosage. Side-effects, prophylaxis and treatment.

11. Tyosemicarbasone derivatives. Peculiarities of usage and dosage. Side-effects, their prophylaxis and treatment.

F. Supplement for students of
Stomatological faculty

1. Sulfonamides using for treatment of odontogenic inflammatory processes and infection complications after stomatological interventions in maxilla-facial region.

2. Application of nitrofuran derivatives in case of microbial resistance to antibiotics and sulfonamides, for treating, stomatological affections, aphtas, ulcerous, combustion surfaces; for antiseptic processing of advanced, complicated profound caries of the teeth, and alveolar canals.

General medicine

Pharmacokinetic and pharmacodynamic peculiarities of chemotherapeutic drugs administration in infants and children.

G. Succinct characterization of the main drugs

***Down*:** drugs names

Across: synonyms, delivering forms, administration ways, doses (therapeutical, maximum) indications, contraindications, side-effect reactions.

1. Sulfaetidole
2. Sulfadimetoxin
3. Sulfalen
4. Ftalilsulfatiazole
5. Salazopiridazin
6. Co-trimaxazole
7. Nalidixic acid
8. Pipemidic acid
9. Norfloxacin
10. Cyprofloxacin
11. Ofloxacin
12. Metronidazole
13. Tinidazole
14. Nitroxoline
15. Intestopan
16. Nitrofurantoin
17. Furaghin
18. Dioxidin
19. Faringosept
20. Nifuroxazide

H. Exercises on medical prescription
Indicate medicines for:

1. Bacterial dysentery
2. Amebiasis
3. Trichomaniasis
4. Urinary infections
5. Nonspecific ulcerous enterocholitis I
6. Conjunctivitis
7. Respiratory infection

8. Infection due to B fragilis
9. Infections due to pyocianic bacillus
10. Osteomielitis
11. Ascariasis.

QUESTIONS FOR WRITTEN TEST

I. Theoretical questions

1. Principles of drug classification and drug nomenclature.
2. Principles of classification of drug forms. Modality of intravenous administration of solutions.
3. Clinical pharmacology and its tasks. Correlation between pharmacokinetics and pharmacodynamics in clinical evolution of drugs' effects.
4. Clinical research of drugs. Principles of good clinical practice of drugs' research. Phases of clinical investigations of drugs.
5. The system of drugs' supervision and clinical safety in Republic of Moldova.
6. Pharmacotherapy and its tasks.
7. The concept of drugs' rational usage. Pharmacotherapeutic National Form and its importance. The reasons for form systems implementation in Moldova.
8. Personal medicines and principles of their selection.
9. Minimum drugs standard and their importance.
10. Clinician pharmacologist and his duty.
11. Pharmacokinetics. Pharmacokinetics parameters. Drug absorption. Factors that influence absorption. Drug interaction at absorption level.
12. Substances' distribution in the organism. Peculiarities of biological membranes and barriers penetration. Sanguine proteins role in drug transportation. Drugs' interaction at the distributional level.
13. Drugs' metabolism. Ways of metabolization and their clinical importance. Modification of drugs' metabolization at their associated and repeated administration.
14. Drugs' elimination from organism. Peculiarities of renal elimination. Drugs' interaction at the excretion level.
15. Pharmacogenetics, clinical aspects of enzymopathies.
16. Pharmacodynamics. Factors that determine clinical evolution of drugs' effects. Types of doses. Dosage principles depending on theage.
17. Typical mechanisms and types of drugs action. Effects developed on repeated and associated administration of drugs.
18. Principles of classification and usage of vitamins. Vitamins' combination and interactions with other drugs.
19. Clinical pharmacology of vitamins E.
20. Clinical pharmacology of C and P vitamins.
21. Clinical pharmacology of lipidsoluble vitamins (A, D, E, K).
22. Classification and usage peculiarities of enzymes.
23. Clinical pharmacology of anti-enzymes (proteolysis, fibrinolysis, MAO, cholinesterase inhibitors etc.).
24. Classification of metabolism stimulators. Clinical pharmacology of metabolism stimulators from derivatives of pirimidine, adenosine, hypoxantine groups and metabolism stimulators of vegetal, tissular and mineral origin.
25. Clinical pharmacology of agents used in hyperlipidemias.
26. Clinical pharmacology of thyroid hormones.

27. Clinic pharmacology of antithyroid drugs.
28. Clinical pharmacology of insulin preparations. Hypoglycemic and hyperglycemic coma treatment.
29. Clinical pharmacology of hypothalamic and pituitary hormones.
30. Clinical pharmacology of oral hypoglycemic agents.
31. Clinical pharmacology of adrenocorticosteroids.
32. Clinical pharmacology of anabolic steroids.
33. Clinical pharmacology of estrogens.
34. Clinical pharmacology of progestins.
35. Clinical pharmacology of contraceptives.
36. Clinical pharmacology of androgens.
37. Clinical pharmacology of hormones' antagonists drugs.
38. Clinical pharmacology of opioid analgesics and antagonists.
39. Clinical pharmacology of antipyretic drugs.
40. Clinical pharmacology of general inhalational and intravenous anaesthetics.
41. Clinical pharmacology of local anaesthetics.
42. Clinical pharmacology of hypnotic drugs.
43. Clinical pharmacology of symptomatic anticonvulsants.
44. Clinical pharmacology of antiepileptic drugs.
45. Clinical pharmacology skeletal muscle relaxants.
46. Clinical pharmacology of antipsychotic drugs.
47. Clinical pharmacology of tranquillizers.
48. Clinical pharmacology of sedatives.
49. Clinical pharmacology of nootrops and tonisants.
50. Clinical pharmacology of antidepressants.
51. Clinical pharmacology of nonsteroidal anti-inflammatory drugs.
52. Clinical pharmacology of basic anti-inflammatory drugs (antirheumatic) .
53. Clinical pharmacology of immunosuppressive drugs.
54. Clinical pharmacology of immunostimulators.
55. Clinical pharmacology of antibiotics.
56. Clinical pharmacology of penicillins.
57. Clinical pharmacology of cephalosporins.
58. Clinical pharmacology of aminoglycosides.
59. Clinical pharmacology of tetracyclines and chloramphenicol.
60. Clinical pharmacology of macrolids and lincosamins.
61. Clinical pharmacology of polymyxines.
62. Clinical pharmacology of rifampicines.
63. Clinical pharmacology of glycopeptides.
64. Indication and principles of antibiotics association.
65. Resistance to antimicrobial drugs (origin, mechanisms, , prophylaxis).
66. Clinical pharmacology of sulfonamides.
67. Clinical pharmacology of naphtiridine and quinolone derivatives.
68. Clinical pharmacology of nitroimidazole derivatives.
69. Clinical pharmacology of 8-oxiquinoline, nitrofurane derivatives.
70. Clinical pharmacology of drugs that influence the uterus.
71. Peculiarities of drug usage during pregnancy and lactation.
72. Clinical pharmacology of M-cholinergic agonists.
73. Clinical pharmacology of M-cholinoblockers.

74. Clinical pharmacology of anticholinesterase drugs.
75. Clinical pharmacology of ganglion – blocking drugs.
76. Clinical pharmacology of neuromuscular relaxants.
77. Clinical pharmacology of α,β-adrenoceptor agonists.
78. Clinical pharmacology of α-adrenoceptor agonists.
79. Clinical pharmacology of β-adrenoceptor agonists.
80. Clinical pharmacology of dopaminomimetics.
81. Clinical pharmacology of α-adrenoceptor-blockers.
82. Clinical pharmacology of β-adrenoceptor-blockers.
83. Clinical pharmacology of sympatholytics.

NOTE! Questions that include clinical pharmacology of the groups of drugs must be answered in the following way: classification, mechanisms of action, pharmacological effects, clinical uses, side-effects, pharmacokinetics, principles of dosing and election depending on ethiology and severity of diseases.

II. Indicate drugs for:

1. Hypercholesterolemias.
2. Hypertriglyceridemia.
3. Hypothyroidism.
4. Thyrotoxicosis (Grave's diseases.
5. Non-insulin-dependent diabetes.
6. Insulin-dependent diabetes.
7. Diabetic coma.
8. Hypoglycemic coma.
9. Collagenosis (lupus erythematosus etc.).
10. Anaphylactic shock.
11. Bronchial asthma.
12. Ovarian failure.
13. Premature labor prevention.
14. Accidental abortion prevention.
15. Pregnancy prevention.
16. Thetany.
17. Prostate adenoma.
18. Hypogonadism.
19. Cashexy.
20. Aplastic and post hemorrhagic anemia.
21. Myocardial dystrophy.
22. Rheumatism.
23. Polyartritis.
24. Pneumonia caused by penicillin resistant staphylococcus.
25. Infections caused by B. fragile.
26. Infections due to pyocianic bacillus.
27. Typhoid fever.
28. Exanthematous typhus.
29. Bacterial dysentery.
30. Meningitis caused by H. influenza.

31. Osteomyelitis.
32. Tuberculosis.
33. Urinary infections.
34. Trichomoniasis.
35. Amebian dysentery.
36. Acute hypotension.
37. Myocardial infarction.
38. Atria-ventricular block.
39. Acute cardiac failure.
40. Hypertensive emergencies.
41. Obliterant endarteritis.
42. Coronarian ischemic disease.
43. Arrhythmias.
44. Arterial hypertension of I - II degrees.
45. Arterial hypertension of III degrees.
46. Glaucoma.
47. Intestinal motility insufficiency
48. Myasthenia gravis.
49. Decurarization of non-depolarisant relaxants.
50. Treatment of poliomyelitis sequelae and cerebral trauma.
51. Premedication.
52. Intestinal colic.
53. Biliar colic.
54. Gastric and duodenal ulcer.
55. Poisoning with organphosphoric compounds.
56. Retine research.
57. Intubation.
58. Luxation and fracture reposition.
59. Painful acute myocardial infarction
60. Trauma and burns.
61. Acute toothache.
62. Inoperable cancer.
63. Disorder of sleep installation.
64. Superficial sleep.
65. Frequent nocturne wakes up.
66. Decrease of sleep duration.
67. Convulsions of unknown origin.
68. Generalized seizures.
69. Partial seizures.
70. Drug induced and idiopathic Parkinson’s disease.
71. Spastic states of striates muscles.
72. Soaking (contact) anesthesia
73. Conduction anesthesia
74. Subarachnoid anaesthesia.
75. Infiltration anaesthesia.
76. Psychomotor excitation.
77. Schizophrenia.
78. Psychosis with delirium and hallucination.

79. Vomiting.
80. Autonomic nervous system dysfunction (ischaemic disease, ulcerous, etc.).
81. Neurosis.
82. Analgesia potention.
83. Nocturne enuresis.
84. Depression.
85. Psychic exhaustion.
86. Rehabilitation after trauma, infections, intoxications.
87. Labor induction.
88. Methrorrhagia (postpartum and post abortion hemorrhage).
89. Intoxication with atropine.
90. Rinitis.
91. Gas gangrene.
92. Pseudomembranous enterocolitis.
93. Nonspecific ulcerative enterocolitis.
94. Choleras.
95. Nutritional rickets
96. Peripheral neuritis.
97. Megaloblastic anemia.
98. Ascariasis.
99. Syphilis.
100. Intestinal digestion disorder.

III. Compulsory drugs.

1. Oxytocine.
2. Dinoprostone.
3. Ergometrine.
4. Salbutamol.
5. Ritodrine.
6. Ftalilsulfatiasole.
7. Salasopiridazine.
8. Co-trimoxazole.
9. Pipemidic acid.
10. Ofloxacine.
11. Metronidazole.
12. Nitroxoline.
13. Nitrofurantoine.
14. Amoxycilline.
15. Ampicilline.
16. Amikacine.
17. Benzylpenicilline.
18. Cephalexine.
19. Cefasoline.
20. Cefoperazone.
21. Chloramphenicol.
22. Clindamicine.
23. Doxycycline.
33. Fentanyl.
34. Morphine.
35. Pentazocine.
36. Naloxone.
37. Diclophenac.
38. Baralgine.
39. Phenobarbital.
40. Nitrazepam.
41. Chlorpromazine.
42. Droperidol.
43. Sulpiride.
44. Amitriptyline.
45. Piracetam.
46. Valproate natrium.
47. Carbamazepine.
48. Phenytoin.
49. Trihexiphenidil.
50. Neostigmine.
51. Atropine.
52. Platiphilline.
53. Pirenzepine.
54. Dopamine.
55. Phenylephrine.

24. Erythromycyne.
25. Gentamicine.
26. Rifampicine.
27. Lincomicine.
28. Procaine.
29. Lidocaine.
30. Thiopental.
31. Diazepam.
32. Ketamine.
65. Penicillamine.
66. Sulfasalazine.
67. Cyclophosphamide.
68. Azathioprine.
69. Cyclosporine.
70. Levamisole.
71. Timaline.
72. Paracetamol.
73. Prednisolone.
74. Diphenhydramine.
75. Ketotifen.
76. Tiamine.
77. Piridoxine.
78. Cianocobalamine.
79. Nicotinic acid.
80. Ascorbic acid.
81. Lipoic acid.
82. Ergocalciferol.
83. Tocoferol.
84. Phytomenadione.
56. Propranolol.
57. Guanethidine.
58. Acetylsalicylic acid.
59. Indomethacine.
60. Ibuprofen.
61. Naproxen.
62. Piroxicam.
63. Mephenamic acid.
64. Chlorokine.
85. Cocarboxilase.
86. Epinephrine.
87. Tripsine.
88. Aprotinine.
89. Probucol.
90. Simvastatin.
91. Etamsilate.
92. Suxamethonium.
93. Allopurinol.
94. Dexamethasone.
95. Methyluracil.
96. Leucogenum.
97. Rumalon.
98. Nialamide.
99. Tiamazol.
100. Simple insulin.
101. Glibenclamide.
102. Estradiol dipropionat
103. Progesterone.
104. Testosterone propionate.

GENERAL MEDICINE

VIth year

The plan and timetable of the practical lessons (6 hours).

1. Organizational problems and introduction of the subject (frequency control, homework control)……...……...…….5min.
2. Answers to questions…….……...……..15min.
3. Determination of initial students level of knowledge (written test)…….…… ……..20min.
4. Microcuration (elaboration of case histories, examination of the patients treatment)..…….…….……20min
.
5. Discussing and consolidating the knowledge (using of demonstrational medicines, tables, lantern slides, lectures' matter, patients' presentation, clinical cases, internet materials)……...……90min.

6. Demonstration of the new drugs at respective theme. Determination of their place within modern standards of diseases' treatment (clinical uses, dosages, adverse reactions, important drug interactions etc.)……..…….20min.

7. Solve of the tests, clinical cases and P-medicines selection for respective disease pharmacotherapy……..……..…...30min.

8. Determination of the students final level of knowledge and P-medicines selection ability……..……20min.

9. Generalization of the basic material knowledge……..5min.

10. Theoretical course (basis principles)……..……...45min.

NOTE!

1. During the first day, the students receive patients for curation.

2. Case histories must be presented and marked at the end of the cycle.

3. 2 hours are given for knowledge control (written test) in the last day.

4. A ten-minute-break must be given after every academic hour (45min.).

PHARMACOKINETIC AND PHARMACODYNAMIC PECULIARITIES OF THE RATIONAL USAGE OF DRUGS USED IN AFFECTIONS OF THE RESPIRATORY SYSTEM.

A. Actuality

Respiratory system affections are the most frequent encountered in internist's practice, especially in ambulatory health care. Unserious attitude, of the patients towards these diseases, leads in many cases, to the development of chronic process with appearance of serious complications. Drugs' diversity that can be used in these affections imposes a scrupulous study of their pharmacodynamics and pharmacokinetics. This will allow to select a harmless and suitable treatment, which in case of such chronic diseases as bronchial asthma, obstructive bronchitis are administrated for a long period, accompanied by drugs efficiency decreasing.

B. Training aim

To study pharmacodynamics and pharmacokinetics. of drug groups used in treating of respiratory system diseases.

C. Didactic aims

The students should be able to:

a) Elucidate pharmacodynamic and pharmacokinetic peculiarities of drug groups used in respiratory system affections.

b) Establish dosage principles of drugs depending on group affiliation and etiology and severity of the disease.

c) Forecast possible side-effects and their dependence on dosing regimen, their prophylaxis.

d) Write down the personal form (P-medicines) of drugs used to treat respiratory system diseases.

D. Knowledge from other studied tangent subjects

Medico-biological subjects. Respiratory system anatomy. Neurological and hormonal influence on the respiratory system. Chemo receptors importance in regulation of respiration. Trachea, bronchi, alveolar acinus: structure, functions. Autonomic nervous system influence on respiratory system. The main causes of respiratory failure. Bronchial obstruction, mechanisms of development.

Clinical subjects. Respiratory system diseases (bronchitis, pneumonia, bronchial asthma, pulmonary abscess, pulmonary edema etc.). Their classification, clinical manifestation, pathogenesis and etiology, treatment principles.

Pharmacology. Classification of drugs affecting respiratory system (analeptics, antitussives, expectorants and mucolytics, bronchodilators). Drug groups used in pulmonary edema – mechanism of action, effects, indication, side-effects.

E. Questions for self training

1. Bronchodilators classification.
2. Clinical pharmacology of bronchodilators from β-adrenoceptor agonists group (classification, pharmacodynamic, pharmacokinetic peculiarities, clinical uses, routes of administration, election and dosage principles, drug interactions, side-effects).
3. Clinical pharmacology of M-cholinoblockers (pharmacodynamic, pharmacokinetic peculiarities, clinical uses, routes of administration, election and dosage principles, drug interactions, side-effects).
4. Clinical pharmacology of musculotropic bronchodilators (pharmacodynamic, pharmacokinetic peculiarities, election principles, clinical usage and dosage regimen, side-effects, drug interactions).
5. Clinical pharmacology of mast cell degranulation inhibitors (pharmacodynamic and pharmacokinetic peculiarities, election, clinical usage and dosage regimen principles, side-effects, drug interactions).
6. Clinical pharmacology of glucocorticoids, used as bronchodilators (pharmacodynamic, pharmacokinetic peculiarities, election, clinical usage and dosage regimen principles, side-effects, drug interactions).
7. Combined bronchodilators (principles and priorities). Treatment principles of asthmatic status.
8. Clinical pharmacology of antitussives (classification, pharmacodynamic and pharmacokinetic peculiarities, clinical usage and dosage regimen principles, side-effects, drug interactions). Combined preparations.
9. Clinical pharmacology of expectorants and mucolytics (classification, pharmacodynamic and pharmacokinetic peculiarities, clinical usage and dosage regimen, side-effects, drug interactions). Combined preparations.
10. Mechanism of action, clinical usage and dosing principles of drugs used in pulmonary edema treatment.
11. Using peculiarities of bronchodilators, antitussives, expectorants and mucolytics in pediatric medicine.
12. Drugs used in treatment and prophylaxis of the respiratory distress syndrome in newborn, their action and dosage principles.
13. Phythotherapy. Its peculiarities in nonspecific affections of the respiratory system in adults and children.

F. Succinct characterization of the main remedies.

Down: drugs' names.

Across: synonyms, delivering forms, routes of administration, doses (therapeutically, maximum), indication, contraindication, side-effect reactions.

1. Orciprenaline
2. Salbutamol.
3. Fenoterol.
4. Terbutaline.
5. Ipratropium.
6. Aminophylline.
7. Teopec.
8. Cromoglycate disodic.
9. Ketotifen
10. Beclomethasone.
11. Acethylcysteine.
12. Bromhexine.
13. Tripcine.
14. Codeine.
15. Prenoxidiazine.
16. Oxeladine.

G. Exercises on medical prescription.

Indicate the drugs used for:

1. Bronchial asthma.
2. Systemic treatment of atopic bronchial asthma.
3. Systemic treatment of hormones-dependent bronchial asthma.
4. Atria-ventricular block.
5. Premature labor prevention.
6. Obstructive chronic bronchitis.
7. Supurative chronic bronchitis.
8. Allergic rhynitis.
9. Acute bronchitis.
10. Pulmonary edema with hypertension.
11. Pulmonary edema with hypotension.
12. Pulmonary edema of non - cardiac etiology.
13. Convulsive cough.
14. Cough in pneumonia.

PHARMACOKINETIC AND PHARMACODYNAMIC PRINCIPLES OF RATIONAL USAGE OF DIGITALIS, OTHER POSITIVE INOTROPIC DRUGS (CARDIOTONIC AND CARDIOSTIMULANT DRUGS).

A. Actuality

Cardiovascular pathology in the latest decades is on the first place, according to morbidity, and mortality indexes. These diseases evaluate in the most cases in acute or chronic cardiac failure.

Benefic action of cardiac glycosides – digitalis was discovered about 200 years ago by the botanist William Withering, and they are used until today in the basic treatment of cardiac failure

B. Training aim

To study the application of clinical pharmacokinetic and pharmacodynamic principles for individualization and optimization of the cardiac glycoside and other inotropic drugs administration.

C. Didactic aims

The students should be able to:

a) Select the clinical and laboratory methods of examination in order to estimate the cardiac glycosides efficiency;

b) Analyze the results of digital and other inotropic drugs pharmacodynamic examination;

c) Predict the side-effects and possible complications in using of these drugs;

d) Use the prophylaxes and treatment methods of side-effects;

e) Write down the personal form (P-medicines).

D. Knowledge from other studied tangent subjects

Histology. Structure of contractile muscular fiber. Histology and physiology of excite-conductor tissue. Cellular and molecular bases of muscular contractility.

Pathophysiology. Homeostasis of calcium ions in cardiac muscular fiber. Physiology and pathophysiology of cardiac performance. Physiology and pathophysiology of heart failure. Mechanisms of hemodynamic regulation.

Clinical subjects. Ethiology, pathogeny and clinical evolution of cardiac failure. Diagnosis exploration of cardiac failure.

Pharmacology. Classification of cardiac glycosides and other inotropic drugs used in heart failure: a) bipyridines, b) beta-adrenoceptor stimulants. Mechanisms of actions, effects, indications, dosage, side-effects and their treatment.

E. Questions for self training

1. Classification of remedies used in cardiac failure. Classification of cardiac glycosides. Physicochemical peculiarities. Sources of drug obtaining.
2. Digitalis pharmacokinetics:
   a) Routes of administration, digitalis absorption from gastrointestinal tracts, possible interaction at absorption level;
   b) Digitalis distribution, plasma protein binding, interaction with other drugs;
   c) Metabolism and elimination of digitalis, drug interaction at metabolism and excretion level.
3. Molecular mechanism of action of cardiac glycosides.
4. Digitalis phatmacodynamics: mechanisms of inotrop-positive action, cronotrop-negative, dromotrop-negative, batmotrop-positive, tonotrop-positive action. Electrical effects (ECG record). Digitalis effects on other organs (CNS, gastrointestinal tracts, urinary tract, blood coagulation system etc.).
5. Clinical uses, contraindication and caution for cardiac glycosides administration.
6. Tactics of digitalis administration: rapid, moderate, slow digitalization. Maintenance treatment. Notion of individual, medium and maintenance doses of digitalis. Calculation methods of doses.
7. Methods and criteria of drugs efficiency estimation. Digitalization criteria. Tolerance and resistance to glycosides, their prophylaxis and treatment.
8. Digitalis toxicity: mechanisms of toxic action, symptoms and ECG modification. Prophylaxis and therapy of digitalis toxicity.
9. Peculiarities of digitalis action at associate administration with the following therapeutical remedies:
   a) Drugs affecting CNS and efferent innervations of heart;
   b) Antianginal agents;
   c) Medicines used in the treatment of cardiac failure (diuretics, anticoagulants, antiarrhythmic, vitamins).

10. Management of acute and chronic heart failure.
11. Non-glycoside positive inotropic drugs used in heart failure:
    a) Phosphodiesteras inhibitors;
    b) Bipirydines;
    c) Beta-adrenoceptor stimulants
12. Pharmacokinetics and pharmacodynamics of non-glycoside positive inotropic drugs.
13. Drugs that decrease preload and afterload (vasodilators and diuretics used in congestive heart failure. Clinical usage, pharmacological effects, dosage regimen, interactions.
14. Basic principles of management of acute and chronic heart failure.

F. Supplement for students of:

Pediatric faculty

Pharmacokinetic and pharmacodynamic peculiarities of drugs used in cardiac failure at children.

G. Succinct characterization of the main remedies.

Down: drugs' names.

Across: synonyms, delivering forms, routes of administration, doses (therapeutically, maximum), indication, contraindication, side-effect reactions.

1. Strofantine.
2. Digoxin.
3. Corglicon.
4. Lanatosine.
5. Digitoxin.
6. Acetyldigitoxin.
7. Dopamine.
8. Dobutamine.
9. Dopexamine.
10. Amrinone.
11. Milrinone.

H. Exercises on medical prescription

Indicate drugs for:

1. Acute cardiac failure.
2. Pulmonary edema.
3. Chronic cardiac failure.
4. Intoxication with cardiac glycoside.
5. Paroxysmal atrioventricular nodal tachycardia.
6. Atrial flutter.
7. Atrial fibrillation.
8. Paroxysmal atrial nodal tachycardia.
9. Cardiac failure in persons with angina pectoris.
10. Cardiogenic shock.

I. Selection of drugs used to treat acute and chronic cardiac failure according to efficiency, innocuous, acceptability and cost criterions in order to include them in personal form (P-medicines).

PHARMACOKINETIC AND PHARMACODINAMIC PRINCIPLES OF RATIONAL USAGE OF THE ANTIARRHYTHMIC AGENTS

A. Actuality

Cardiac arrhythmias dysfunctions cause abnormalities in electrical impulse formation (site, origin) and impulse conduction (regularity) in the myocardium. Clinical signification of this affection is varied - from the lack of any danger for patients, to sudden death.

Arrhythmias are a major cause of mortality in cardiovascular diseases. Many factors can precipitate or exacerbate arrhythmias: ischemia, arterial hypertension, autonomic influences, drug toxicity: digitalis, anesthetics and antidepressants.

Arrhythmias can precipitate pulmonary edema, cardiogen shock and lethal rhythm disturbances (ventricular fibrillation). Arrhythmias can be treated with pharmacological agents that suppress them by direct actions on the cardiac cell membrane.

B. Training aim

To study the pharmacotherapeutical principles of prescription, clinical usage, dosing schedule, argumentation of antiarrhythmic drugs administration and their efficiency estimation.

C. Didactic aims

The students should be able to:

a. Select the proper investigational methods in order to estimate the pharmacodynamic effect of antiarrhythmics.
b. Analyze and estimate the antiarrhythmic pharmacodynamics peculiarities of the studied results obtained by instrumental and laboratory methodes.
c. Predict possible complications and side - effects of antiarrhythmics.
d. Predict side-effect development dependence on dosing regimen of drugs and functional state of the heart and other organs and systems.
e. Apply contemporary methods of pharmacological correction of adverse reactions, produced by antiarrhythmics.
f. Write down the personal form (P-medicines) of antiarrhythmics.

A. Knowledge from other studied tangent subjects

Histology, pathomorphology, physiology. Anatomy of the heart conduction system. Histology and physiology of excite-conductor tissue. Role of sodium, potassium and calcium channels in the transmembrane potential of cardiac cells. Notions about α– and β– receptors, adenylatcyclase mechanism. Role of sympathetic and parasimpathetic nervous system in heart function regulation.

Clinical subjects Ethiology, pathogenesis and clinical peculiarities of myocardial excitability, conductibility and contractibility disorders. Theories of mechanisms of rhythm disturbances. Clinical and electrocardiography criterions of rhythm and conduction disturbances. Clinical, laboratory and electrocardiographic criteria of hypo - and hyperpotasiemia.

Pharmacology. Classification of antiarrhythmics. Classification of drugs used in conduction disturbances. Mechanisms of action of the antiarrhythmics, β – adrenoblockers and parasympatholytics. Side-effects of antiarrhythmics.

B. Questions for auto training

1. Classification of antiarrhythmic agents conform to electrical and physiological modifications produced at myocardial level.

2. Mechanism of action of antiarrthythmics from diverse classes (inclusively the action on automatism, conduction and myocardial contractibility. Characteristics of groups.

3. Potassium channel blockers antiarrithmics (quinidine type), drugs that prolong effective refractory period by prolonging action potential. Pharmacodynamics. Mechanism of action peculiarities on parasympathetic system. Clinical uses, dosage, adverse reaction. Pharmacokinetics.

4. Antiarrhythmics that shorten the action potential duration (Lidocaine group). Action on sodium and potassium ions. Usage peculiarities. Pharmacokinetics. Side – effects.

5. Antiarrhythmics with minimal effects on repolarization (flecainide, encainide). Action peculiarities on ventricle systolic depolarization. Clinical uses,doses, side – effects.

6. β-adrenoceptor blockants. Classification. Peculiarities of usage as antiarrthythmic drugs. Pharmacokinetics, clinical uses, doses, contraindications, side– effects.

7. Antiarrhythmics from calcium channel blocking drugs. Mechanism of action. Peculiarities of action on conducting ways (Kent, Paladino). Pharmacokinetics, clinical uses, doses, side – effects.

8. Other antiarrhythmics: amiodarone, bretylium drugs with significant influence on action potential and refractory period. Effects on sympathetic nervous system. Pharmacokinetics, administration peculiarities, clinical uses, adverse reactions

9. Diverse drugs used in the complex treatment of arrhythmias.
   a). Preparations that influence electrolytic homeostasis.
   b). Preparations affecting sympathetic and parasympathetic systems
   c). Preparations with metabolism stimulator action; antianginal, cardiac glycosides, cardiotonic, peripheral vasodilators.

10. Antiarrhythmic drugs pharmacokinetics (absorption, distribution plasma protein binding, elimination). Estimation of the drug efficiency.

11. Antiarrhythmic interaction among them and with other drugs.

12. Antiarrhythmic selection and dosing regimen, depending on etiology and pathogeny, seriousness and type of arrhythmia, persisting of conducting disturbances and risk of side-effects appearance.

13. Pharmacotherapeutical peculiarities of arrhythmias:
   a) Atrial flutter and fibrillation;
   b) Paroxysmal supraventricular tachycardia;
   c) Supraventricular and ventricular extra systole;
   d) Paroxysmal ventricular tachycardias;
   e) Ventricular fibrillation;
   f) Arrhythmic shock.

14. Administration peculiarities of antiarrhythmics to patients with hepatic and renal failure, to pregnant women.

15. Complications of antiarrhythmic treatment. Prophylaxis. Therapy.

16. Pharmacological characteristics of drugs used in conduction disturbances: glucocorticoids, M-cholinoblockers, sympathomimetics. Pharmacodynamics. Pharmacokinetics. Peculiarities of administration and Usage tactics and regimen.

C. Supplement for students from pediatric medicine

Peculiarities of antiarrhythmic agents usage in children.

D. Succinct characterization of the main drugs

Down: drugs' names

Across: synonyms, delivering forms, administration routes, doses (therapeutic, maximum), indications, contraindications, side-effect.

1. Quinidine	2. Procainamide
3. Disopyramide	4. Etmozine
5. Etacizine	6. Ajmaline
7. Lidocaine	8. Mexiletine
9. Amiodarone	10. Phenytoine
11. Flecainide	12. Lorcainide
13. Indecainide	14. Propafenone
15. Bretylium	16. Propanolol
17. Verapamil	18. Pindolol

E. Exercises on medical prescription

Indicate medicines for:

1. Atrial fibrillation
2. Atrial extrasystole
3. Paroxysmal ventricular tachycardia
4. Ventricular extra systoles
5. Atrio-ventricular block of II degree
6. Paroxysmal supraventricular tachycardias
7. Arrhythmias in digitals poisoning

F. Selection of antiarrhythmics according to efficiency, innocuousness, acceptability, and cost criteria in order to include them in personal form (P-medicines).

PHARMACOKINETICAL AND PHARMACODINAMICAL PRINCIPLES OF RATIONAL USAGE OF ANTIANGINAL DRUGS

A. Actuality

Ischemic heart disease is the most frequent cardiac pathology in patients of advanced age. In the latest decades, were obtained essential progresses in both, knowing of this disease etiology, pathology and treatment. The defect that causes anginal attacks (acute coronary syndrome) is inadequate coronary oxygen delivery relative to the myocardial oxygen requirement. This imbalance can be controlled through antianginal drug administration, thus avoiding possible serious complications, inclusively myocardial infarction and sudden death.

B. Training aim

To study pharmacokinetical and pharmacodynamical principles of individualization and optimization of clinical application of the antianginal drugs.

C. Didactic aims

The student should be able to:

a) Apply the minimum complex of proper investigations in order to estimate pharmacodynamical effect of antianginal drugs.

b) Elucidate mechanisms of action, pharmacodynamics and pharmacokinetics peculiarities of groups of remedies used in ischemic heart disease.

c) Establish the individual antianginal's drugs dosing principles, depending on disease peculiarities.

d) Predict the possible complications, adverse effects of antianginal medicines and their dependence on dosing regimen.

e) Apply contemporary methods of pharmacological correction of possible side-effects of antianginal drugs.

f) Write down personal form (P-medicines).

D. Knowledge from other studied tangent subjects

Medico-biological subjects. The heart anatomy and vascularization peculiarities of myocardial different areas. Sympathetic system role in functional regulation of heart and hemodynamic system. Morphological peculiarities of atherosclerosis.

Clinical subjects. Ethiology, pathogeny, clinical peculiarities of ischemic heart disease. Classification of ischemic heart disease. Characteristic electrocardiographic modifications to chronic coronaries failure and myocardial infarction.

Pharmacology. Classification of antianginal drugs. Mechanism o action, effects and side-effects.

E. Self training questions

1. Classification of antianginal drugs according to the mechanisms of action.
2. Clinical pharmacology of organic nitrates. Mechanism of action. Pharmacodynamics.Organ system effects.
3. Pharmacokinetics of organic nitrates. Retard form of nitrates.
4. Administration tactics, dosing principles of the organic nitrates. Possible adverse reactions and their prophylaxis and treatment.
5. Molsidomine - pharmacodynamics and pharmacokinetics.
6. β-adrenoceptor-blocking drugs, used as antianginal drugs. Classification of β–adrenoblockers.
7. Pharmacodynamic peculiarities of β-adrenoceptor-blocking drugs depending on group affiliation.
8. β-adrenoceptor-blocking drugs pharmacokinetics. Clinical use, administration tactics in angina pectoris. Side – effects, toxicity and their correction.
9. Amiodarone – pharmacodynamical and Pharmacokinetical peculiarities. Clinical uses and effects, dosage tactics. Toxycity.
10. Calcium channel-blocking drugs. Classification, mechanism of action.
11. Pharmacodynamics of calcium agonists as antianginal drugs. Clinical effects and uses according to the group affiliation.
12. Pharmacological properties of the main calcium-channel-blockers. Adverse reactions and their prophylaxis and treatment.
13. Importance in treating ischemic heart disease of drugs wich improve myocardial metabolism (anabolics, antihypoxants, vitamins etc.)
14. Peculiarities of antianginal medication in patients with associated pathology (arterial hypertension, cardiac arrhythmia, cardiac failure, bronchial asthma).
15. Principles of therapy of angina pectoris and acute myocardial infarction.

F. Succinct characterization of the main drugs

Down: drugs names

Across: synonyms, delivering forms, administration routes, doses (therapeutic, maximum), indications, contraindications, side-effect.

1. Nitroglicerine
2. Isosorbide dinitrate
3. Molsidomine
4. Propranolol
5. Pindolol
6. Amiodarone
7. Verapamil
8. Nifedipine
9. Diltiazem
10. Lidoflazine
11. Dipyridamol

G. Exercises on medical prescription

Indicate medicines for:

1. Attacks of angina pectoris
2. Stable angina pectoris, functional class II
3. Stable angina pectoris, functional classes III-IV
4. Vasospastic angina pectoris
5. Unstable angina pectoris
6. Acute myocardial infarction

I. Selection of antianginal drugs according to the efficiency, innocuousness, acceptability and cost criteria in order to include them in personal form (P-medicines).

PHARMACOKINETICAL AND PHARMACODYNAMICAL PRINCIPLES OF RATIONAL USAGE OF DRUGS USED IN PATOLOGICAL CONDITIONS ASSOCIATED WITH ARTERIAL BLOOD PRESSURE CHANGES. CEREBRAL AND PERIPHERAL VASODILATORS.

A. Actuality

Nowadays, when the number of patients with arterial hypertension increase, as well as the number of patients with different diseases associated with shock, the problem of antihypertensive and antihypotensive therapy becomes very actual.

B. Training aim

To study the clinic-pharmacological principles of prescription, dosage, toxicity and to estimate the benefit of the antihypertensive and antihypotensive drugs.

C. Didactic aims

The student should be able to:

a) Select the minimum complex of investigational methods for pharmacodynamical effect estimation of drugs with antihypertensive and antihypotensive action.

b) Analyze and estimate the results of pharmacodynamical study of antihypertensive and antihypotensive drugs.

c) Predict the dependence of side-effects of drugs on dosing regimen and functional state of t heheart and other organ system.

d) Predict the possible complication and side-effects of drugs that influence arterial blood pressure.

e) Apply the contemporary methods of pharmacotherapy of side-effects, produced by antihypertensive and antihypotensive drugs.

f) Write down the personal form (P-medicines) in hypotensive and hypertensive states.

D. Knowledge from other studied tangent disciplines

Anatomy, physiology, physiopathology. Cardiovascular system structure. Sympathetic and parasympathetic system's role in functional regulation of the heart. Main factors that determine arterial blood pressure. Main mechanisms of arterial blood pressure regulation.

Clinical subjects. Ethiology, pathology and clinical peculiarities of arterial blood pressure changes in different diseases. Clinical manifestations of arterial hypertension, classifications, complications. Classification of hypertensive emergencies. Treatment of arterial hypertension caused by pheochromocytoma, aortal coarctation. Peculiarities of drug treatment of arterial hypotension in different types of shocks.

Pharmacology. Notion about α- and β-receptors, adenylatcyclase mechanism. Classification, mechanism of action, side-effects of hypotensive and hypertensive drugs. Central and peripheral vasodilators.

E. Questions for self training

1. Antihypertensive drugs classification according to the principal regulatory site and mechanisms on which they act.

2. Pharmacokinetics and pharmacodynamics of centrally acting antihypertensive drugs: α-AM central (clonidine, methyldopa). Peculiarities of their influence on central haemodynamics, clinical use, dosage, contraindication, side-effects.

3. Clinical pharmacology of antihypertensives with peripheral action:

a) Ganglion blocking agents (azametoniu, trepiriu iodide, imehine, trimethaphan etc.), clinical use, dosage, contraindications, side-effects, their prophylaxis and treatment.

b) Sympathoplegic drugs (guanetidine, bretylium, debrizoquine, betanidine, etc.), mechanism of action, clinical uses, dosage, contraindications, side-effects.

c) α-adrenoblockers (phentholamine, tropafen, prazosin, terazosin etc.), classification, pharmacodynamic and pharmacokinetic peculiarities, clinical use, contraindications, side-effects.

d) α- and β- adrenoblockers (labetolol), pharmacological peculiarities, clinical use, dosage, side-effects.

e) Clinical pharmacology of the inhibitors of serotonin receptors (ketanserin).

f) Activators of potassium channel (cromakalim, nicorandil etc.).

4. Clinical pharmacology of neurotrop antihypertensives with central and peripheral action.

a) Pharmacokinetics and pharmacodynamics of Rauwolfia serpantina alkaloids (reserpine, raunatine, rausedil etc.). Peculiarities of action, clinical use, dosage, side-effects.

b) β-adrenoblockers (propranolol, oxprenolol, acebutolol, atenolol, nadolol, etc.). Classification, clinical use, dosage, side-effects. Peculiarities of antihipertensive action.

5. Clinical pharmacology of vasodilators:

a) arterial vasodilators (hydralazine, diazoxide, minoxidil etc.). Mechanism of action, clinical use, dosage, contraindications, side-effects.

b) Venous vasodilators (nitrites, hydrates).

c) arterial and venous vasodilators (bendazole, sodium nitroprusside, etc.). Pharmacological peculiarities, side-effects, their prophylaxis and treatment.

d) Vasodilators of the other groups (papaverine, $MgSO_4$ etc.). Indications, contraindications, side-effects.

e) Clinical pharmacology of calcium channel blockers (nifedipine, verapamil, diltiazem etc.). Classification, peculiarities of administration.

6. Clinical pharmacology of antihipertensives that interfere with renin-angiotensine-aldosteron system (captopril, enalapril, losartan, β-adrenoblockers, sympatholytics, aldosterone antagonists - spironolactone). Classification, mechanisms of action, clinical use, dosage, contraindications, side-effects. Peculiarities of administration. Pharmacokinetics.

7. Clinical pharmacology of diuretics used as antihypertensives; pharmacodynamics, pharmacokinetics, usage and dosage principles.

8. Usage of drugs with unspecific action in treating hypertension - (sedatives, tranquilizers, hypnotics).

9. Management of hypertension. Treatment of hypertensive emergencies.

10. Association of antihypertensives with other drugs (opioide neuroleptics, nitrites etc.). Indications, contraindications, side-effects.

11. Classification of antihypotensives conform the mechanism and duration of action, pathogeny of hypotension, selectivity of action on vessels.

12. Clinical pharmacology of antihypotensives that increase peripheral vase tonus (α-adrenomimetics, myotropes, isotioureic derivatives).

a) Clinical pharmacology of antihypotensives that increase vases tonus and cardiac output.

b) Clinical pharmacology of antihypotensives with central action.

13. Clinical pharmacology of antihypotensives that increase cardiac output.

14. Clinical pharmacology of antihypotensives that increase circulatory blood volume.

15. Clinical pharmacology of antihypotensives with permissive and complex action.

16. Cerebral anti-ischemics. Classification. Clinical pharmacology of the following groups of drugs:

I. Vasodilators:

a) Xanthinic derivatives (xanthinol nicotinat, pentoxiphylline etc.);

b) Alkaloids from Vinca minor (devincan, vinpocetine);

c) Myotrop spasmolytics (aminophyline, papaverine);

d) Calcium channels blockers used as cerebral anti-ischaemics (nimodipine, cinarizine, flunarizine etc.).

Their pharmacokinetics and phatmacodynamics, side-effects.

II. Neurotrop vasodilators.

a) ergot alkaloids (ergotamine, dihydroegotamine);

b) α-adrenoblockers (nicergoline, tolazoline);

c) β-adrenomimetics (izoxuprine, bufenine);

d) Antiserotoninics (naftidrofurile, metisergide).

17. Clinical pharmacology of the drugs that influence cerebral metabolism.

18. Clinical pharmacology of the remedies used in circulatory cerebral failure.

19. Pharmacological remedies used in peripheral circulatory disorder (obliterante endocarditis, Raynond syndrome, arthritis). Classification. Pharmacological characteristics.

F. Supplement for students of

Stomatological faculty

Peculiarities of antihypotensives usage in stomatological practice.

General medicine

Peculiarities of antihypotensives, antihypertensives, cerebral vasodilators usage in pediatric medicine.

G. Succinct characterization of the main remedies.

Down: drug names.

Across: synonyms, delivering forms, roads of administration, doses (therapeutically, maximum), indication, contraindication, side-effects.

a. β-adrenergic blockers.

1. Atenolol.
2. Nadolol.
3. Metoprolol.
4. Oxprenolol.
5. Propranolol.
6. Pindolol.

b. Blockers of calcium chennels.

1. Diltiazem.
2. Nifedipine.
3. Nicardipine.
4. Verapamil.

c. Other antihypertensives.

1. Azametoniu.
2. Hexametonium.
3. Bendazol.
4. Captopril.
5. Clonidine.
6. Dihidralazine.
7. Guanethidine.
8. Lisinopril.
9. Metyldopa.
10. Sodium nitroprusside.
11. Phentolamine.
12. Prazosine.
13. Reserpine.
14. Diazoxide.
15. Enalapril.
16. Lozartan.

d. Medication of cerebral circulation disorder.

1. Vinpocetine.
2. Pentoxiphilline.
3. Cinarizine.
4. Nicergoline.
5. Xanthinol nicotinat
6. Piracetam.

e. Antihypotensive medication.

1. Epinefrine.
2. Dopamine.
3. Dobutamine.
4. Doperaxine.
5. Ephedrine.
7. Angiotensinamide.
8. Glucagon.
9. Phenylepherine.
10. Isoturon.
11. Difetur.

6. Norepinephrine.

H. Exercises on medical reception:

1. Arterial essential hypertension of II degree.
2. Arterial essential hypertension of III degree.
3. Renal arterial hypertension.
4. Arterial hypertension with hyperaldosteronism.
5. Hheochromocytoma diagnosis and treatment.
6. Hypertensive emergencies.
7. Obliterante endarteritis.
8. Raynoud diseases.
9. Cardiogenic shock.
10. Resistant arterial hypotension at α-adrenomimetics.
11. Acute arterial hypotension.
12. Orthostatic hypotension caused by α-adrenoblockers.
13. Chronic arterial hypotension.
14. Hypovolemic shock.
15. Neurvascular distonia.
16. Acute cerebral failure.
17. Chronic cerebral failure.
18. Migraine.

PHARMACOKINETICAL AND PHARMACODYNAMICAL PRINCIPLES OF RATIONAL USAGE OF DRUGS AFFECTING ACIDOSIS, ALKALOSIS FLUID AND ELECTROLYTE BALANCE, PLASMA VOLUME EXPANDERS AND DIURETICS.

A. Actuality:

Acid-alkaline and hydro-electrolytic balance disorders are a reaction of the body to the action of different endogenous and exogenous harmful factors. Doctors' interest to the drugs used in acid-alkaline and hydro-electrolytic balance disorders treatment and to the plasmatic volume substitutions increased with the new discoveries of these drugs utilization in life threatening situations such as shock, intoxications, cardiac arrest, cerebral edema, etc.

B. Training aim

To study clinical and pharmacological principles of efficient selection and prescription of the drugs affecting acid-alkaline and hydro-electrolytic balance, of the plasmatic volume expanders in treating serious pathological states (shock, intoxication, peritonitis, necrotic pancreatitis, diabetes mellitus, cardiac arrest).

C. Didactic aims:

The student should be able to:

a) Select the minimum complex of the investigational methods for estimation of the pharmacodynamical aspects of the drugs affecting acidosis, alkalosis, fluid and electrolyte balance, plasma volume expanders and diuretics.
b) Analyze and estimate the results of pharmacodynamical studies of these drugs obtained by instrumental and laboratory methods.

c) Predict the development of possible complications and side-effects of used drugs.
d) Forecast manifestation of adverse reactions dependence on dosing regimen and functional state of organs system.
e) Write down personal form (P-medicines).

D. Knowledge from other studied tangent subjects:

Anatomy, histology, physiology, physiopathology and biochemistry. Physiological bases of acid-alkaline balance of organism. Renal, liver, skin and other organs role in acidosis, alkalosis, fluid and electrolyte balance regulation.

Clinical subjects. Notion of shock, classification, pathogeny. Surgery pathologies and other serious pathological states that produce metabolic acidosis and metabolic alkalosis.

E. Questions for self training

1. Clinical pharmacology of the agents with action on acidosis-alkaline balance. Management of acidosis state:
   a) Acidosis correction with sodium bicarbonate (urine pH control).
   b) Clinical pharmacology of the drugs administered in treating of alkalosis (ascorbic acid, arginine).
2. Clinical pharmacology of the drugs administered in treating disturbance of acidosis and alkalosis balance.
3. Clinical pharmacology of the drugs from other groups used in treating acidosis-alkaline balance disturbance:
   a) role of diuretics in correction of acidosis and alkalosis balance disorders;
   b) role of cardiac glycosides and glucocorticoides in treating acidosis and alkalosis balance disorder.
4. Fluid and electrolytes balance disturbance, their treatment.
5. Clinical pharmacology of plasma volume expanders, their classification.
   a) Pharmacological peculiarities of the plasma volume expanders with anti-shock effect (dextrane, plasma, albumin etc.) administered to patients with hypovolemic, cardiogen and anaphylactic shock. Indications. Side-effects.
   b) Plasma volume expanders with detoxification effects. Pharmacodynamical principles of dosage, indications, side-effects.
   c) Peculiarities of plasma volume expander's administration in parenteral alimentation.
6. Clinical pharmacology of plasma volume expanders in treatment of acidosis-alkaline, fluid and electrolyte balance disorder (albumin, potassium, glucose, insulin etc.).
7. Classification of the diuretics conform to place, duration of action, and potency.
8. Clinical pharmacology of:
   a) Osmotic diuretics – mechanism of action, clinical effect, clinical uses, side-effects and their prophylaxis.
   b) Thiazides: mechanism of action, usage peculiarities, side-effects and their prophylaxis.
   c) Loop agents: mechanism of action, clinical indications and dosage peculiarities, side-effects and their prophylaxis.
   d) Potassium-sparing (competitive antagonists of aldosterone). Mechanism of action and usage peculiarities.

9. Peculiarities of diuretics administration to pregnant women, children and old people.
10. Rational combined use of diuretics. Drug interactions.

F. Supplement for students of pediatric medicine:

Principles of acidosis-alkaline, fluid and electrolyte balance disturbance correction in children.

G. Succinct characterization of the main remedies:

Down: drug's names.

Across: synonyms, delivering forms, routes of administration, doses (therapeutically, maximum), indication, contraindication, side-effects.

1. Dextran 40.
2. Dextran 70.
3. Human albumin.
4. Jelatinol.
5. Glucose solution of 5-10-15-20%
6. Sodium chlorate 0,9%
7. Lactat Ringer solution.
8. Polividon.
9. Triamteren
10. Spironolactone
11. Sodium bicarbonate
12. Trisamine.
13. Furosemide.
14. Hydrochlortiazide.
15. Mannitol.
16. Ethacrynic acid.
17. Indapamid.
18. Bumetanid

H. Exercises on medical reception:

Indicate drugs for:

1. Metabolic acidosis.
2. Metabolic alkalosis.
3. Isotonic dehydration.
4. Hypotonic dehydration.
5. Hypertonic dehydration.
6. Hypokaliemia.
7. Hypocalciemia.
8. Hypovolemic shock.
9. Detoxification in peritonitis.
10. Food intoxication.
11. Hemorrhagic shock.
12. Cerebral oedema.
13. Pulmonary edema of non-cardiac origin.
14. Pulmonary edema of cardiac origin.
15. Acute left ventricular failure.
16. Chronic cardiac failure.
17. Acute renal failure.
18. Chronic renal failure.
19. Arterial hypertension.
20. Acute intoxication.
21. Insipid diabetes.
22. Prophylaxis and treatment of thrombosis and thromboembolia.

I. Selection of drugs affecting acidosis, alkalosis, fluid and electrolyte balance, plasma volume expanders and diuretics according to the efficiency, innocuousness, acceptability and cost criteria in order to include them in personal form (P-medicines).

PHARMACOKINETICS AND PHARMACODINAMICS OF RATIONAL USAGE OF DRUGS USED IN DISORDERS OF COAGULATION

A. Actuality

Bleeding and thrombosis are altered states of hemostasis. Impaired hemostasis results in spontaneous hemorrhages; stimulated hemostasis results in pathologic thrombus formation. Microthrombus formation can lead to serious complications, inclusively mortal: pulmonary artery embolism, cerebral vases embolism etc. In order to assure an intact circulation there are used drugs with action on hemostasis: coagulants, anticoagulants, fibrinolytics, and platelets functions inhibitors.

B. Training aim

To study pharmacodynamical and pharmacokinetical properties of agents with influence on blood coagulation and fibrinolysis.

C. Didactic aims

The student should be able to:

a) Elucidate the mechanism of action, indications, side-effects and contraindications of hemostatic and antithrombotic remedies.

b) Estimate the usage and dosage principles of haemostatic and antithrombotic drugs depending on the disease and pathological states.

c) Establish the principles of drugs' interactions of haemostatic and antithrombic agents with other drugs and predict the possible side - effects.

d) Write down personal form (P-medicines).

D. Knowledge from other studied tangent subjects

Clinical - biologic subjects. Blood coagulation. Intrinsic and extrinsic systems of blood coagulation. Anticoagulant and fibrinolytic systems. Role of the platelets in blood coagulation. Pathogenesis of the thrombosis.

Surgery. Etiology and pathogenesis, phases, clinical forms and manifestations of disseminated intravascular coagulation (DIC) syndrome.

Hematology. Changes of blood coagulation indexes in coagulation disturbances. Physiologic antiocoagulants (antithrombin III, proteins C and S).

Pharmacology. Classification of hemostatics and antithrombotics. Coagulants, antifibrinolytics, agregants, anticoagulants: classification, mechanism of action, indications, contraindications, adverse reactions.

E. Questions for self-training.

1. Clinical pharmacology of direct anticoagulants. Standard Heparin. Mechanism of action, pharmacological effects, clinical uses, doses, contraindications, side - effects. Pharmacokinetics. Drug interaction. Clinical pharmacology of the high-molecular-weight heparins. Heparin antagonists, usage principles.

2. Clinical pharmacology of indirect (oral) anticoagulants. Classification. Pharmacodynamics and pharmacokinetics, comparative characteristics. Usage and dosage

principles, drug interaction. Comparative characteristics of direct and indirect (oral) anticoagulants.

3. Clinical pharmacology of the direct and indirect fibrinolytics. Pharmacodynamics and pharmacokinetics. Usage and dosage principles. Drug interaction. rt-PA: usage and dosage principles, contraindications, adverse reactions.

4. Clinical pharmacology of the antiagregant (antiplatelets) drugs. Classification, mechanisms of action, pharmacological effect, clinical uses, dosage, adverse effects. Pharmacokinetics. Drug interactions.

5. Clinical pharmacology of coagulants (direct and indirect, with local and systemic action). Classification. Pharmacokinetics and pharmacodynamics. Principles of usage and dosage. Drug interaction.

6. Clinical pharmacology of fibrinolytic inhibitors. Pharmacokinetics and pharmacodynamics. Principles of dosage and usage. Drug interaction.

7. Clinical pharmacology of agregants. Pharmacokinetics of pharmacodynamics. Principles of dosage and usage. Drug interaction.

8. Pharmacotherapeutical management of the disseminated intravascular coagulation DIC) syndrome.

9. Remedies used to treat heritable coagulation defects – hemophilia A and B. Principles of action and clinical usage.

10. Angioprotectors. Classification, mechanism of action and usage principles.

11. Peculiarities of the drugs with influence on hemostasis administration to children.

F. Succinct characterization of the main drug

Down: drugs' names

Across: synonyms, delivering forms, routes of administration, doses (therapeutic, maximum), indications, contraindications, side-effect.

1. Heparin
2. Acenocumarol
3. Streptokinase
4. Acetylsalycilic acid
5. Pentoxiphilline
6. Phytomenadione
7. Difenadione
8. Warfarine
9. Aprotinine
10. Aminocaproic acid
11. Etamsilat
12. Protamine sulfate
13. Nadroparine calcium
14. Ticlopidine
15. Fenprocumone
16. Tissue plasminogen activator
17. Clopidogrel
18. Eptifibatide

G. Exercises of medical reception

Indicate drugs for:

1. Pulmonary artery thromboembolia.
2. Venous thrombosis.
3. Thromboflebitis.
4. Direct anticoagulant overdosage.
5. Arterial thrombosis.
6. Disseminate intravascular coagulation (hypocoagulation phase)
7. Disorder of regional circulation
8. Hemorrhage, caused by hyperfibrinolysis.
9. Overdosing of oral anticoagulant

10. Ischemic heart disease with thrombosis.
11. Acute myocardial infarction (with thrombosis).
12. Capillary hemorrhage.
13. Thrombocytopenia.
14. Diabetic retinopathy.
15. Antitrombin III insufficiency.
16. Disseminated intravascular coagulation syndrome (phase of hypercoagulation.

I. Selection of drugs with influence on hemostasis according to efficiency, innocuousness, acceptability and cost criteria in order to include them in personal form (P-medicines).

PHARMACOKINETICAL AND PHARMACODINAMICAL PRINCIPLES OF RATIONAL USING OF REMEDIES USED TO TREAT GASTROINTESTINAL DISEASES

A. Actuality

Nowadays, a large number of remedies are used for treating digestive tube affections. At the same time, digestive tube affections can influence drugs' kinetics, modifying the absorption process with pharmacodynamic and toxic consequences. Clinical involvement in this situation is hard to predict, being dependent on physico-clinical properties of the drugs, on the nature of digestive affection and patient's organs system.

Liver diseases can affect kinetics and, indirectly, drugs' action by a series of factors that favor their accumulation in the body. All these require knowledge of clinico - pharmacological peculiarities of drugs used to treat digestive tube's affections.

B. Training aim

Application of pharmacodynamic and pharmacokinetic principles of administration of the drugs used to treat digestive tube affections.

C. Didactic aims

The student should be able to:

a) Distinguish the drugs used in digestive tube affections according to pharmacokinetic and pharmacodynamic peculiarities;

b) Prognose the side-effect appearance depending on administration regimen and doses;

c) Estimate clinical efficiency of drugs;

d) Prescribe drugs with influence on digestive system depending on the disease, pathological state and age peculiarities of patients;

e) Apply the methods of side-effect prophylaxis and correction;

f) Predict the interactions of remedies used in digestive tube affections;

g) Write down personal form (P-medicines) of remedies used in digestive tube affections

D. Knowledge from other studied tangent subjects

Medico-biological subjects. Anatomy and physiology of the gastrointestinal system. Peculiarities of the digestive tube function depending on age. Notion of protein, aminoacids metabolism, carbohydrates and lipids assimilation. Morphological structure, function and innervations of different segments of gastrointestinal system.

Clinical disciplines. Etiology, pathogenesis, and clinical manifestations of the main diseases and pathological states of digestive tube. Investigational methods of functional state of the digestive tube and establishment of a correct diagnosis.

E. Questions for self training

1. Estimation methods of drug efficiency used in treating diseases and pathologic states of the digestive tube. Drug election, dose and dosing regime.
2. Establishment of curative duration of the digestive tube affections, according to the character and seriousness of the disease, liver functional state.
3. Classification of remedies used in digestive tube affections. General principles of combined treatment of the digestive tube's affections.
4. Classification of remedies that regulate the appetite. Orexigens. Classification, mechanism of action, clinical effects, indications, side - effects.
5. Classification of anorexigens. Mechanism of action, effects, indications, usage peculiarities, contraindications, side - effects and their prophylaxis.
6. Preparations affecting salivatory glands secretion. Pharmacological properties, indications, side - effects and their prophylaxis. Usage peculiarities in stomatological affections.
7. Clinical pharmacology of drugs used in gastric and intestinal glands hyposecretion (classification, mechanism of action, effects, indications, side-effects). Usage peculiarities in pediatric medicine.
8. Classification of remedies used in acid-peptic disease (ulcerous) treatment.
9. Comparative pharmacokinetics and pharmacodynamics of antimuscarinic agents (cholinoblockants) used as gastric antisecretory drugs.
10. Clinical pharmacology of H_2 - receptor antagonists (histaminoblockants used in ulcerous disease treatment.
11. Pharmacodynamic and pharmacokinetic properties of proton pump inhibitors. Prostaglandin and somatostatins analogues in treating of gastric ulcer.
12. Antacids. Classification and comparative characteristics of antacids according to action, clinical effects, efficiency and side - effects. Combined preparations.
13. Clinical pharmacology of mucosal protective agents. Usage peculiarities, adverse effects.
14. Substances that contribute to gastric and duodenal mucosa regeneration. Classification. Their compatibility with other antiulcerous drugs.
15. Election and association principles of antiulcerous remedies. Role of anti-infection medication. Pharmacotherapeutical strategies in treating of gastric and duodenal ulcer.
16. Pharmacodynamics and pharmacokinetics of remedies used in intestinal motility disfunction.
17. Spasmolytics. Classifications, mechanism of action, effects, indications, side - effects. Pharmacokinetics. Usage peculiarities.
18. Classifications, pharmacodynamics and pharmacokinetics peculiarities of vomitive remedies with central and reflex action, their importance in treating of intoxications.
19. Classifications, action principles and pharmacological usage peculiarities of antiemetics (antivomitives). Clinical uses, contraindications, side - effects.

20. Clinical pharmacology of laxatives. Classification and comparative characteristics according to the place of action and effect duration. Clinical use, dosage, contraindications and side - effects. Using peculiarities in pediatric medicine.

21. Clinical pharmacology of antidiarrheal drugs (M-cholinoblockants, M-, N-cholinoblocants, ganglioblockants, spasmolytics, myotrops, opioid analgesics, antibacterial and specific drugs etc.).

22. Classification of carminatives. Mechanism of action, effects, indications, pharmacokinetics. Side-effect reactions.

23. Classification of drugs affecting pancreas secretion. Characterization of remedies that stimulate or inhibit secretion and drugs used in replacement therapy.

24. The hepatotrops. Classification. Usage principles.

25. Remedies that modify bile secretion and excretion. Classification. Action principles of drugs that stimulate bile formation (choleretics), remedies that contribute to bile elimination (cholecysto-kinetics) and spasmolytic that contribute to biliar ducts relaxation. Cholytolitics. Peculiarities of pharmacokinetics and pharmacodynamics. Clinical usage.

26. Classification of hepatoprotectors. Comparative characteristics. Indications. Usage principles.

27. Mineral waters usage in digestive tube affections.

F. Succinct characterization of the main drug

Down: drugs names

Across: synonyms, delivering forms, administration roads, doses (therapeutic, maximum), indications, contraindications, side - effect reactions.

1. Fepranone
2. Pirenzepine
3. Scopolamine
4. Almagel
5. Proglumide
6. Loperamide
7. Omeprazole
8. Plantaglucide
9. Abomine
10. Carbenoxolone
11. Nandrolone
12. Solcoseril
13. Papaverine
14. bismut subcitrate
15. Sulpiride
16. Neostigmine
17. Drotaverine
18. Apomorphine
19. Aeron
20. Tiethylperazine
21. Metochlopramide
22. Oxaphenamide
23. Nicodine
24. Aprotinin
25. Silibinine
26. Esentiale
27. Sirepar
28. Ranitidine
29. Acidin-pepsine
30. Enterol
31. Bisacodil
32. Famotidine

Exercises of medical prescription

Indicate medicines for

1. Anorexia.
2. Anorexia after infections, serious surgical interventions, oncology diseases.
3. Cancerous cachexy.
4. Hypo-and anacid gastritis.

5. Chronic enterocholitis.
6. Chronic pancreatitis.
7. Hepatitis.
8. Chronic hepatocholicystitis.
9. Subacute pancreatitis.
10. Flatulence.
11. Gases elimination before radiological diagnosis.
12. Non-specific diarrhea.
13. Peptic gastric ulcer.
14. Zolinger-Ellison syndrome.
15. Hyperacid gastritis.
16. Chronic constipation.
17. Drugs intoxications;
18. Intestinal motility dysfunction.
19. Chronic cholitis with disbacteriosis.
20. Cholecystitis.
21. Gallstones.
22. Toxic and drugs lesions of theliver.
23. Lipid degeneration of the liver.
24. Hepatic lesions in diverse diseases (diabetes, alcoholism, etc.).
25. Gestosis in pregnant women.

I. Selection of the drugs used in digestive tube affections according to efficiency, innocuousness, acceptability and cost criteria in order to include them in personal form (P medicines).

SIDE - EFFECTS OF DRUGS. SUPERVISION SYSTEM OF DRUGS. DRUG INTERACTION. COMPLICATIONS OF PHARMACOTHERAPY. PHARMACOLOGY OF INTOXICATIONS.

A. Actuality

At the end of XXth century, medicine posses a immense number of drugs with a vast potency and action intensity, the using of which doubl each 10 years. On simultaneous administration of more drugs, it appears an interaction between them, sometimes with positive consequences, sometimes with injurious. Pharmacotherapeutic complications incidence, according to some bibliographic sources, increased from 10% to 40% in the latest 15 years. Drugs' side-effects can be wide-ranging and of different origin, that impose close collaboration between practicing doctors and pharmacologists concerning the recording, systematizing, preventing and informing sanitary institutions.

Those mentioned above, involve the require deep knowledge of this compartment of clinical pharmacology.

B. Training aim

To study clinical-pharmacological principles of rational and innocuousness administration of drugs. To study drug interactions, side-effects and toxicity of drugs. To elaborate efficient tactics of their prevention and treatment.

C. Didactic aims

The student should be able to:

a) Select a minimum complex of investigational methods in order to estimate the pharmacodynamical modificationscaused by drug interaction.

b) Analyze and estimate pharmacodynamic results of drugs administration, taking into account possible interactions between them.

c) Prognose side-effects dependence on dosing regimen and functional state of organs' system of the body.

d) Apply contemporary methods of pharmacological and non-pharmacological correction of side effects produced by drugs.

e) Elaborate adequate treatment and prophylaxis concepts of intoxication with drugs and toxic substances.

D. Knowledge from other studied tangent subjects

Clinical subjects. Peculiarities of complex treatment of different diseases and pathological states.

Pharmacology. Classifications of drug interactions. Notion of drug interaction. Notion of pharmacokinetical and pharmacodynamical drug interaction. Principles of acute intoxication treatment.

E. Questions for self training

1. Pharmaceutical drug interaction, interaction or incompatibility „in vitro". Causes of development and manifestasion. Incompatibility with injectable solutions.
2. Pharmacokinetical drug interaction. Basic process of drug kinetics.
3. Drug interaction at absorption level, factors that can influence them:
   - **a)** The importance of these interactions for drug **biovalability;**
   - b) The influence of gastric and intestinal pH modification on absorption process;
   - c) Drug interaction in intestine with insoluble helates, inabsorbable or less absorbable complexes formation, their clinic signification;
   - d) Drug interference at active transportation level through/across intestinal wall.
   - e) Modification of gastrointestinal motility and drug **biovalability.**
4. Drug interaction at distributional level, manifestation and factors that can influence them:
   - a) Regional modification of sanguine tide;
   - b) Removal from plasmatic and tissues proteins.
     Drug affinity to plasmatic proteins for coupling with them.
5. Drug interaction at metabolization level:
   - a) Enzymatic induction. Causes and consequences. Enzymes as drug inductors.
   - b) Enzymatic inhibition. Causes and consequences. Drugs with inhibitor action on hepatic microsomal enzymes.
   - c) Modification of hepatic sanguine tide.
6. Drug interaction at urinary excretion level:
   - a) At glomerular filtration level.
   - b) At tubular secretion level.
   - c) At tubular reabsorption level. Urinary pH importance for drug reabsorption.
7. Drug interaction of pharmacodynamic order:
   - a) Pharmacodynamic interaction at molecular and cellular level.
   - b) Pharmacodynamic interaction at anatom-physiologic system level.

8. Side - effect and pathological states produced by drugs. Fundamental notions. Types and causes of side - effects. Classification.

9. Side – effect of toxic type, their dependence on dose regimen:
   a) Individual reactivity and pathological states that modify pharmacodynamic and pharmacokinetic parameters of drugs.
   b) The importance of intrinsic toxicity of drug, toxicity of small therapeutical index in side-effect appearance.
   c) Side - effects of toxic type caused by drug interaction.
   d) Dismorfogen effects, mutagen and cancerous effects caused by drugs.

10. Allergic side – effects:
   a) Anaphylactic type (type I). Anaphylactic reactions.
   b) Cytotoxic type (type II). Autoimmune cytotoxic reactions.
   c) Through immune complexes (type III).
   d) Delayed type (type IV).

   Pathogenesis, clinical manifestations and prophylaxis of allergic reaction.

11. Idiosyncrasy's side - effects. Pharmacogenetic processes responsible for idiosyncrasy reactions.

12. Pathological states produced by drugs:
   a) Pathological cardiovascular states produced by drugs.
   b) Pathological states of respiratory system produced by drugs.
   c) Gastrointestinal pathological states produced by drugs.
   d) Hepatic affections produced by drugs.
   e) Blood pathological states produced by drugs.
   f) Endocrinological pathologies produced by drugs.
   g) Renal pathological states produced by drugs.
   h) Pathological states of the eye and intern ear produced by drugs.
   i) Psychic and neurological pathological states produced by drugs.

13. Drug dependence. Characteristics and clinical manifestations. Prophylaxis and treatment of drug dependence

14. Rebound phenomenon and withdrawal syndrome.

15. The system of drug supervision and clinical safety in the Republic of Moldova. Structure, functions and basic tasks.

16. Clinical pharmacology of acute intoxications:
   a) General principles of pharmacological treatment of acute intoxications. Classification of antidotes.
   b) Enterosorbents. Indications for administration. Dosing tactics.
   c) chemical interaction of drugs with toxic substances
   d) interactions of substances of acid and alkaline pH with other alkaline drugs and acids.
   e) Helator agents – dimercoptol, EDTA, pentacine etc. Action mechanism. Usage aspects.
   f) Antitoxic immunotherapy with specific immune serum.
   g) Pharmacological, physiological, biochemical antidotes.

   Mechanisms of action. Usage principles. Individualization and optimization of acute intoxication treatment, according to toxic substances' properties and clinical manifestation of intoxication.

17. Drug interaction in stomatological treatment. Consequences and their prophylaxis. Side-effects in stomatological treatment. Buccal cavity affections produced by drugs and other active biological substances.
18. Drug interaction peculiarities to children. Clinical and pharmacological aspects of side - effects in children. Treatment principles of intoxications in children.

QUESTIONS FOR WRITTEN EXAMINATION

I. Theoretical questions.

1. Classification of antihypotensive remedies according to mechanisms of action duration of action, pathogenesis of the disease, character and selectivity of action on vassels.
2. Clinical pharmacology of the antihypotensive that increase cardiac output and vessels' tonus.
3. Clinical pharmacology of the antihypotensives that increase cardiac output.
4. Clinical pharmacology of antihypotensives that increase peripheral vessels tonus.
5. Clinical pharmacology of antihypotensives that increase the volume of circulatory (plasma) blood.
6. Classification of remedies used in congestive heart failure. Clinical pharmacology of cardiac glycosides, and other positive inotropic drugs (non-glycoside and non-adrenergic).
7. Classification of antihypertensive remedies.
8. Clinical pharmacology of the centrally acting antihypertensives.
9. Clinical pharmacology of ganglioplegics and simpathoplegics used as antihypertensive agents.
10. Clinical pharmacology of the α-adrenoceptor-blockers used as antihypertensive agents.
11. Clinical pharmacology of the β-adrenoceptor-blockers used as antihypertensive agents: pharmacodynamics, pharmacokinetics, usage and dosage principles, side-effects.
12. Clinical pharmacology of the myotrope antihypertensive remedies.
13. Clinical pharmacology of diuretics used as antihypertensive agents.
14. Clinical pharmacology of the angiotensin - converting enzyme (ACE).
15. Clinical pharmacology of the calcium channel blockers used as antihypertensive agents.
16. Combined antihypertensive drugs. Treatment principles of arterial hypertensive and hypertensive emergencies.
17. Classification of the cerebral anti-ischemic drugs. Clinical pharmacology of the cerebral vasodilators: a) xanthine derivatives; b) alkaloids of Vinca minor; c) calcium antagonists; d) α-adrenoblockers; e) antiserotonin drugs; f) ergot alkaloids.
18. Clinical pharmacology of the peripheral vasodilators.
19. Clinical pharmacology of the cardiac glycosides: classification, pharmacokinetics, mechanisms of action and clinical effects, indications, dosage principles, efficiency criteria, intoxication with cardiac glycosides and its treatment, interaction with other drugs.
20. Clinical pharmacology of non-glycoside and non-adrenergic positive inotropic drugs - pharmacodynamics, indications, side-effects, dosage principles.

21. Clinical pharmacology of the cardiostimulants (pharmacokinetics, pharmacodynamics, indications, side-effects, dosing principles).

22. Clinical pharmacology of remedies that decrease preload and afterload (vasodilators and diuretics). Principles of action and usage in heart failure.

23. Classification of antiarrhythmic remedies. Electrophysiologic mechanisms of action.

24. Clinical pharmacology of the antiarrhythmics of membrane-stabilisators group.

25. Clinical pharmacology of the β-adrenoblockers used as antiarrhythmics.

26. Clinical pharmacology of calcium channels blockers used as antiarrhythmic agents.

27. Clinical pharmacology of remedies that increase action potential duration.

28. Classification of anti-anginal drugs,

29. Clinical pharmacology of nitrates and nitrites.

30. Clinical pharmacology of β-adrenoblockers used as antianginal drugs.

31. Clinical pharmacology of calcium antagonists used as antianginal drugs.

32. Principles of action and usage of drugs used in ischemic heart disease and acute myocardial infarction.

33. Clinical pharmacology of the bronchodilators of β-adrenoceptor-stimulants group.

34. Clinical pharmacology of bronchodilators from M- cholinoblocker group.

35. Clinical pharmacology of glugogorticoids used as ahtiasthmatic drugs.

36. Clinical pharmacology of the bronchodilators from methylxanthinic group of glucoccorticoids as antiasthmatics.

37. Clinical pharmacology of the mast cell degranulation inhibitors used to treat bronchial asthma.

38. Clinical pharmacology of the antitussives.

39. Clinical pharmacology of the expectorants and mucolytics.

40. Principles of action of drugs used in pulmonary congestion (edema).

41. Clinical pharmacology of the remedies used in hyposecretion of gastric and intestinal glands.

42. Classification of remedies used to treat acid-peptic disease (gastric and duodenal ulcer). Clinical pharmacology of anti-ulcerous drugs from M-choliniblockers group (antimuscarinic drugs).

43. Clinical pharmacology of the H_2-receptor antagonists (histaminoblockers) used to treat ulcerous disease.

44. Clinical pharmacology of the antacids used in acid-peptic disease.

45. Clinical pharmacology of gastric antisecretory (antigastrinic) remedies: carboanhidrase inhibitors and proton pump inhibitors used in ulcerous disease.

46. Clinical pharmacology of the mucosal protective agents (gastro- and citoprotectors) used in ulcerous disease.

47. Clinical pharmacology of the drugs promoting gastrointestinal motility.

48. Clinical pharmacology of the spasmolytics used in treating gastrointestinal system affections.

49. Clinical pharmacology of the antidiarrheal drugs.

50. Clinical pharmacology of the purgatives and laxatives.

51. Classification of the hepatotrop drugs. Clinical pharmacology of the hepatoprotectors.

52. Clinical pharmacology of remedies affecting bile secretion and excretion.

53. Clinical pharmacology of remedies used in meteorism (anti-flatulence).
54. Clinical pharmacology of the antiemetic drugs.
55. Clinical pharmacology of remedies affecting pancreas secretion.
56. Clinical pharmacology of direct acting anticoagulants.
57. Clinical pharmacology of indirect acting (oral) anticoagulants.
58. Clinical pharmacology of the fibrinolytic drugs.
59. Clinical pharmacology of antiplatelet drugs (antiagregants).
60. Clinical pharmacology of coagulants.
61. Clinical pharmacology of antifibrinolytic drugs.
62. Clinical pharmacology of platelet function stimulators (agregants).
63. Classification of antithrombotics and hemostatics.
64. Clinical pharmacology of the angioprotectors.
65. Classification of diuretics according to place of action, duration of action and potency.
66. Clinical pharmacology of the osmotic diuretics.
67. Clinical pharmacology of non-thiazide diuretics.
68. Clinical pharmacology of thiazide diuretics.
69. Clinical pharmacology of loop diuretics.
70. Clinical pharmacology of aldosterone antagonists diuretics.
71. Clinical pharmacology of potassium-sparing diuretics.
72. Clinical pharmacology of substances used in fluid and electrolyte disorders correction.
73. Clinical pharmacology of substances used in acidosis and alkalosis disorders correction.
74. Clinical pharmacology of plasma volume expanders.
75. Drug interactions at absorption level.
76. Drug interactions at distribution level.
77. Drug interaction at metabolism level.
78. Drug interaction at the excretion level.
79. Complications of pharmacotherapy of toxic origin.
80. Complications of pharmacotherapy of allergic origin.
81. Complications of pharmacotherapy caused by drug withdrawal.
82. Complications of pharmacotherapy caused by genetic peculiarities..
83. Drug interaction of pharmacodynamic order.
84. Principles of acute intoxication treatment. Antidotes (classification, principles of action and usage).

II. Indicate drugs for:

1. Essential arterial hypertension of II degree.
2. Essential arterial hypertension of III degree.
3. Diagnosis and treatment of phochromocytoma.
4. Raynaud disease.
5. Hypertensive emergencies.
6. Obliterant endarteritis.
7. Renal arterial hypertension.
8. Acute arterial hypertension.
9. Chronic arterial hypertension.

10. Acute cerebral failure.
11. Chronic cerebral failure.
12. Acute cardiac failure, III - IVth stages.
13. Chronic cardiac failure, Ist - IInd stages with sinusal rhythm.
14. Intoxication with cardiac glycosides.
15. Acute angina pectoris.
16. Stable angina pectoris, functional class II.
17. Stable angina pectoris, functional class III - IV.
18. Vasospastic angina pectoris.
19. Unstable angina pectoris.
20. Tachystolyc atrial fibrillation.
21. Paroxysmal supraventricular tachycardias.
22. Atrial extrasystole.
23. Ventricular extrasystole.
24. Paroxysmal ventricular tachycardias.
25. Atria-ventricular block.
26. Arrhythmia caused by cardiac glycosides intoxication.
27. Acute myocardial infarction.
28. Treatment of bronchial asthma.
29. Pulmonary edema with hypotension.
30. Acute bronchial asthma.
31. Acute bronchitis.
32. Anorexia.
33. Anorexia after injection and surgical operations.
34. Gastric and duodenal ulcer.
35. Zolingher - Ellisson syndrome.
36. Biliar, renal colic.
37. Acute constipation.
38. Chronic constipation.
39. Unspecific diarrhea.
40. Hepatitis.
41. Chronic hepatocholecystitis.
42. Subacute pancreatitis.
43. Flatulence (meteorism).
44. Cancerous cachexia.
45. Food obesity.
46. Hypoacid gastritis.
47. Hyperacid gastritis.
48. Intestinal digestive disorder.
49. Intestinal motility dysfunction.
50. Voming.
51. Gestosis in pregnant women.
52. Cholecystitis.
53. Gallstones.
54. Enterocholitis.
55. Chronic pancreatitis.
56. Toxic lesions and drug lesions of the liver.
57. Hepatic lesions in diabetes, alcoholism.

58. Lipofile degeneration of theliver.
59. Pulmonary artery thromboembolia.
60. Venous thrombosis.
61. Thromboflebitis.
62. Overdosage of indirect anticoagulants.
63. Overdosage of direct anticoagulants.
64. Arterial thrombosis.
65. Disseminated intravascular coagulation syndrome.
66. Hemorrhage caused by hyperfibrinolysis.
67. Disorders of peripheral circulation.
68. Acute myocardial infarction (with thrombosis).
69. Capillary hemorrhage.
70. Trombocytopenia.
71. Allergic rhinitis.
72. Premature labor imminence.
73. Obstructive chronic bronchitis.
74. Ischemic heart disease with thrombosis.
75. Treatment of bronchial asthma.
76. Purulent chronic bronchitis.
77. Pulmonary edema of non-cardiac origin.
78. Pulmonary edema with hypertension.
79. Cerebral edema.
80. Acute intoxication.
81. Glaucoma.
82. Acute renal failure.
83. Hypertension with hyperaldosteronism.
84. Pregnancy edema.
85. Metabolic acidosis.
86. Metabolic alkalosis.
87. Hypovolemic shock.
88. Hypokaliemia.
89. Hyperkaliemia.
90. Isotonic dehydration.
91. Hypotonic dehydration.
92. Hypertonic dehydration.
93. Neurovascular distonia.
94. Desintoxication in peritonitis.
95. Hemorrhagic shock.
96. Toxic-alimentary intoxication.
97. Chronic renal failure.
98. Insipid diabetes.
99. Thrombosis and thromboembolia prophylaxis and treatment.
100. Diabetic retinopathy.

III. Compulsory drugs.

1. Salbutamol.
2. Terbutaline.
3. Aminophilline.
21. Flecainide.
22. Bretylium.
24. Verapamil.

4. Ketotifen.
5. Ipratropium.
6. Acetylcysteine.
7. Bromhexine.
8. Codeine.
9. Prenoxidiasine.
10. Strofantine.
11. Digoxin.
12. Digitoxin.
13. Dopamine.
14. Dobutamine.
15.Amrinone.
16. Chinidine.
17. Procainidine.
18. Etacisine.
19. Lidocaine.
20. Amiodarone.
42. Epinephrine.
43. Norepinephrine.
44. Phenylephrine.
45. Isoturon.
46. Dextran 40.
47. Dextran 70.
48. Human albumine.
49. Lactat Ringer solution.
50. Polividone.
51.Vamine.
52. Bicarbonate sodium.
53. Furosemide.
54. Hydrochlorthiazide.
55. Manitol.
56. Heparin.
57. Streptikinase.
58. Acetylsalicylic acid.
59. Phitomenadione.
60. Warfarine.
61. Aprotinine.
62. Ethamzilat.
25. Nitroglicerine.
26. Isosorbit dinitrat.
27. Nifedipine.
28. Dipyridamole.
29. Atenolol.
30. Metoprolol.
31. Diltiazem.
32. Captopril.
33. Clonidine.
34. Prazosine.
35. Nitropruside sodium .
36. Enalapril.
37. Losartan.
38. Pentoxifiline.
39. Cinarizine.
40. Nicergoline.
41. Piracetam.
63. Protamine sulfate.
64. Nadroparine calcium.
65. Ticlopidine.
66. Fepramone.
67. Proglumide.
68. Omeprazole.
70. Nandrolone.
71. Solcoseril.
72. Subcitrat of coloidal bismuth.
73. Neostigmine.
74. Sulpiride.
75. Papaverine.
76. Drotaverine.
77. Metochlopramide.
78. Oxaphenamide.
79. Nicodine.
80. Silibinine.
81. Essenciale.
82. Ranitidine.
83. Famotidine.
84. Pirenzepine.

MATERIALS FOR STATE EXAMINATION ON INTERN DISEASES WITH CLINICAL PHARMACOLOGY

1. Application of pharmacokinetic, pharmacodynamic and pharmacogenetic principles for individualization and optimization of drug treatment in internal diseases.
2. Clinical pharmacology of sedatives, hypnotic, tranquilizers.
3. Clinical pharmacology of neuroleptics and nootrops.
4. Pharmacological aspects of cholinergics used in internal medicine.
5. Pharmacological aspects of adrenergics used in internal medicine.

6. Pharmacokinetic and pharmacodynamic peculiarities of opioide analgesics and antipyretics. Their usage in internal medicine.

7. Pharmacokinetic and pharmacodynamic aspects of drugs used in bronchial asthma.

8. Clinical pharmacology of antitussives and expectorants.

9. Classification of drugs used in cardiac failure. Pharmacokinetics and pharmacodynamics of non-glycoside and non-adrenergic cardiotonics.

10. Cardiac glycosides. Pharmacokinetics. Pharmacodynamics. Indications. Digitalization tactics depending of cardiac failure gravity.

11. Clinical pharmacology of drugs used in cardiac asthma and pulmonary edema.

12. Clinical pharmacology of antiarrhythmics.

13. Pharmacological aspects of anti-angina drugs. Treatment principles of angina pectoris and acute myocardial infarction.

14. Classification of antihypotensives. Pharmacokinetic and pharmacodynamic aspects. Clinical usage.

15. Classification of antihypertensives. Pharmacokinetics and pharmacodynamics of this grand group.

16. Clinical pharmacology of vasodilator drugs with cerebral and peripheral action.

17. Clinical pharmacology of diuretics. Tactics of usage in internal medicine.

18. Pharmacological bases of drugs used in acido-alkaline balance disorder. Plasmatic substituents.

19. Antithrombotic medication. Pharmacokinetics and pharmacodynamics aspects of anticoagulants.

20. Clinical pharmacology of anti-agregants. Pharmacological aspects of fibrinolytics.

21. Clinical pharmacology of coagulants, antifibrinolytics and plaquetar agregants.

22. Hepatotrops. Pharmacodynamics and pharmacokinetics, usage tactis.

23. Clinical pharmacology of anti-ulcer drugs.

24. Pharmacokinetics and pharmacodynamics aspects of antispasmatic and spasmolytic drugs.

25. Clinical pharmacology of purgatives.

26. Pharmacokinetics and pharmacodynamics peculirities of penicillin's, cephalosporines, amynoglicosides.

27. Pharmacokinetics and pharmacodynamics peculirities of tetraciclines, macrolides, rifampicins, polymixins. Clinic usage aspects.

28. Pharmacological aspects of nonsteroid anti-inflammatory drugs. Side-effects.

29. Clinical pharmacology of sulphamides, nitrofuran derivatives, naftiridine, 8-oxichenoline, nitroimidasole derivatives. Chenolones and fluorchenolones.

30. Clinical pharmacology of anti-allergy drugs and immunomodulators. Anaphylactic shock medication.

31. Pharmacokinetics and pharmacodynamics aspects of glycoccorticoids usage in internal medicine.

32. Clinical pharmacology of insulin drugs and oral anti-diabetics. Diabetic coma medication.

33. Drug interactions.

34. Complications of pharmacotherapy.

35. Treatment principles of acute intoxication's with drugs.

STOMATOLOGY

IVth year

The plan and time-table of practical lessons (hours)

Organizational moment and introduction in the subject (frequency control, homework etc.)……..…….....…….……..5 min
Answers to student's questions…….....…….…….10 min
Assessment of initial level of knowledge (written test)…….....…….……20 min
Microcuration (elaboration, verification, and filling a treatment file in)….....20 min
Discussing and consolidating the knowledge at initial level (using tables,
Lantern, slides, schemes, discourses matter, patient's presentation)……..…….60 min
Demonstration of new drugs at respective theme and acquainting with their annotation. Determination of their place within medicines arsenal from the given group……..…….....…….....10 min
Tests and clinical situations……..…….....…..…30 min
Essential material generalization……..….....5 min
Final level determination of knowledge……..……..….....20 min
Theoretical course…….....……..….90 min

NOTE: 1. The patients are distributed for curing in the first day.
2. Treatment file is marked at the end of the cycle.
2 hours are reserved for knowledge control (written test) in the last day.
10 - minute - pause is given after every (45min.) academic haur.

PHARMACOKINETIC AND PHARMACODYNAMIC PRINCIPLES OF RATIONAL USAGE OF GENERAL AND LOCAL ANESTHETICS, OPIOID ANALGESICS AND ANTIPYRETICS, SEDATIVES, TRANQUILLIZERS, HYPNOTICS AND ANTIPSYCHOTICS

A. Actuality

Acute and chronic pain therapy is one of the most important problems of medicine. Anaesthetic drugs as well as other drugs that mitigate the pain, modify psychic state, functional activity of vital organs of the patient and presents a great problem for anesthesiology. Anaesthesia should assure pain abolition, good functioning of vital important organs and systems, facilitate operations performance, postanaesthetic and postoperative recuperation.

Knowledge about pharmacokinetic and pharmacodynamic principles of drugs from different groups used in the treatment of acute or chronic pain, permit a proper and rational selection of analgesics and anaesthetics, adequate associations of different drugs, and establishment of the best dosing regimen.

B. Training aim

To study the pharmacological and clinical principles of anaesthetics, analgesics, tranquillizers and antipsychotics usage in stomatology. use suitable selection of drugs for pain treatment, dosing adjustment and estimation of general and local anesthetics, opioids analgesics and antipyretics effectiveness.

C. Learning objectives

The studentsshould be able to:

a. Select the adequate drugs for different stomatological medical situation.
b. Select the adequate dosage regimen of effective and inoffensive drug associations
c. Prognose the possible complications and side – effect of anaesthetic, tranquillizers, hypnotic, antipsychotic and analgesic drugs.
d. Prognose the dependence of side – effect reactions on dosing regimen and functional state of body's organs and systems.

D. Knowledge from other studied tangent subjects

Medico-biological subjects:

Peripheral and central nervous system anatomy. Cranial nerves classification, and conduction trough nervous fibers. Pain and pain reception. Classification of nocireceptors superior integration of pain. The role of opioid receptors.

Clinical subjects. Acute and chronic pain pharmacotherapy in stomatological diseases, surgery, anesthesia, and reanimation. General and local anaesthesia stages Preanesthetic sedation. Anesthetic risk, fundamental criteria of anaesthesia.

Pharmacology. Classifications of general and local anaesthetics, opiates, analgesics and antipyretics, neuroleptics, tranquillizers and hypnotics. Mechanisms of action, clinical effects, indications and contraindications. Adverse reactions, prevention and treatment.

F. Questions for self training:

1. Local anaesthetics. Classification. Mechanisms of action.
2. Local anaesthetic's classification according to activity, toxicity, duration and latency of action.
3. Pharmacokynetics and pharmacodynamics of ester local anaesthetics.
4. Pharmacokynetics and pharmacodynamics of amide local anaesthetics.

5. Clinical uses of local anesthetics in stomatology. Adverse reactions, prophylaxis and treatments.
6. Clinical pharmacology of non-opioid analgesics. Classification, mechanism of action. Adverse reactions, prophylaxis and treatments.
7. Clinical pharmacology of opioid analgesics. Classification, mechanism of action. Adverse reactions, prophylaxis and treatments.
8. Opioid analgesic's antagonists. Mechanism of action, clinical effects and indications.
9. Antipyretic analgesics, classification, mechanism of action.
10. Antipyretic analgesics indications, side – effects reactions, their prophylaxis and treatment.
11. Clinical pharmacology of neuroleptics. Classification, mechanism of action, clinical effects, indications, contraindications, dosing principles and side effect reactions.
12. Clinical pharmacology of tranquillizers. Classification, mechanism of action, clinical effects, indications, contraindications, dosing principles and side effect reactions.
13. Clinical pharmacology of sedatives. Classification, mechanism of action, clinical effects, indications, contraindications, dosing principles and side effect reactions.
14. General anaesthetics classification.
15. Peculiarities of inhalational general anaesthetics usage in stomatology. Contraindications and side-effect reactions.
16. Clinical pharmacology of intravenous general anaesthetics:. Classification, mechanism of action, clinical effects, indications, contraindications, dosing principles and side effect reactions.
17. Clinical pharmacology of hypnotic remedies. Classification, pharmacokinetics and pharmacodynamics peculiarities, election of drug and dosage principles, side – effect reactions, drug interaction.

G. Concise characteristic of the main drugs

Down: drugs' name

Across: synonyms, delivering forms, administration routs, doses (therapeutic, maximum), indications, contraindications, and side-effect reactions.

1. Procaine
2. Lidocaine
3. Benzocaine
4. Trimeperidine
5. Tilidine
6. Metamizolum
7. Paracetamolum
8. Acid acetylsalicylic
9. Droperidol
10. Clorpromazine
11. Diazepam
12. Ketamine
13. Fluorotan
14. Morphine

H. Exercises of medical prescription

Indicate medicines used for

15) Infiltrative anesthesia
16) Conducting anesthesia
17) Buccal mucosa anesthesia
18) Postoperative allergic reaction
19) Acute toothache
20) Contact anaesthesia
21) Epidural anaesthesia
22) Facial and trigeminal neuralgia

23) Headache
24) Acute stomatitis
25) Fever
26) Analgesic potentiation
27) Fright of stomatological manipulations
28) Premedication
29) Psychosis
30) Convulsions

I. General and local anaesthetics, opioid analgesics and antipyretics, antipsychotics, tranquillizers, sedatives and hypnotics selection according to efficiency, innocuousness, acceptability and cost criteria in order to include them in personal form (P - medicines)

PHARMACOKINETIC AND PHARMACODYNAMIC PRINCIPLES OF RATIONAL USING OF ANTI-INFLAMMATORY, ANTI-ALLERGIC AND INFLUENCING THE IMMUNE PROCESSES DRUGS

A. Actuality

Inflammation is a universal reaction of organisms to action of different endogenous and exogenous harmful factors. Technical and scientific progress modified substantially the environment, thus favoring vertiginous growth of allergic affections incidence and weakening of immunity.

Nowadays, large arsenal of anti-inflammatory, antiallergic and immunomodulatory drugs are available. For an efficient and rational using of these drugs it is very important to know their pharmacokinetic and pharmacidynamic peculiarities.

B. Training aim

Studying and applying of pharmacokinetic and pharmacodynamic principles for individualization and optimization of anti-inflammatory, immunomodulatory and antiallergic drugs administration.

C.Learning objectives

The student should be able to:

a). Distinguish and select the most efficient and inoffensive anti-inflammatory, antiallergic and immunomodulatory drugs for stomatological usage.

b) Select the adequate dosing regimen of anti-inflammatory, antiallergic and immunomodulatory drugs for stomatological usage.

c). Prognose possible side-effect reactions and complications of anti-inflammatory, antiallergic and immunomodulatory treatment in stomatological field.

d). Set up the medical stomatologist's personal form of anti-inflammatory, antiallergic and immunomodulatory drugs.

f). Apply contemporary methods of pharmacological and non- pharmacological correction of adverse reactions produced by drugs of these groups.

D. Knowledge from other studied tangent subjects

Medico-biological subjects. Inflammation. Components of inflammatory process: alteration, vascular reactions with exudation and phagocytosis, proliferation. Classification of inflammational mediators. Types of allergic reactions.

Pharmacology. Classification of the anti - inflammatory antiallergic and affecting immune system drugs. Classification, mechanism of action, pharmacological effects, indications, side - effects.

E. Questions for self training

1. Anti – inflammatory drugs' classification.
2. Modern concept about mechanisms of action of anti – inflammatory drugs.
3. Non-steroidal anti – inflammatory drugs. Classification according to their chemical structure, duration of action, anti – inflammatory, antipyretic and analgesic potency.
4. Indication of anti – inflammatory remedies in stomatological affections treatment.
5. Adverse reactions and complications of non-steroidal anti-inflammatory stomatological affections treatment.
6. Steroid anti – inflammatory remedies. Classification according to the routes of administration, duration of action, and potency.
7. Glucocorticoids. Mechanisms of action, clinical effects. Indications for stomatological treatment.
8. Side - effects of glucocorticoid medication. Stomatological complications in cortizonic medication (osteoporosis and osteomalacia, dental email necrosis and multiple caries development), calcium and potassium drugs usage for their prophylaxis.
9. Dosing principles of glucocorticoids used to treat stomatological affections.
10. Classification of drugs used in immediate and delayed allergic reactions. Drugs used to treat anafilactic shock, bronchial asthma, and allergic dermatitis. Pharmacokinetics and pharmacodynamics aspects.
11. Classification of immunomodulators.
12. H_1–receptor blockings, pharmacodynamics and pharmacokinetics. Clinical usage and dosing tactics. Side - effects.
13. Immunosuppressive drugs. Classification, mechanism of action, indications, side effects.

F. Concise characteristic of the main drugs:

Down: drugs' names

Across: synonyms, delivering forms, administration roads, doses (therapeutic, maximum), indications, contraindications, side-effectreactions.

1. Acetylsalicylic acid
2. Metamizol
3. Indomethacin
4. Diclofenac
5. Mefenamic acid
6. Piroxicam
7. Prednisolon
8. Triamcinolone
9. Flucinolone
10. Diphenhidramine
11. Epinephrine
12. Salbutamol
13. Aminophiline
14. Cromoglicat
15. Levamisol
16. Cyclosporine

G. Exercises of medical prescription

Indicate drugs for:

1. Rheumatoid arthritis
2. Lupus erithematosus
3. Paradontosis
4. Stomatitis
5. Neuralgias

6. Mialgias
7. Headache
8. Anaphylactic shock
9. Bronchial asthma accesses
10. Urticaria
11. Allergic dermatitis
12. Quincke's edema
13. Recovery period after infections.

H. Anti-inflammatory, antiallergy, immunosuppressive and immunomodulatory drugs selection according to efficiency, innocuousness, acceptability and cost criterions in order to include them in personal form (P - medicines)

PHARMACOKINETICS AND PHARMACODINAMICS OF RATIONAL USAGE OF DRUGS USED IN DISORDERS OF COAGULATION. PLASMA VOLUME EXPANDERS.

A. Actuality

Bleeding and thrombosis are altered states of hemostasis. Impaired hemostasis results in spontaneous hemorrhages. Stimulated hemostasis results in pathologic thrombus formation. Micro thrombus formation can lead to serious complications, inclusively mortal: pulmonary artery embolism, cerebral embolism etc. In order to assure an intact circulation there are used drugs with action on hemostasis: coagulants, anticoagulants, fibrinolytics, and platelets functions inhibitors.

B. Training aim

To study pharmacodynamical and pharmacokinetical properties of agents with influence on blood coagulation and fibrinolysis and plasma volume expanders.

C. Learning objectives

The students should be able to:

a. Elucidate the mechanisms of action, indications, side-effects and contraindications of hemostatic and antithrombotic remedies.

b. Estimate the usage and dosage principles of haemostatic and antithrombotic drugs depending on the disease and pathological states.

c. Predict the possible adverse reactions and pharmacotherapeuthic complications appearances.

d. Write down personal form (P-medicines).

D. Knowledge from other studied tangent subjects

Clinical – biological subjects. Blood coagulation. Intrinsic and extrinsic systems of blood coagulation. Anticoagulant and fibrinolytic systems. Role of the platelets in blood coagulation. Pathogenesis of the thrombosis.

Pharmacology. Classification of hemostatics, antithrombotics, and plasma volume expanders. Coagulants, antifibrinolytics, agregants, anticoagulants: classification, mechanisms of action, indications, contraindications and adverse reactions.

E. Questions for self training.

1. Clinical pharmacology of direct anticoagulants. Mechanism of action, pharmacological effects, clinical uses to prevent thrombosis in stomatological affection. Dosage principles, contraindications, side effects. Drug interaction. Clinical pharmacology of the low-molecular-weight heparins. Heparin antagonists, usage principles.

2. Clinical pharmacology of indirect (oral) anticoagulants. Classification. Usage and dosage principles, drug interaction. Comparative characteristics of direct and indirect (oral) anticoagulants.

3. Clinical pharmacology of the antiplatelets drugs. Classification, mechanisms of action, pharmacological effect, clinical uses in stomatological and internal organs affections. Dosage, adverse effects. Drug interactions.

4. Clinical pharmacology of coagulants (direct and indirect, with local and systemic action). Classification. Principles of usage and dosage regimen in stomatology. Clinical usage of vitamin K . Drug interaction.

5. Clinical pharmacology of the fibrinolytics. Pharmacodynamics and pharmacokinetics. Usage and dosage principles. Drug interaction. rt-PA: usage and dosage principles, contraindications, adverse reactions.

6. Clinical pharmacology of fibrinolytic inhibitors. Principles of dosage and usage. Drug interaction.

7. Clinic pharmacology of agregants. Principles of clinical usage in stomatology. Drug interaction.

8. Pharmacological management of the disseminated intravascular coagulation (DIC) syndrome.

9. Angioprotectors. Classification, mechanism of action and usage principles.

10. Plasma volume expanders. Classification, usage principles.

F. Succinct characterization of the main drugs

Down: drugs names

Across: synonyms, delivering forms, routes of administration, doses (therapeutic, maximum), indications, contraindications, side-effect.

1. Heparin
2. Acenocumarol
3. Streptokinase
4. Acetylsalycilic acid
5. Pentoxiphilline
6. Phitomenadione
7. Tissue plasminogen activator
8. Aprotinine
9. Aminocaproic acid
10. Etamsilat
11. Protamine sulfate
12. Nadroparine calcium
13. Ticlopidine
14. Clopidogrel
15. Dextran
16. Polividon

F. Exercises of medical reception

Indicate drugs for:

1. Pulmonary artery thromboembolia
2. Venous thrombosis.
3. Direct anticoagulant overdosage.
4. Arterial thrombosis.
5. Disseminated intravascular coagulation (hypocoagulation phase).

6. Hemorrhage caused by hyperfibrinolysis.
7. Overdosing of oral anticoagulant.
8. Capillary hemorrhage.
9. Hemorrhage after tooth extraction.
10. Antithrombin III insufficiency.
11. Gum hemorrhage/

I. Drugs with influence on hemostasis selection according to efficiency, innocuousness, acceptability and cost criteria in order to include them in personal form (P-medicines).

PHARMACOKINETIC AND PHARMACODYNAMIC PRINCIPLES OF RATIONAL USAGE OF CHEMOTHERAPEUTIC DRUGS

A. Actuality

Today, because the number of patients with serious evolution of infections increases and it appears that microbial populations became more and more resistant to antibacterial therapy, that is why antimicrobial therapy problem is very actual.

B. Training aim

To study clinic-pharmacological principles of prescription, usage, dosage regimen and argumentation of antimicrobial drugs administration. To estimate therapeutic efficiency of antibiotics from different groups.

C. Learning objectives

The students should be able to:

e) Select a minimum complex of investigational methods in order to estimate the pharmacodynamic effect of antimicrobial drugs.

f) Analyze the antimicrobials pharmacodynamic study results, obtained through instrumental and laboratory methods.

g) Prognose possible complications and side-effects of antimicrobial drugs from different groups.

h) Prognose the dependence of side-effects development on dosing regimen and functional state of organs and body systems.

D. Knowledge from other studied tangent subjects

Histology, morphopathology, physiopathology, microbiology. Structure of pathogenic agents. Classification of pathogenic microorganisms. Septic state pathogenesis.

Clinical subjects. Etiology, pathogenesis and clinical evolution of the main forms of infections. Laboratory and functional tests applied in stomatological and other infectious diseases (pulmonology, septic surgery etc). Clinical manifestations of infectious diseases.

Pharmacology. Antibiotic, synthetic chemotherapeutic drugs (quinolones, folate antagonists) classification according to origins, chemical structure, mechanism of action, indications, contraindications, adverse reactions.

E. Questions for self training

1. Antibiotic's classification according to spectrum of antimicrobian action, mechanism and character of action. Clinical usage.
2. Principles of antimicrobial therapy in stomatology.
3. Antibiotic pharmacokinetics (adsorptions, protein bounding, metabolisation, excretion).
4. Routes of antibiotic drugs administration. Indications, dosage regimen, depending on the disease severity and liver and kidney function.
5. Pharmacokinetics and spectrum of antimicrobial action of the main antibiotics' groups. Clinical usage and dosing principles, side-effects and their prophylaxis.
6. Peculiarities of antibioticotherapy according to the age of patients. Usage of antibiotics in pregnant women and children.
7. Antibiotic prophylaxis. Rational association of chemotherapeutic drugs depending on the mechanism and spectrum of antimicrobial action. Side-effect reactions.
8. Classification of side-effects developed after therapy with antibiotics, prophylaxis and treatment.
9. The origin of antibiotic resistance. Genetic and nongenetic microorganisms' resistance to antibiotics. Prevention and removal measures of bacterial resistance.
10. Sulfonamides. Classification. Antimicrobian spectrum and mechanism of action. Pharmacokinetics, pharmacodynamics, clinical uses, contraindications, side-effects, principles of dosage and election, drugs interaction. Microbial resistance and ways of fighting.
11. Application of quinolone derivatives in case of microbial resistance to antibiotics and sulfonamides, for treating, stomatological affections. Antimicrobial spectrum and mechanisms of action.
12. Nitroimidazole derivatives. Spectrum and mechanism of action. Pharmacodynamic and pharmacokinetic peculiarities, clinical uses, indications, contraindications, side-effects, their prophylaxis and treatment. Drugs interaction.
13. 8-oxiquinolone derivatives and nitrofurans. Spectrum and mechanism of action. Pharmacokinetic and pharmacodynamic peculiarities, clinical uses, contraindications, side-effects, their prophylaxis and treatment. Drugs interaction.
14. Antibiotics indications in stomatological infection of maxilla-facial region of odontogenic inflammatory processes and infection complications after stomatological interventions.ulcerous, combustion surfaces; for antiseptic processing of advanced, complicated profound caries of the teeth, and alveolar canals.
15. Stomatological complications appeared after antibiotic local administration (superinfection, candidosis, etc.)
16. Sulfonamides utilization for local and systemic administration to treat stomatological infections. Pharmacotherapeutic stomatological side-effects and complications.

17. Nitrofurane derivatives local application in case of microbial resistance to antibiotics and sulfonamides, for treating, stomatological affections (stomatitis, gum infections, aphtas, combustions).

G. Succinct characterization of the main drugs

Down: drugs' names.

Across: synonyms, delivering forms, administration routes, doses (therapeutical, maximum) indications, contraindications, side-effect reactions.

1. Amoxycillin
2. Ampicillin
3. Amikacin
4. Benzilpenicillin
5. Carbenicillin
6. Cefalexin
7. Cefazolin
8. Cefoperazon
9. Cefoxitin
10. Chloramphenicol
11. Clindamycin
12. Ciprofloxacine
13. Metronidazole
14. Pipemidic acid
15. Norfloxacine
16. Nitrophurantoine
16. Ofloxacine
18. Doxycycline
19. Erythromycin
20. Gentamicin
21. Oxacillin
22. Rifampicin
23. Tobramycin
24. Lincomicin
25. Sulfaetidol
26. Sulfadimetoxine
27. Sulfalene
28. Ftalilsulfatiazole
29. Nitroxoline
30. Nalidixic acid
31. Nitrofural
32. Tinidazole
33. Co-trimoxazole
34. Furagine

H. Exercises of medical prescription

Indicate medicines for:

1. Pneumonia due to penicillin resistant staphylococcus
2. Infections with Bacterioides.fragilis
3. Infections with pyocianic bacillus
4. Typoid fever
5. Exanthematous typhus
6. Bacterial dysentery
7. Osteomielitis
8. Tuberculosis
9. Urinary infections
10. Trichomaniasis
11. Infectious dental caries
12. Buccal mucosa infections
13. Odontogen infections
14. Buccal mucosa ulcerations, combustions, aphtas.

I. Selection of antibimicrobials according to criteria of efficiency, innocuousness, acceptability and cost in order to include them in personal form (P-medicines).

PHARMACOKINETIC AND PHARMACODYNAMIC PRINCIPLES OF RATIONAL USING OF REMEDIES THAT INFLUENCE THE GENERAL METABOLISM AND PHOSPHORUS-CALCIUM METABOLISM. VITAMINS, ENZYMES AND ANTIENZYMES.

A. Actuality

Pharmacodynamic spectrum study of vitamins, enzymes, drugs that influence the phosphorus-calcium metabolism demonstrate that these substances can be used for treatment goals as remedies of metabolism correction in different diseases and pathological states, thus being able to be named drugs of metabolic therapy.

B. Training aim

Studying argumentation of clinic-pharmacological principles of prescription, election, dosage regimen of the drugs with metabolic action and estimating of their efficiency.

C. Learning objectives

The students should be able to:

a) Select a minimum complex of investigational methods in order to estimate the pharmacodynamic effect of drugs with metabolic action.
b) Analyze and estimate pharmacodynamical study results of metabolism activators obtained by laboratory and instrumental methods.
c) Prognose the complications and side-effects of drugs from these groups.
d) Prognose the dependence of side-effects appearance on dosing regimen of drugs from metabolic stimulants groups and functional state of the body's organs and systems.
e) Apply contemporary methods of pharmacological and non- pharmacological correction of adverse effects produced by drugs with metabolic and action.

F. Knowledge from other studied subjects

Histology, morphology, pathological physiology. Cell structure. Mitochondria and ribosome role in assuring of cell metabolic vital processes. Hormonal regulation of calcium and phosphorus metabolism. Oxidative phosphorilation - basic mechanism of energy formation in the body. Classification of biological active compounds that regulate essential biological processes. Vitamin and coenzyme role in metabolic processes.

Clinical subjects. Vitamins deficiency. Hypervitaminosis. Clinical manifestations. Pathogenesis and clinical manifestations of calcium and phosphorus deficiency.

Pharmacology. Classification of vitamins, enzymes, coenzymes, metabolic stimulators, and other substances that act on bone and tissue metabolism. Indications, contraindications. Adverse reactions.

G. Questions for self training

1. Vitamins and cofactors importance as prophylactic and treatment remedies for vitamin deficiency. Vitamins pharmacotherapeutic principles (replacement and prevention goal). Vitamins and coenzymes usage in different diseases, infection and intoxications treatment.

2. Vitamins deficiency - clinical manifestation. Vitamins as remedies that regulate the metabolism. Hypervitaminosis, clinical manifestation, tretment.

3. Vitamins classification. Pharmacodynamics. Pharmacokinetics. Pharmacotoxicological bases of vitamins.

4. Hydrosoluble vitamins. Group of B-vitamins. Pharmacodynamic and pharmacokinetic aspects. Mechanism of action.

5. Importance of vitamin B_1 and its active form-cocarboxilaze in regulation of carbohydrates metabolism.

6. Vitamine B_2 and its biological active forms-flavin-mononucleotid and flavin-adenin-dinucleotide, that exert the coenzyme function of flavoproteins. Their importance for cell oxide-reducing reaction.

7. Group of B_6 vitamins - piridoxine, piridoxal and active form - piridoxalphosphate. Their importance in metabolic reactions of aminoacids

8. The role of panthothenic acid (vitamin B_5) in carbohydrates, lipid and porfirins metabolism regulation.

9. Clinical pharmacology of vitamin B_{12}.

10. Nicotinic acid (vitamin PP) and its biologic active forms - NAD and NADP – as dehydrogenases coenzymes. Nicotinic acid usage in treatment of hyperlipidemias.

11. Ascorbic acid (C-vitamin) participation in oxidation reaction and aminoacids synthesis.

12. Role of folic acid participation in aminoacids synthesis and treatment of anemia.

13. Lipoic acid,s participation in regulation of lipids metabolism, its hematotrop action and antitoxic proprieties.

14. Liposoluble vitamins. Pharmacodynamic and pharmacokinetic aspects of liposoluble vitamins. Clinical usage, dosing principles. Complication caused by overdoses.

15. Vitamin-A. Pharmacotherapeutic spectrum.

16. Vitamin-E. Antioxidant peculiarities.

17. The importance of vitamin D in calcium and phosphorus homeostasis. Vitamin D interrelation with parathyroid hormone. Hypovitaminosis D and hypervitaminosis D, clinical description, treatment.

18. Vitamin K participation at biosynthesis of blood coagulation plasmatic factors. Hypo- and hypervitaminosis K clinical description, treatment

19. Polivitamines (aevit, decamevit, hexavit, kvadevit). Vegetal vitamin preparations. Their importance in prophylaxis and treatment of different diseases associated with hypo- and avitaminosis. Their importance in pediatric and geriatric medicine.

20. Vitaminoids. Characterization, clinical usage.

21. Vitamins' classification according to clinic and prophylactic usage.

22. Vitamin preparations that influence general reactivity of the body (thiamine, riboflavine, nicotinic acid, pyridoxine, calcium pangamat, retinol, ascorbic acid).

23. Vitamin preparations that protect mucous membranes and teguments (retinol, riboflavine, calcium pantotenat, nicotinic acid, pyridoxine, biotin, tocopherol).

24. Antitoxic and anti-infections vitamin preparations (ascorbic acid, retinol, te thiamien, riboflavine, calcium pantotenat, nicotinic acid, pyridoxine, cianocobolamine, folic acid.)

25. Vitamin preparations that influence hematopoesis and sanguine coagulation (cianocobolamine, folic acid, ascorbic acid, pyridoxine, ruthin, vit. K).

26. Vitamin preparations that influence bone and dental mineral homeostasis (ascorbic acid, ergocalciferol, thiamine).

27. Vitamin preparations that influence the vision (retinol acetate, ascorbic acid, tocopherol acetate, riboflavine).

28. Clinical usage of vitamins in pediatric medicine.

29. Vitamins interaction. Rational and irrational vitamins associations. Reciprocal incompatibilities of vitamins and incompatibilities with other groups of drugs.

30. Coenzymes. Classification. Coenzymes of non-vitamin origin. Incompatibility between vitamins and other medicines.

31. Clinic pharmacology of enzymes.

32. Digestive ferments. Clinical usage, doses, contraindications.

33. Clinical pharmacology of ferments with application in purulent-suppurative-necrotic processes.

34. Clinical pharmacology of enzymes with fibrinolytic action.

35. Clinical pharmacology of ferments with hialuronidaze action.

36. Pharmacotherapeutic aspects of enzymatic preparation: substitutive, local and resorbtive therapy.

37. Classification of anti-enzymatic preparations.

38. Clinical pharmacology of proteolysis inhibitors.

39. Clinical pharmacology of fyirinoliysis inhibitors.

40. Clinical pharmacology of cholinesterase, monoaminoxidase inhibitors etc.

41. Clinical pharmacology of angioprotectors of synthetic, animal and vegetal origin.

42. Using peculiarities of metabolisms' stimulants to treat stomatological affections. Adverse reactions, contraindication, interactions.

43. Clinical pharmacology of drugs that influence bone mineral homeostasis, calcium and phosphorus.

44. Role of Calcium in regulating bone mineral homeostasis. Mechanism of action, clinical effects, indications in stomatology.

45. Role of phosphorus in regulating bone mineral homeostasis. Mechanism of action, clinical effects, indications in stomatology.

46. Role of fluoride in regulating bone mineral homeostasis. Mechanism of action, clinical effects, indications in stomatology.

47. Role of parathyroid hormone and calcitonine in regulating bone mineral homeostasis. Mechanism of action, clinical effects, indications in stomatology.

F. Succinct characterization of the main remedies.

Down: drug's names.

Across: synonyms, delivering forms, administration routes, doses (therapeutic, maximum), indication, contraindication, side-effect reactions.

1.Thiamine.
2. Riboflavin.
3. Piridoxin.
4. Cianocobalamin.
5. Nicotinic acid.
6. Tocopherol.
7. Phytomenadione.
8. Cocarboxilaze.
9. Piridoxalphosphat.
17.Ascorbic acid.
18. Folic acid.
19. Lipoic acid.
20. Retinol.
21. Ergocalciferol.
22. Hialuronidaze
23. Aprotinine
24. Fluorat natrium
25. Aminofluoride

10. Pancreatine.
11. Festal.
12. Tripsine.
13. Ribonucleaze.
14. Vitaftor
15. Calcium lactate
16. Ribonucleaze
26. Calcium clorate
27. Calcium gluconate
28. Calcifediol
29. Calcitonin
30 Tooth paste with fluoride
31. Tooth gel with fluoride
32. Lacquer with fluoride

H. Exercises of medical prescription

Indicate medicines for:

20. Beri-beri disease
21. Peripheral neurites
22. Pellagra
23. Nutritional rickets
24. Paradontosis, stomatites, gingivites
25. Hepatic cirrhosis
26. Chronic pancreatitis
27. Arterial thrombosis
28. Osteoporosis
29. Osteomalacia.
30. Scarves
31. Night-blindness
32. Complicated caries
33. Incipient caries
34. Caries reccurens

I. Selection of drugs with general metabolic effects, according to criteria of efficiency, innocuousness, acceptability and cost in order to include them in personal form (P-medicines).

PHARMACOKINETIC AND PHARMACODYNAMIC PRINCIPLES OF RATIONAL USING OF REMEDIES THAT INFLUENCE THE ORAL MUCOSA AND TOOTH PULP. STOMATOLOGCAL PHARMACOTHERAPEUTHICAL COMPLICATIONS.

A. Actuality

Pharmacodynamic spectrum study of remedies that influence oral mucosa and tooth pulp demonstrate that these substances differ itch other not only through pharmacological groups but also through mechanisms of action, clinical effects, indications, adverse reactions and complications. They can be used for treatment goals and for prophylactic goals in different affections of oral mucosa (infections, ulcerations, burns etc.). The stomatologyst should distinguish strictly medical indications for these groups of drugs.

Stomatological pharmacotherapeutical complications occur mostly in patients with serious health problems (chronic liver or kidney diseases, infections, imparied immune system, etc.), or they can appear because of inappropriate medical indications.

B. Training aim

To study the clinical-pharmacological principles of prescription, election, dosage regimen of the drugs that influence the oral mucosa and tooth pulp and estimate their medical indications, efficiency, adverse reactions and complications.

Prognose and prevent the complications and side-effects of drugs from these groups appearance.

C. Learning objectives

The students should be able to:

a) Select a minimum complex of investigational methods in order to estimate the pharmacodynamic effect of drugs that influence the oral mucosa and tooth pulp.

b). Prognose the complications and side-effects of drugs from these groups.

c). Prognose the dependence of side-effects appearance on dosing regimen of drugs that influence the oral mucosa and on functional state of the body's organs and systems.

d). Apply contemporary methods of pharmacological and non-pharmacological correction of adverse effects and complications produced by drugs that influence the oral mucosa.

D. Knowledge from other studied tangent subjects

Histology, morphology, pathological physiology. Anatomical and physiolocal properties of buccal cavity and oral mucosa, tooth, buccal and salivary glands.

Clinical subjects. Buccal cavity and oral mucosa, tooth, buccal and salivary glands affections and diseases (stomatites, gingivitis, pulpits etc.). Ethiology, pathogenesis and clinical manifestations and treatment.

Pharmacology. Classification of drugs that influence the oral mucosa (protective, anti-inflammatory, anti-infectious, etc.), mechanism of actions, indications, contraindications and adverse reactions. Classification of pharmacoterapeuthical complications in stomatology, their prevention and treatment. Adverse reaction of drugs on oral mucosa, prevention and treatment.

E. Questions for self training:

1. Classification of drugs that influence oral mucosa according to goal of utilization.
2. Classification of oral mucosa protective drugs.
3. Astringent drugs. Classification, mechanism of actions, indications, contraindications and adverse reactions.
4. Mucilaginous and adsorbates drugs. Classification, mechanism of actions, indications, contraindications and adverse reactions.
5. Emollients. Classification, mechanism of actions, indications, contraindications and adverse reactions.
6. Deodorant drugs. Classification, mechanism of actions, indications, contraindications and adverse reactions.
7. Chelators (chelatoplastics). Classification, mechanism of actions, indications, contraindications and adverse reactions.
8. Drugs that influence salivatory glands. Classification, mechanism of actions, indications, contraindications and adverse reactions.
9. Cauterant, sclerozant and dehydratant drugs. Classification, mechanism of actions, indications, contraindications and adverse reactions.
10. Drugs that influence tooth pulpa.
11. Drugs used for pulp devitalisation. Classification, indications, contraindications and adverse reactions.

12. Drugs used to treat pulp affection. Classification, indications, contraindications and adverse reactions.
13. Drugs used to treat oral cavity burns. Classification, indications, contraindications and adverse reactions.
14. Curative and prophylactic tooth –pastes. Properties, selections and indications.
15. Drugs that influence inflammatory processes in oral mucosa (enzymes, antiseptics, antibiotics, steroidal anti-inflammatory drugs, antiviral, antimicotics, etc). Classification, indications, contraindications and adverse reactions.
16. Classification of pharmacotherapeutic stomatological complication.
17. Stomatological pharmacotherapeutic complication due to specific and non-specific organotrope properties of drugs. Prophylaxis and treatment.
18. Stomatological pharmacotherapeutic complication due to drug overdoses. Prophylaxis and treatment
19. Stomatological pharmacotherapeutic complication due to drug patients' hypersensibility to drugs. Idiosyncrasy. Prophylaxis and treatment.
20. Drug tolerance and dependence Prophylaxis and treatment
21. Rebound syndrome (withdrawal) Prophylaxis and treatment.
22. Classification of adverse reactions of drugs on oral mucosa.
23. Direct adverse reactions of drugs on oral mucosa. Prophylaxis and treatment.
24. Adverse reactions due to pharmacological action of drugs on oral mucosa. Prophylaxis and treatment.
25. Secondary adverse reactions of drugs on oral mucosa. Prophylaxis and treatment.
26. Cumulative adverse reactions of drugs on oral mucosa. Prophylaxis and treatment
27. Adverse reactions due to specific properties of drugs. Prophylaxis and treatment

F. Succinct characterization of main remedies.

Down: drug's names.

Across: synonyms, delivering forms, administration routes, doses (therapeutic, maximum), indication, contraindication, side-effect reactions.

1. Salvine
2. Romasulane
3. Taninum
4. Alaune (kalium-aluminium sulfatis)
5. Starch
6. White clay
7. Glicerine
8. Glicerine
9. Shostacovsky balm (Viniline)
10. Peroxidum hydrargium (oxygenated water)
11. Kalium permanganates
12. Acidum boricum
13. Cloramine
14. Pilocarpine
15. Galantamine
16. Kalium iodide
17. Extractum Calendulae
18. Carotoline
19. Proposol
28. Marasalvine
29. Cuprum sulfate
30. Plumb acetas (lead)
31. Novoimanine
32. Natrium usinate
33. Clorofilipt
34. Cigerole
35. Decamine
36. Dimexid
37. Dibiomicine ungventum
38. Iodinol
39. Trichomonacide
40. Neomicine ungventum
41. Eritromicine ungventum
42. Ingalipt
43. Lincomicine
44. Nistatine
45. Levorine
46. Oxoline

20. Solcoseril
21. Metiltionine cloridum
22. Formaldehyde
23. Triamcinolone acetonid
24. Flucinolone acetonid
25. Bicarbonat natrium
26. Chimotripsine
27 Magnesium oxid
47. Lunar caustic(argintum nitras)
48. Interferone
49. Heliomicine
50.Tripsine
51. Prednisolone
52. Hidrocortisone
53. Sol. Lugol
54. Calcium chlorid

G. Exercises of medical prescription

Indicate medicines for:

1. Stomatites, gingivites, pulpites
2. Oral mucosa candidiasis(ulcer in the mouth),
3. Chronic refractory ulcer in the mouth (candidiasis)
4. Hypersalivation
5. Pulp devitalization
6. Arsenic acute intoxication
6. Ulcerative stomatitis and gingivitis
7. Antisepsis processing of dental root
8. Aphthoid ulcer of buccal miucosa
9. Herpetic ulcer
10. Gum ulceration
11. Recurrent oral ulceration
12. Hemorrhagic gingivitis
13. Hypertrofic gingivitis
14. Allergic gingivitis and stomatitis
15. Oral mucosa burns due to arsenic paste
16. Oral mucosa burns due to lunar caustic (argintum nitras)
17. Oral mucosa burns due to lactic acid
18. Oral mucosa burns due to fluoride natrium
19. Xerostomia.
20. Complicated caries of the tooth
21. Incipient caries
22. Caries reccurens.

F. Selection of drugs that influence the oral mucosa, pulp, and drugs used to treat stomatologcal pharmacotherapeuthical complications, according to criteria of efficiency, innocuousness, acceptability and cost, in order to include them in personal form (P-medicines).

Questions for written examination

1. Local anaesthetics: classification and mechanisms of action. Clinical indications in stomatology. Adverse reactions, prophylaxis and treatment.
2. Antipyretic analgesics: classification and mechanisms of action. Clinical indications in stomatology. Adverse reactions, prophylaxis and treatment.
3. Opioid analgesics: classification and mechanisms of action. Clinical indications in stomatology. Adverse reactions, prophylaxis and treatment. Acute morphine intoxication and their treatment. Management of substance dependence. Chronic intoxication

(morphinemania, toxicomania), Withdrawal syndrome, clinical manifestation, and management.
4. General anaesthetics: classification. Group's characteristics. Clinical indications in stomatology. Adverse reactions and complications, clinical manifestations, prophylaxis and treatment.
5. Clinical pharmacology of sedatives. Classification, mechanism of action, clinical effects, indications, contraindications, dosing principles and side effect reactions.
6. Clinical pharmacology of hypnotic remedies. Classification, election and indications according to sleep disorders. Dosage principles, side – effect reactions, drug interaction.
7. Classification of barbiturates according to duration of action. Mechanism of action and influence on sleep stages. Indications, contraindications, dosing principles and side effect reactions.
8. Classification of benzodiazepines according to the duration of action. Mechanism of action and influence on sleep stages. Indications, contraindications, dosing principles and side effect reactions.
9. GABA-derivatives. Influence on sleep stages, indications, contraindications, dosing principles and side effect reactions.
10. Clinical pharmacology of tranquillizers. Classification, mechanism of action, clinical effects, indications, contraindications, dosing principles and side effect reactions
11. Clinical pharmacology of neuroleptics. Classification, mechanism of action, clinical effects, indications, contraindications, dosing principles and side effect reactions.
12. Anticlotting drugs. Definitions and classifications.
13. Anticoagulant drugs. Definitions and classifications. Direct acting anticoagulants. Mechanism of action, pharmacological effects, clinical uses to prevent thrombosis in stomatological affection. Dosage principles, contraindications, and side effects. Heparine overdosage.
14. Clinical pharmacology of indirect (oral) anticoagulants. Classification, mechanism of action. Usage and dosage principles, drug interaction. Comparative characteristics of direct and indirect (oral) anticoagulants. Indirect (oral) anticoagulants overdosage.
15. Clinical pharmacology of the antiplatelete drugs. Classification, mechanisms of action, pharmacological effect, clinical uses in stomatological and internal organs affections. Dosage, adverse effects and drug interactions.
16. Clinical pharmacology of the fibrinolytics. Mechanism of action, usage and dosage principles. Drug interaction. Fibrinolytics overdosage.
17. Coagulants: definition and classification.
18. Coagulants (direct and indirect, with local and systemic action). Classification. Principles of usage and dosage regimen in stomatology.
19. Clinical pharmacology of fibrinolytic inhibitors. Principles of dosage and usage. Drug interaction.
20. Clinical pharmacology of agregants. Principles of clinical usage in stomatology. Drug interaction.
21. Plasma volume expanders. Classification, usage principles.
22. Chemotherapeutic drugs. Classification and usage principles in stomatology.
23. General principles of antibiotic selection and usage in stomatology.
24. Antibiotic prophylaxis. Indications and administration principles.
25. Rational association of chemotherapeutic drugs depending on mechanism and spectrum of antimicrobial action. Side-effect reactions and drug interaction.

26. Clinical usage and dosing principles of antibiotics in pregnant and nursing women, in children and age people.
27. Rational association of antibiotics in stomatological affections.
28. Classification of side-effects and complications developed after therapy with antibiotics, prophylaxis and treatment.
29. Non-steroidal anti – inflammatory drugs. Classification and clinical effects. Indications in stomatological affections treatment. Adverse reaction and complications of non-steroidal anti-inflammatory treatment, prophylaxis and treatment
30. Steroid anti – inflammatory remedies. Classification and clinical effects. Indications and contraindications. Adverse reaction and complications of cortizonic medication (dependence, osteoporosis and osteomalacia, dental email necrosis and multiple caries development), calcium and potassium drugs usage for their prophylaxis.
31. Vitamins: classification according to solubility, and clinical and prophylactic role. Vitamins pharmacotherapeutic principles (replacement and prevention goal). Vitamins and coenzymes usage in different diseases, infection and intoxications treatment.
32. Vitamins deficiency - clinical manifestation and treatment. Hypervitaminosis, clinical manifestation and treatment.
33. Polyvitamins (aevit, decamevit, hexavit, kvadevit), their importance in prophylaxis and treatment of different diseases associated with hypovitaminosis. Their importance in pediatric and geriatric medicine.
34. Vitamins' interaction. Rational and irrational vitamins associations. Reciprocal incompatibilities of vitamins and incompatibilities with other groups of drugs.
35. Clinical pharmacology of enzymes. Classification, clinical usage in stomatology.
36. Clinical pharmacology of drugs that influence bone mineral homeostasis: calcium and phosphorus. Classification and general characteristics of drugs.
37. Role of vitamin D in regulating calcium and phosphorus homeostasis. Vitamin D hypervitaminosis: clinical manifestation, treatment and prophylaxys.
38. Role of Calcium in regulating bone mineral homeostasis. Mechanism of action, clinical effects, indications in stomatology.
39. Role of phosphorus in regulating bone mineral homeostasis. Mechanism of action, clinical effects, indications in stomatology.
40. Role of fluoride in regulating bone mineral homeostasis. Mechanism of action, clinical effects, indications in stomatology.
41. Classification of drugs that influence oral mucosa, according to goal of utilization.
42. Classification of oral mucosa protective drugs.
43. Astringent drugs. Classification, mechanism of actions, indications, contraindications and adverse reactions.
44. Mucilaginous and adsorbates drugs. Classification, mechanism of actions, indications, contraindications and adverse reactions.
45. Emollients. Classification, mechanism of actions, indications, contraindications and adverse reactions.
46. Deodorant drugs. Classification, mechanism of actions, indications, contraindications and adverse reactions.
47. Chelators (chelatoplastics). Classification, mechanism of actions, indications, contraindications and adverse reactions.
48. Drugs that influence salivatory glands. Classification, mechanism of actions, indications, contraindications and adverse reactions.

49. Cauterant, sclerozant and dehydratant drugs. Classification, mechanism of actions, indications, contraindications and adverse reactions.
50. Classification of drugs that influence tooth pulp.
51. Drugs used for pulp devitalisation. Classification, indications, contraindications and adverse reactions.
52. Drugs used to treat pulp affection. Classification, indications, contraindications and adverse reactions.
53. Drugs used to treat oral cavity burns. Classification, indications, contraindications and adverse reactions.
54. Curative and prophylactic tooth –pastes. Properties, selections and indications.
55. Drugs that influence inflammatory processes in oral mucosa (enzymes, antiseptics, antibiotics, steroidal anti-inflammatory drugs, antiviral, antimicotics, etc). Classification, indications, contraindications and adverse reactions.
56. Classification of pharmacotherapeutic stomatological complication.
57. Stomatological pharmacotherapeutic complication due to specific and non-specific organotrope properties of drugs. Prophylaxis and treatment.
58. Stomatological pharmacotherapeutic complication due to drug overdoses. Prophylaxis and treatment.
59. Stomatological pharmacotherapeutic complication due to drug patients' hypersensibility to drugs. Idiosyncrasy. Prophylaxis and treatment.
60. Drug tolerance and dependence Prophylaxis and treatment.
61. Rebound syndrome (withdrawal) Prophylaxis and treatment.
62. Stomatological pharmacotherapeutic complication due to decrease of immune system of patients. Prophylaxis and treatment.
63. Classification of adverse reactions of drugs on oral mucosa.
64. Direct adverse reactions of drugs on oral mucosa. Prophylaxis and treatment.
65. Adverse reactions due to pharmacological action of drugs on oral mucosa. Prophylaxis and treatment.
66. Secondary adverse reactions of drugs on oral mucosa. Prophylaxis and treatment.
67. Cumulative adverse reactions of drugs on oral mucosa. Prophylaxis and treatment.
68. Adverse reactions due to specific properties of drugs. Prophylaxis and treatment.
69. Role of fluoride in regulating bone mineral homeostasis. Mechanism of action, clinical effects, indications in stomatology.
70. Role of parathyroid hormone and calcitonin in regulating bone mineral homeostasis. Mechanism of action, clinical effects, indications in stomatology.

II. Exercises of medical prescription

Indicate medicines used for:

1. Infiltrative anaesthesia;
2. Conducting anaesthesia;
3. Buccal mucosa anaesthesia;
4. Contact anesthesia;
5. Postoperative algetic reaction;
6. Acute toothache;
7. Facial and trigeminal neuralgia;
8. Headache;
9. Acute stomatitis;
10. Fever;

11. Analgesic potentiation;
12. Fright of stomatological manipulations;
13. Premedication;
14. Psychosis;
15. Convulsions;
16. Neurosis;
17. Paradontosis;
18. Stomatitis;
19. Neuralgias;
20. Mialgias;
21. Anaphylactic shock;
22. Bronchial asthma accesses;
23. Urticaria;
24. Allergic dermatitis;
25. Quincke's edema;
26. Recovery period after infections;
27. Pulmonary artery thromboembolia;
28. Venous thrombosis;
29. Direct anticoagulant overdosage;
30. Arterial thrombosis;
31. Disseminate intravascular coagulation;
32. Hemorrhage due to hyperfibrinolysis;
33. Overdosing of oral anticoagulant;
34. Capillary hemorrhage;
35. Hemorrhage after tooth extraction;
36. Antitrombin III insufficiency;
37. Gum hemorrhage;
38. Pneumonia due to penicillin resistant staphylococcus;
39. Infections with Bacterioides.fragilis;
40. Infections with pyocianic bacillus;
41. Typhoid fever;
42. Exanthematous typhus;
43. Bacterial dysentery;
44. Osteomyelitis;
45. Tuberculosis;
46. Urinary infections;
47. Trichomaniasis;
48. Infectious dental caries;
49. Buccal mucosa infections;
50. Odontogen infections;
51. Buccal mucosa ulcerations;
52. Oral mucosa combustions;
53. Oral mucosa aphtas;
54. Beri-beri disease;
55. Peripheral neuritis;
56. Pellagra;
57. Nutritional rickets;
58. Paradontosis;

59. Hepatic cirrhosis;
60. Chronic pancreatitis;
61. Osteoporosis;
62. Osteomalacia;
63. Scarves;
64. Night-blindness;
65. Complicated caries of the tooth;
66. Incipient caries;
67. Caries reccurens;
68. Stomatites, gingivitis, pulpits;
69. Oral mucosa candidiasis(ulcer in the mouth);
70. Chronic refractory ulcer in the mouth (candidiasis);
71. Hypersalivation;
72. Pulp devitalization;
73. Arsenic acute intoxication;
74. Ulcerative stomatitis and gingivitis;
75. Antisepsis processing of dental root;
76. Aphthoid ulcer of buccal miucosa;
77. Herpetic ulcer;
78. Gum ulceration;
79. Recurrent oral ulceration;
80. Hemorrhagic gingivitis;
81. Hypertrofic gingivitis;
82. Allergic gingivitis;
83. Allergic stomatitis;
84. Oral mucosa burns due to arsenic paste;
85. Oral mucosa burns due to lunar caustic (argintum nitras);
86. Oral mucosa burns due to lactic acid;
87. Oral mucosa burns due to fluoride natrium;
88. Xerostomia;
89. Complicated caries of the tooth;
90. Herpes of the mouth.

III. Compulsory (mandatory) drugs

1. Procaine
2. Lidocaine
3. Tilidine
4. Metamizole
5. Paracetamol
6. Acetylsalicylic acid
7. Cloropromasine
8. Diazepam
9. Ketamine
10. Diclofenac sodium
11. Prednisolone
12. Triamcinolone
13. Flucinolone
14. Epinephrine
15. Diphenhydramine
16. Heparine
17. Pentoxipheline
18. Aminocaproic asid
19. Etamsilate
20. Ampiciline
21. Cefalexine
22. Cloramfenicole
23. Clindamicine
24. Doxicicline
25. Gentamicine
26. Rifampicine
27. Lincomicine
28. Co-trimoxazole

29. Pipemidic acid
30. Ofloxacine
31. Metronidazole
32. Thiamine
33. Piridoxine
34. Cianocobolamine
35. Nicotinic acid
36. Ascorbic acid
37. Lipoic acid
38. Rethinol
39. Tocopherol
40. Cocarboxilaze
41. Tripsine
42. Oxigenated water
43. Boric acid
44. Pilocarpine
45. Extractum Calendulae
46. Sol. Lugol
47. Lunar caustic (argintum nitras
48. Ingalipt
49. Decamine
50. Nistatine
51. Oxoline
52. Natrium bicarbonate
53. Iodinol
54. Interferon
55. Ticlopidin