

**FEDERAL STATE BUDGET EDUCATIONAL INSTITUTION OF HIGHER
EDUCATION
"ROSTOV STATE MEDICAL UNIVERSITY" OF THE MINISTRY OF HEALTH
OF THE RUSSIAN FEDERATION**

FACULTY "Therapeutic and preventive"

Evaluation materials

in the discipline "Clinical Pharmacology"

Specialty 05/31/01 General Medicine

1. List of competencies formed by the discipline (in full or partially)*

general professional (OPK):

Code and name of general professional competence	Indicator(s) of achieving general professional competence
OPK-8 Readiness for medical use of drugs and other substances and their combinations when solving professional problems.	

2. Types of assessment materials in accordance with formed competencies

Name of competency	Types of assessment materials	quantity tasks for 1 competency
OPK-8	Closed tasks	25 with sample answers
	Open type tasks: Situational tasks	75 with sample answers

OPK-8

Closed type tasks:

Task 1. Instructions: Choose several correct answers.

Drugs with high lipophilicity:

1. well absorbed from the gastrointestinal tract
2. poorly absorbed from the gastrointestinal tract
3. metabolized in the liver
4. penetrate the blood-brain barrier
5. excreted by the kidneys

Correct answer: 1-well absorbed in the gastrointestinal tract, 3- metabolized in the liver, 4- penetrate the blood-brain barrier

Task 2. Instructions: Choose several correct answers.

Main features of drug pharmacokinetics in elderly people:

1. decreased absorption rate
2. acceleration of absorption
3. reduction in distribution speed
4. acceleration of distribution
5. decreased binding of drugs to plasma proteins

Correct answer: 1-decrease in the rate of absorption, 3- decrease in the rate of distribution, 5- decrease in the binding of drugs to plasma proteins

Task 3. Instructions: Choose several correct answers.

The decision to refer a patient for consultation to a clinical pharmacologist is made by the attending physician in the following cases:

1. ineffectiveness of ongoing pharmacotherapy

2. identification of expected adverse drug reactions associated with the use of drugs
3. prescribing drugs with a low therapeutic index
4. prescribing combinations of drugs that increase the frequency of adverse drug reactions
5. simultaneous prescription of five or more medications to a patient
6. suspicion of the presence and (or) identification of pharmacogenetic characteristics of the patient

Correct answer: 1, 3, 4, 5,6

Task 4. Instructions: Choose several correct answers.

A clinical pharmacologist performs the following functions:

1. participation in microbiological monitoring
 2. analysis of the rationality of drug consumption volumes in accordance with the profile of a medical organization
 3. conducting an examination of temporary disability
 4. participation in the work of the medical commission
 5. advisory support for pharmacotherapy in a medical organization
 6. interacts with medical and social expert commissions
- Correct answer: 1- participation in microbiological monitoring, 2- analysis of the rationality of drug consumption volumes in accordance with the profile of a medical organization, 4- participation in the work of a medical commission, 5- advisory support of pharmacotherapy in a medical organization

Task 5. Instructions: Choose several correct answers.

What are the indications for antibiotic prophylaxis for infective endocarditis, according to the recommendations of the International Society of Chemotherapy (ISC).

1. artificial heart valves or operated heart valves (plastic) using any prosthetic materials
2. congenital “blue” heart defects
3. hypertrophic obstructive cardiomyopathy
4. history of infective endocarditis
5. mitral regurgitation

Correct answer: 1-artificial heart valves or operated heart valves (plastic) using any prosthetic materials, 2- congenital “blue” heart defects, 4- history of infective endocarditis

Task 6. Instructions: Choose several correct answers.

In what situations is therapeutic antimicrobial prophylaxis used?

1. for the prevention of relapses of A-streptococcal infection and its complications
2. for the prevention of infective endocarditis
3. to prevent infection of joint prostheses
4. for the prevention of wound infection
5. for the prevention of infections according to epidemiological indications
6. for the prevention of bedsores

Correct answer: 1-for the prevention of relapses of A-streptococcal infection and its complications, 2- for the prevention of infective endocarditis, 4- for the prevention of wound infection, 5- for the prevention of infections according to epidemiological indications

Task 7. Instructions: Choose several correct answers.

Specify the side effects of beta-blockers:

1. bradycardia
2. arterial hypotension
3. bronchospasm
4. tachycardia
5. thyroid dysfunction

Correct answer: 1-bradycardia, 2- arterial hypotension, 3- bronchospasm Task 8.

Instructions: Choose several correct answers.

Side effects of verapamil include

1. bradycardia
 2. development of AV block
 3. constipation
 4. bronchospasm
 5. decrease in ejection fraction with left ventricular systolic dysfunction
- Correct answer:
1- bradycardia, 2- development of AV block, 3- constipation, 5- decrease in ejection fraction with left ventricular systolic dysfunction

Task 9. Instructions: Choose several correct answers.

Which group of drugs is the drug of choice after myocardial infarction?

1. statins
2. ACE inhibitors
3. β -blockers
4. antiplatelet agents
5. antidepressants

Correct answer: 1- statins, 2- ACE inhibitors, 3- β -blockers, 4- antiplatelet agents Task 10.

Instructions: Choose several correct answers.

Side effects of loop diuretics

1. hypokalemia
2. hyperuricemia
3. impaired glucose tolerance
4. hypercalcemia
5. hyponatremia

Correct answer: 1-hypokalemia, 2- hyperuricemia, 3- impaired glucose tolerance, 5- hyponatremia

Task 11. Instructions: Choose several correct answers.

What therapeutic effects of NSAIDs are associated with COX2 blockade

1. anti-aggregation
2. antipyretic
3. anesthetic
4. anti-inflammatory
5. tocolytic

Correct answer: 2-antipyretic, 3- analgesic, 4- anti-inflammatory

Task 12. Instructions: Choose several correct answers.

What undesirable effects of NSAIDs are associated with COX1 blockade?

1. platelet aggregation disorder
2. delay in term delivery
3. increased risk of blood clots
4. prolongation of bleeding time (increased risk of postoperative bleeding)
5. ulcerogenic effect

Correct answer: 1-impaired platelet aggregation, 4- prolongation of bleeding time (increased risk of postoperative bleeding), 5- ulcerogenic effect

Task 13. Instructions: Choose several correct answers.

Prevention of adrenal insufficiency during treatment with corticosteroids

1. follow the circadian rhythm of the appointment
 2. use alternative therapy
 3. use the lowest effective dose
 4. gradually reduce the dose for a course of more than 2 weeks
 5. discontinuation of treatment, without gradually reducing the dose for a course of more than 2 weeks
- Correct answer: 1- follow the circadian rhythm of prescription, 2- use alternating therapy, 3- use the lowest effective dose, 4- gradually reduce the dose for a course of more than 2 weeks

Task 14. Instructions: Choose several correct answers.

When treating pneumonia in a pregnant woman, the following should not be used:

1. Ampicillin
2. Tetracycline
3. Levofloxacin
4. Ceftriaxone
5. Metronidazole

Correct answer: 2-Tetracycline, 3- Levofloxacin, 5- Metronidazole Task 15.

Instructions: Choose several correct answers.

Penicillins are effective against infections caused by:

1. gram-positive cocci
2. gram-negative rods
3. viruses
4. gram-negative cocci

Correct answer: 1-gram-positive cocci, 2-gram-negative rods, 4-gram-negative cocci

Task 16. Instructions: Choose several correct answers.

Pseudomonas aeruginosa (*Pseudomonas aeruginosa*) is resistant to:

1. streptomycin
2. penicillin

3. cefepime
4. tetracyclines
5. ampicillin

Correct answer: 1-streptomycin, 2- penicillin, 4- tetracyclines, 5- ampicillin

Task 17. Instructions: Choose several correct answers.

Side effects of zafirlukast.

1. transient increase in transaminases
2. nasal congestion
3. cough
4. diarrhea
5. suicide in adults and adolescents
6. nightmares in children
7. behavioral problems in children
8. dry mouth

Correct answer: 1-transient increase in transaminases, 2- nasal congestion, 3- cough, 5- suicide in adults and adolescents, 6- nightmares in children, 7- behavioral problems in children

Task 18. Instructions: Choose several correct answers.

Advantages of inhaled glucocorticosteroids compared to systemic ones.

1. high affinity for receptors
2. pronounced local anti-inflammatory activity
3. more pronounced sodium and water retention
4. safer clinical profile
5. presence of expectorant properties

Correct answer: 1-high affinity for receptors, 2- pronounced local anti-inflammatory activity, 4- safer clinical profile

Task 19. Instructions: Choose several correct answers.

Contraindications to prescribing ipratropium bromide (Atrovent) to a patient.

1. hypersensitivity to atropine and soybeans
2. pregnancy (first trimester)
3. broncho-obstructive syndrome
4. children up to 6 years old
5. arterial hypertension

Correct answer: 1-hypersensitivity to atropine and soybeans, 2- pregnancy (I trimester), 4-children up to 6 years old

Task 20. Instructions: Choose several correct answers.

Methylxanthines do not include:

1. zafirlukast
2. aminophylline
3. fluticasone
4. theophylline
5. ipratropium bromide

Correct answer: 1-zafirlukast, 3-fluticasone, 5-ipratropium bromide Task 21.

Instructions: Choose several correct answers.

Strengthen the hypoglycemic effect of insulin:

1. non-selective β -blockers
2. glucocorticosteroids
3. ACE inhibitors
4. NSAIDs
5. oral contraceptives

Correct answer: 1-non-selective β -blockers, 3- ACE inhibitors, 4- NSAIDs

Task 22. Instructions: Choose several correct answers.

When prescribing indomethacin to patients with heart failure:

1. the effectiveness of captopril increases
2. the effectiveness of captopril decreases
3. kidney function improves
4. kidney function worsens
5. kidney function does not change

Correct answer: 2-the effectiveness of captopril decreases, 4- kidney function worsens

Task 23. Instructions: Choose several correct answers.

The group of H₂-histamine receptor blockers does not include:

1. atropine
2. ranitidine
3. de-nol
4. omeprazole
5. clindamycin

Correct answer: 1-atropine, 3-de-nol, 4-omeprazole, 5-clindamycin Task 24.

Instructions: Choose several correct answers.

It is not necessary to use the names of medicinal products in the formulary list. means:

1. trading
 2. chemical
 3. generic
 4. accepted in this medical institution
 5. determined by the clinical pharmacologist of this institution
- Correct answer:** 1-commercial, 2- chemical, 4- accepted in this medical institution, 5- determined by the clinical pharmacologist of this institution

Task 25. Instructions: Choose several correct answers.

Direct treatment costs include:

1. costs of purchasing medicines
2. costs associated with the use of equipment
3. labor costs for medical workers
4. costs associated with lost productivity
5. costs associated with treatment of complications of therapy

Correct answer: 1-costs for the purchase of medicines, 2- costs associated with the use of equipment, 3- costs for remuneration of medical workers, 5- costs associated with the treatment of complications of therapy

Open type tasks:

Situational task No. 1

The patient, 66 years old, suffers from stage I obesity (BMI=31.2 kg/m²), stage II hypertension, risk 4. A month ago, impaired glucose tolerance was detected. According to the patient's diary, during the last month the blood pressure was within the range of 145/90-150/95 mm. rt. Art. Which antihypertensive drug is preferable to use in this patient and at what dose?

Answer: You can prescribe ACE inhibitors (perindopril 4 mg once a day), or AT1 angiotensin receptor blockers (valsartan 80 mg once a day), or slow calcium channel blockers (felodipine 5 mg once a day). If monotherapy is ineffective, combination with indapamide is possible.

Situational task No. 2

The patient, 66 years old, has been suffering from hypertension for 8 years. Takes moxonidine 0.15 mg 3 times a day. I didn't take the drug the day before because I forgot to prescribe it from my doctor. Today there were complaints of dizziness, headache, stabbing pain in the chest. Blood pressure – 220/100 mm. rt. Art. Assess the clinical situation. Is it necessary to continue therapy with moxonidine in the future?

Answer: Moxonidine withdrawal syndrome has developed; It is advisable to discontinue moxonidine. Considering systolic hypertension, therapy should begin with diuretics (hydrochlorothiazide 25 mg or indapamide 1.5 mg in the morning). If the effect of diuretics is insufficient, combination therapy with ACE inhibitors, AT1-angiotensin receptor blockers, and slow calcium channel blockers is possible.

Situational task No. 3

A 56-year-old patient with post-infarction atherosclerosis and heart failure of functional class II according to NYHA has been taking metoprolol tartrate 25 mg 2 times a day for a long period of time, along with enalapril at a dose of 10 mg once a day and spironolactone 25 mg in the morning. Recently, according to the patient, blood pressure is 100/70 mm. Hg The doctor considered it necessary, given the level of blood pressure, to discontinue the β -blocker.

Evaluate the doctor's tactics? What should he have done from the standpoint of evidence-based medicine?

Answer: Abrupt withdrawal of metoprolol tartrate is not indicated due to the possible development of withdrawal syndrome; to improve the patient's adherence to treatment, it is necessary to prescribe bisoprolol 2.5 mg or metoprolol succinate 25 mg 2 times a day, and also reduce the dose of enalapril to 5 mg per day

Situational task No. 4

A 75-year-old patient, along with stage II hypertension, stage 2, risk 3, has benign prostatic hyperplasia. Antihypertensive therapy, what drugs are indicated for him, taking into account the comorbid pathology?

Answer: α 1-blockers: doxazosin at an initial dose of 1 mg/day. If the hypotensive effect of doxazosin is insufficient, drugs of other groups may be prescribed.

Situational task No. 5

A 57-year-old patient consulted a doctor with complaints of swelling of the ankles. From the anamnesis it is known that the patient has been taking amlodipine 10 mg/day for 5 months as monotherapy for hypertension. Swelling in the legs appeared about 1 month ago.

The patient's condition is satisfactory. There is vesicular breathing over the lungs, no wheezing. Heart sounds are muffled, the accent of the second tone is over the aorta. Blood pressure is 135/90 mm Hg, the pulse is rhythmic with a frequency of 90 per minute. Liver along the edge of the costal arch. Swelling of the ankles, symmetrical. The doctor prescribed hydrochlorothiazide 25 mg/day to eliminate tibial edema. Evaluate the doctor's tactics.

Answer: It is necessary to reduce the dose or stop amlodipine completely; the prescription of diuretics is ineffective; it is necessary to prescribe slow calcium channel blockers, or diuretics (hydrochlorothiazide, indapamide) or ACE inhibitors (enalapril, perindopril, fosinopril, lisinopril, etc.) instead.

Situational task No. 6

A 78-year-old patient with a history of hypertension began taking furosemide 40 mg/day for antihypertensive purposes without consulting a physician. Evaluate the prescribed therapy. Which drug from the same group of drugs can be prescribed instead of furosemide and in what dose?

Answer: Furosemide is indicated for the relief of hypertensive crises; The only loop diuretic that can be used in the permanent treatment of hypertension is torasemide at a subdiuretic dose of 5-10 mg/day.

Situational task No. 7

A 47-year-old patient consulted a doctor with complaints of a dry cough. From the anamnesis it is known that the patient has been taking perindopril 8 mg/day for 3 months as monotherapy for hypertension. The patient's condition is satisfactory. There is vesicular breathing over the lungs, no wheezing. Heart sounds are muffled. Blood pressure 125/80 mm. Hg, rhythmic pulse with a frequency of 70 per minute. Liver along the edge of the costal arch. Doctor's tactics? Is it possible to replace perindopril with enalapril?

Answer: Dry cough, if other causes have been excluded, is a side effect of ACE inhibitor therapy; tactics: abolition of ACE inhibitors and prescription of AT1 receptor blockers; Replacing one ACEI with another is ineffective in this case.

Situational task No. 8

The patient, 62 years old, has been suffering from hypertension for 10 years. With satisfactory compliance, he takes amlodipine 10 mg once in the morning. Since the SBP level remained high - more than 160 mm. Hg, the patient independently began taking hydrochlorothiazide 100 mg daily. After 2 weeks from the start of thiazide diuretic therapy, general weakness, interruptions in heart function, and convulsive muscle twitching appeared. Objectively, the tones are rhythmic with a heart rate of 74 per minute, interrupted by frequent extrasystoles, blood pressure – 130/80 mm. Hg The ECG shows ST segment depression in leads V3-V6 by 0.8 mm, frequent monotypic ventricular extrasystole. Assess the clinical situation. What blood test should be performed to clarify the cause of these symptoms?

Answer: Uncontrolled use of a thiazide diuretic at the maximum dose led to the development of hypokalemia, detected by determining the content of potassium ions in the blood plasma.

Situational task No. 9

A 60-year-old patient was admitted to the hospital with complaints of severe headache, vomiting, and spots flashing before her eyes. He has been suffering from hypertension for 15 years. The target blood pressure level in this patient has not been achieved: blood pressure is constantly above 140/90 mm. rt. Art. Objectively: the condition is serious, the skin is pale. The patient is lethargic and adynamic. The face is puffy. Swelling of the eyelids. Blood pressure 240/130 mmHg. Art. Heart sounds

muffled, the rhythm is correct with a heart rate of 70 per minute. Auscultation of the lungs reveals harsh breathing, wheezing is not heard. The abdomen is soft, the liver protrudes from under the edge of the costal arch by 3 cm. Pastosity of the legs. Diuresis is reduced. What drugs are indicated for the treatment of this condition?

Answer: Furosemide 80 mg intravenously or sodium nitroprusside intravenously at a rate of 0.5-1.0 mcg/kg/min.

Situational task No. 10

A 74-year-old patient suffered a Q-positive myocardial infarction in the anteroseptal region of the left ventricle 2 years ago. I am concerned about shortness of breath when walking more than 200 meters. At the time of examination, the patient's condition was satisfactory. There is vesicular breathing over the lungs, isolated moist rales in the basal regions on both sides. Heart sounds are muffled. Blood pressure 115/70 mm. Hg, rhythmic pulse with a frequency of 95 per minute. Liver along the edge of the costal arch. Pasty ankles. Does the patient need therapy with β -blockers along with ACE inhibitors and, if so, which ones and in what starting dose?

Answer: β -blocker therapy is indicated; bisoprolol 1.25 mg/day or metoprolol succinate 12.5 mg/day or carvedilol 3.125 mg 2 times a day or nebivolol 1.25 mg/day.

Situational task No. 11

Patient Z., 68 years old, suffered a myocardial infarction 5 years ago. According to the results of the examination, CHF was found to be stage II A, class II (according to echocardiography, the ejection fraction was 45%). Prescribe treatment.

Answer: ACE inhibitors or AT II receptor antagonists (for example: perindopril A 5 mg once a day or candesartan 4 mg once a day); β - blockers (for example: bisoprolol 2.5 mg 1 time); thiazide diuretics (hypothiazide 25 mg in the morning).

Situational task No. 12

Patient F., 65 years old, who suffered an acute myocardial infarction 2 years ago, had a clinical picture of stage IIB, class IV CHF against the background of post-infarction atherosclerosis and chronic left ventricular aneurysm. According to echocardiography, the ejection fraction (EF) was 33%, the end-diastolic dimension (EDD) of the left ventricle was 5.7 mm. Prescribe treatment.

Answer: ACE inhibitors or AT II receptor antagonists, β -blockers, thiazide diuretics (for example: ramipril 5 mg; torasemide 10 mg in the morning; metoprolol succinate 12.5 mg once a day); antithrombotic – enoxaparin 40 mg/day.

Situational task No. 13

Patient B., 66 years old, developed acute left ventricular failure due to stage IIB, class III CHF (EF 27%). Which drug is the drug of choice to improve hemodynamics in this critical situation?

Answer: Levosimendan (bolus 12 mcg/kg, then IV drip 0.1-0.21 mcg/kg/min).

Situational task No. 14

Due to what properties can ACEIs be used in patients with CHF with diastolic dysfunction and preserved systolic function of the left ventricle?

Answer: They improve relaxation and extensibility of the myocardium, reduce the severity of myocardial hypertrophy and fibrosis, and have a cardioprotective effect.

Situational task No. 15

Patient Sh., 75 years old, suffered from hypertension for about 30 years. During examination and ECG and echocardiography, a “hypertensive” heart was discovered, associated with an age-related decrease in the muscle element and increased formation of fibrous tissue in the myocardium of the elderly (EF - 61%). What cardiac function is impaired in this pathology? What groups of drugs are used to treat these disorders.

Answer: A violation of the diastolic function of the heart develops, i.e. relaxation function, diastolic heart failure (DSF) develops. Principles of treatment: ACE inhibitors, angiotensin receptor antagonists, β -receptor blockers, or verapamil, diuretics - in patients with DHF, use with caution so as not to cause excessive reduction in preload on the left ventricle and a drop in cardiac output. The drug of choice is torasemide, which has a lower kaliuretic effect than furosemide; in addition, it has its own antifibrotic effect on the myocardium. Eplerenone 25 mg once a day. Cardiac glycosides (digoxin) are used if it is impossible to use β -AB; the dose of the drug should not exceed 0.25 mg/day.

Situational task No. 16

Patient D., 48 years old, was diagnosed with chronic rheumatic heart disease with concomitant mitral valve disease, complicated by CHF II BSt III FC (EF 25%) and a permanent form of atrial fibrillation (tachysystolic variant). Prescribe treatment.

Answer: Digoxin 0.125 mg 2 times a day (daily dose 0.25 mg); carvedilol 3.125 mg 2 times a day; spironolactone 200 mg in the morning; furosemide 40 mg in the morning; enalapril 5 mg 2 times a day. Warfarin up to INR 2-3 or dabigatran or rivaroxaban.

Situational task No. 17

Patient S., 54 years old, has been suffering from deforming osteoarthritis of the lower extremities with severe synovitis for 5 years. There is a history of drug allergies (to butadione, heparin, methindol, penicillin, theophylline). In the hospital, the patient was prescribed rheopirin 5 ml IM once a day, hydrocortisone hemisuccinate 100 mg in the cavity of the knee joints, tavegil 0.001 g 2 times a day. After 3 days, the patient developed itchy erythematous rashes on the skin of the torso.

Indicate the expected diagnosis and prescribe a treatment plan.

Answer: Drug-induced allergic dermatitis. Consultation with a dermatologist is necessary. Prescriptions: discontinue rheopirin, prescribe prednisolone up to 20 mg/day orally, continue taking 1st and 2nd generation antihistamines (for example, Tavegil), local therapy with glucocorticosteroid ointment

Situational task No. 18

Patient R., 25 years old, used a local anti-inflammatory ointment for acne on her face. After 3 months, at an appointment with a cosmetologist, areas of facial skin atrophy were identified. What drugs have this effect?

Answer: Ointments containing glucocorticoids.

Situational task No. 19

Patient S., 62 years old, received iruzid (lisinopril with hydrochlorothiazide) for hypertension (stage 2, degree 2, risk 3), and the target blood pressure was achieved. In order to relieve the pain in the lower back, the patient independently took ketorolac for 6 days. After this, blood pressure became 160/95 mm Hg.

What drugs are associated with the evasion of the hypotensive effect? Your treatment tactics. What antihypertensive drugs should the patient be recommended to take?

Answer: NSAIDs reduce the effectiveness of ACE inhibitors, sartans, beta blockers and diuretics. Ketorolac should be discontinued, and if this is not possible, the dosage of antihypertensive drugs should be adjusted towards increasing their dosages. To normalize blood pressure, you can add a calcium antagonist (for example, amlodipine), since drugs in this group retain the severity of their hypotensive effect while taking NSAIDs.

Situational task No. 20

Patient M., 44 years old, a driver by profession, was discharged from the hospital, where he was treated for 20 days with a diagnosis of rheumatoid arthritis, activity I, predominantly articular form, slowly progressive course, NFS - 0. In the hospital, methylprednisolone 10 mg, diclofenac were prescribed sodium 25 mg 4 times a day. After discharge from the hospital, maintenance therapy with indomethacin 25 mg 2 times a day was prescribed. On the 16th day, the patient was injured in a car accident. Could an experienced driver's car accident be related to drugs? If yes, what specific drug?

Answer: Yes, it can. Taking indomethacin reduces attention. The drug is not recommended to be prescribed if the patient's profession requires concentration and is dangerous.

Situational task No. 21

A 50-year-old patient with dilated cardiomyopathy secondary to decompensated CHF (NYHA class IV) is on bed rest in a hospital. The ECG shows sinus tachycardia with a frequency of 110 per minute; Echocardiography data: dilatation of both ventricles and the left atrium, mural thrombi in the cavities of the heart chambers are not visualized. 1. Select anticoagulant therapy.

Answer: Enoxaparin sodium subcutaneously 0.2-0.4 ml 1 r/day during the entire period of bed rest.

Situational task No. 22

The patient, 48 years old, has a history of allergy to salicylates. What platelet antiplatelet agents and in what doses can he be prescribed as part of the treatment of exertional angina?

Answer: clopidogrel 75 mg 1 time per day indefinitely.

Situational task No. 23

A 69-year-old patient is scheduled for hip arthroplasty. Suggest measures for drug prevention of deep vein thrombosis of the lower extremities.

Answer: UFH 5000 units 2 times a day subcutaneously or enoxaparin sodium subcutaneously 40 mg 12 hours before surgery, then the same dose once a day in the postoperative period.

Situational task No. 24

The patient, 66 years old, has been suffering from chronic venous insufficiency of the lower extremities for a long time. Recently, the condition has been showing negative dynamics; severe trophic disorders of both legs have developed, accompanied by inflammatory changes (redness of the skin, tenderness of the tissues on palpation). What drug

influencing platelet aggregation and improving microcirculation, increasing venous tone is indicated in this case?

Answer: Diosmin 400 mg orally 2 times a day.

Situational task No. 25

Specify a group of drugs that affect hemostasis, the use of which during pregnancy is completely contraindicated due to the identified teratogenic effect and the development of bleeding in the fetus.

Answer: Indirect anticoagulants.

Situational task No. 26

A 36-year-old patient was operated on for stage IV rheumatic mitral stenosis according to A.N. Bakulev. Even before opening the pericardium, the patient had severe hypoxia: pH – 7.2, venous blood oxyhemoglobin – 60%, severe cyanosis of the hands and face. At the end of the operation, pH was 7.18, oxyhemoglobin was 25%, fibrinogen was not detected, fibrinolytic activity was 100%, and the thromboelastogram showed complete lysis of the clot. During the operation, blood loss was 700 ml. 25-30 minutes after the operation, 650 ml of blood was simultaneously removed from the pleural cavity, and a progressive drop in blood pressure began. During rethoracotomy, 500 ml of blood was found in the pleural cavity, no clots were visible, the edges of the wound were immobilized, and there was no bleeding from cardiac wounds. Total blood loss was 1850 ml, restored by transfusion of citrated blood (2500 ml) with an eight-day shelf life. The patient was transfused with 625 ml of dry concentrated plasma. Specify the drugs of choice for the treatment of fibrinolytic bleeding.

Answer: UFH, fresh frozen plasma, aprotinin.

Situational task No. 27

A 61-year-old patient has been receiving ticlopidine 250 mg twice daily for 5 months as antiplatelet therapy for stable coronary artery disease. In a general blood test taken today, the neutrophil content was $1.0 \cdot 10^9/l$. Indicate the possible reason that determined this level of neutrophils in the peripheral blood and suggest further tactics.

Answer: Side effects of ticlopidine; discontinuation of the drug and prescription of acetylsalicylic acid 75-100 mg/day.

Situational task No. 28

For a 57-year-old patient suffering from coronary artery disease and persistent (more than three years) atrial fibrillation, the local doctor increased the dose of acetylsalicylic acid from 75 to 325 mg/day once orally. Evaluate the therapist's tactics. Are indirect anticoagulants indicated for the patient?

Answer: The tactics are correct; indirect anticoagulants are used for secondary prevention of stroke in patients at high risk of embolic complications

Situational task No. 29

A patient suffering from arterial hypertension and bronchial asthma consulted his attending physician with complaints of asthma attacks that appeared after he began taking a drug to lower blood pressure.

Taking what medications could trigger asthma attacks? What is the doctor's tactics in this situation? What antihypertensive drugs are appropriate to prescribe to this patient?

Answer: β -blockers can provoke asthma attacks. Slow calcium channel blockers can be prescribed.

Situational task No. 30

A 28-year-old patient was admitted to the intensive care unit with shortness of breath, coughing and suffocation lasting for two hours. In the anamnesis, such attacks were repeated in recent years under emotional and physical stress; the patient stopped them independently with home remedies. Periodically there were symptoms of hay fever. The same symptoms occurred in my sister and grandfather. On examination - cyanosis, orthopnea, respiratory rate 24/min, viscous sputum. Dry whistling rales are heard during inhalation and exhalation. Heart rate 130, sinus rhythm. Probable diagnosis?

Propose a plan for examining the patient (laboratory and instrumental examinations, consultations with the necessary specialists) and draw up a plan of treatment measures.

Answer: Bronchial asthma. ICS via nebulizer (budesonide), short-acting β_2 -agonist (salbutamol), mucolytics. To prevent hay fever, antihistamines (loratadine) can be prescribed.

Situational task No. 31

Patient S., 43 years old, was admitted to the clinic with a diagnosis of coronary heart disease, stable angina pectoris, FC II. From the anamnesis it turned out that he also suffers from bronchial asthma. Which antianginal drugs and why are contraindicated in this patient?

Answer: β -blockers.

Situational task No. 32

Patient K., 49 years old, complains of an increase in body temperature to 37.5°C, cough with the release of a small amount of purulent sputum, and increased frequency of asthma attacks. The patient suffers from moderate COPD and takes formoterol. The deterioration of the condition is associated with hypothermia. Prescribe antibacterial treatment for exacerbation of COPD.

Answer: Amoxicillin/clavulanic acid (high probability of allergy to penicillins), 3rd generation cephalosporins, respiratory fluoroquinolones.

Situational task No. 33

A 50-year-old patient, a heavy smoker, is receiving treatment for COPD: salbutamol, ipratropium, theophylline. Due to an infectious exacerbation of COPD, the patient went to the first aid station.

There is a history of an allergic reaction to penicillin, so the paramedic prescribed erythromycin to the patient to treat an exacerbation of COPD. Review the prescribed treatment.

Answer: Erythromycin is a CYP 450 inhibitor and potentiates the effect of theophylline, increasing its concentration in the blood. Theophylline intoxication is possible.

Situational task No. 34

Patient M., 65 years old, complains of shortness of breath when climbing 2 flights of stairs, and a change in the color of sputum (from light to gray) over the past year. History: For many years, small amounts of sputum were discharged in the morning. 5 years ago, shortness of breath appeared during heavy physical exertion.

Over the past year, I have been bothered by a dry, unproductive cough. At the same time, the color of the sputum changed, and shortness of breath began to bother me when performing everyday activities. Bad habits: smokes 1 pack of cigarettes a day for 45 years.

Research data: FVC – 92%, FEV₁ – 45%, FEV₁/FVC – 56%.

Probable diagnosis? Propose a plan for examining the patient (laboratory and instrumental examinations, consultations with the necessary specialists) A plan for treatment measures. What groups of drugs should be prescribed to the patient?

Answer: COPD, severe. Maintenance therapy is required - a combination of long-acting β_2 -adrenergic agonists and ICS, M-anticholinergic blockers, long-acting theophylline.

Situational task No. 35

A 50-year-old man consulted a local general practitioner with complaints of epigastric pain 20 minutes after eating and vomiting, which brought relief. Epigastric pain has been bothering me for about 2 months. On examination: condition is satisfactory. The skin is of normal color and clean. In the lungs there is vesicular breathing, no wheezing. Heart sounds are clear, rhythmic, heart rate - 72 beats per minute, blood pressure - 120/80 mm Hg. Art. On palpation, the abdomen is soft, painful in the epigastrium. Liver along the edge of the costal arch. Dimensions - 10×9×8 cm. The spleen is not palpable. Fibrogastroduodenoscopy was performed: in the middle third of the stomach there is an ulcerative defect 1.2 cm in diameter, the bottom of the defect is filled with fibrin, the edges are raised, swollen, a biopsy was taken. When examining biopsy specimens of the mucous membrane, *Helicobacter pylori* was detected. Formulate a preliminary diagnosis. What drug treatment would you recommend to the patient? Justify your choice.

Name the antisecretory drug prescribed after eradication, indicate the duration of its administration.

Answer: Newly diagnosed peptic ulcer, *H. pylori* associated, exacerbation: ulcer of the body of the stomach 3 cm in diameter. Three-component *Helicobacter pylori* eradication scheme: PPI in a standard dose (Omeprazole - 20 mg, Lansoprazole - 30 mg, Rabeprazole - 20 mg or Esomeprozole - 20 mg) 2 times a day 20-30 minutes before meals for 14 days; Clarithromycin - 500 mg + Amoxicillin - 1000 mg 2 times a day for 7-10 days.

Due to the fact that a red scar without acid suppressive therapy can be destroyed, and the ulcerative defect can open again, maintenance therapy should be prescribed: PPI 20 mg once a day for 4-8 weeks - the period for the formation of a white scar that does not contain blood vessels, and is therefore more durable. When a white scar forms, this should be assessed with FEGDS.

Situational task No. 36

Patient K, 22 years old, was admitted with complaints of pain in the epigastric region, relieved by taking Almagel. From the anamnesis: he has been suffering from duodenal ulcer for 2 years; there is an allergic reaction to penicillin, manifested by Quincke's edema. FGDS revealed an ulcer (0.7 cm in diameter) in the ampulla of the duodenum. When examining biopsy samples of the duodenal mucosa, *Helicobacter pylori* was detected. Formulate a preliminary diagnosis. Specify the eradication scheme and its duration. How long after the end of the course of anti-*Helicobacter* therapy should the diagnosis of eradication Nr. be carried out? If therapy is ineffective, what treatment is recommended for the patient?

Answer: Peptic ulcer of the duodenum, HP associated in the acute stage.

Three-component *Helicobacter pylori* eradication scheme: PPI in a standard dose (Omeprazole - 20 mg, Lansoprazole - 30 mg, Rabeprazole - 20 mg or Esomeprozole - 20 mg) 2 times a day 20-30 minutes before meals for 14 days; Clarithromycin - 500 mg + metronidazole 500 mg 3 times a day or tetracycline 500 mg 4 times a day. 7-10 days Control FGS should be carried out 6-8 weeks after the end of therapy. If therapy 1 (PPI, clarithromycin, amoxicillin) and 2 lines (PPI, metronidazole or amoxicillin, tetracycline, bismuth) is ineffective, rescue therapy is prescribed: Regimen 2 (7 days): PPI (standard dose 2 times a day) + levofloxacin (500 mg 1 r/d) + amoxicillin (1 g 2 r/d). Scheme 3, in 2 stages: PPI (standard dose 2 times a day)+

amoxicillin (1 g twice a day) for 5 days, after which PPI (standard dose 2 daily) + clarithromycin (500 mg twice a day) + tinidazole (500 mg twice a day) 5 days.

Situational task No. 37

Patient M., 50 years old, consulted a local general practitioner with complaints of nausea, acute night and hunger pain in the epigastrium, decreasing after eating, nausea, vomiting “coffee grounds,” and one-time black “tarry” stools. She is being treated for rheumatoid arthritis; she has been taking Indomethacin for a long time (more than 3 months), 1 tablet 3 times a day. I have not noted these complaints before and have not consulted a doctor.

Objectively: the condition is of moderate severity. The skin is pale. Reduced nutrition. The tongue is covered with a white coating and is moist. In the lungs, breathing is vesicular, respiratory rate is 16 per minute. Heart sounds are clear, rhythmic, heart rate - 88 beats per minute, blood pressure - 110/70 mm Hg. Art.

The abdomen is tense, sharply painful locally in the Shofar area. Symptoms of peritoneal irritation are negative. Black “tarry” stool. Urination is not impaired. Clinical blood test: hemoglobin – 100 g/l; erythrocytes – $3.0 \times 10^{12}/l$; leukocytes $8.4 \times 10^9/l$; stab - 4%; segmented – 61%; eosinophils – 1%; lymphocytes – 30%; monocytes – 4%; ESR – 20 mm/hour. Guess the most likely diagnosis. What group of antiulcer drugs would you recommend to the patient in initial therapy? Justify your choice. When detected after 2 weeks of therapy, signs of ulcer scarring were revealed. What are your further treatment tactics?

Justify your choice.

Answer: Gastric ulcer complicated by bleeding while taking NSAIDs. The patient is recommended: an endoscopy to identify the site of bleeding, consultation with a surgeon to determine further treatment tactics. Proton pump inhibitors are the drugs of choice for ulcers caused by NSAIDs (any). Pantoprazole and rabeprazole are less subject to metabolism with the participation of cytochromes, but not esomeprazole. Continue antiulcer therapy without changes, determine the presence of H. pilori; if the answer is positive, prescribe an anti-Helicobacter treatment regimen.

Situational task No. 38

An 80-year-old woman with heart failure developed an attack of angina. She takes furosemide, digoxin, nitroglycerin and potassium supplements. After a short time, the patient developed periodic throbbing headaches in the frontal region. Why did the headache appear? What should you do first?

Answer: The headache is most likely associated with the administration of nitroglycerin and is a manifestation of its NPE against the background of the patient’s cerebrovascular pathology, however, the manifestation of digitalis intoxication cannot be excluded. Stop an attack of angina. Rule out digitalis intoxication against the background of hypokalemia that has developed as a result of taking furosemide. Avoid taking long-acting nitrates and nitroglycerin in the future.

Situational task No. 39

A 50-year-old patient consulted a doctor with complaints of interruptions and “stoppages” of the heart, nausea, vomiting, loss of appetite, diarrhea, headache, and dizziness. These phenomena appeared two days ago. For many years he has suffered from mitral heart disease. Due to shortness of breath during physical activity, the appearance of heaviness in the right hypochondrium during long walking and slight swelling of the feet in the evening, he has been constantly taking isolanide for several years, 3 tablets per day (0.75 mg). I felt good. During an examination three months ago, the medical unit doctor did not reveal any signs of active rheumatism. A week ago, on the advice of a friend, I replaced Izolanide with Digoxin (four

tablets per day). Pulse 50 per minute, arrhythmic. Formulate a diagnosis. How can the patient's condition be assessed after a change in treatment? Explain why the clinic changed after replacing isolanide with digoxin? 4. Make the right assignments for now. Determine further treatment tactics

Answer: Mitral valve stenosis. Sinus bradycardia. AV block. Atrial fibrillation, bradysystolic form? Complication: Digitalis intoxication as a result of an absolute overdose. CHF 2nd degree. The deterioration of the condition is associated with the appearance of abdominal syndrome, cerebralgia and arrhythmia syndrome. Not only is the principle of a reduced initial dose of digoxin not observed when prescribing it after a previous intake of a cardiac glycoside, but there is an absolute excess of the daily dose. Stop digoxin. In accordance with the current instructions of the GRLS for digoxin, it is necessary to prescribe activated carbon to reduce absorption, if necessary, the introduction of antidotes (unithiol, EDTA, antibodies to digoxin), and symptomatic therapy. In the future, review of therapy. Additional examination - echocardiography, assessment of EF. Connection of ACE inhibitors, possibly beta blockers, antiplatelet drugs.

Situational task No. 40

A 56-year-old patient with a permanent form of atrial fibrillation takes digoxin 0.125 mg 2 times (morning and evening). Due to unsatisfactory heart rate control (at rest - 100 per minute, during physical activity - 130), verapamil 40 mg 3 times a day was prescribed. After 5 days - nausea, vomiting, ECG - atrial fibrillation, heart rate - 50 per minute, trough-shaped ST depression in the thoracic region, blood digoxin level 3 mcg/l (N - 1 -2). How to assess the condition? What is the cause of glycoside intoxication with verapamil? How to avoid such drug interactions? What other drugs may also affect digoxin? How to further manage the patient?

Answer: Digitalis intoxication. Verapamil is an inhibitor of glycoprotein P, increases the concentration of digoxin (substrate) in the blood when taken together, which increases the risk of developing side effects of digoxin, including digitalis intoxication. It is necessary to replace verapamil with a beta-blocker and/or consider stopping digoxin (the drug improves quality of life, but there is no evidence of its effect on life expectancy). Quinidine, amiodarone, spironolactone, triamterene, captopril also increase the concentration of digoxin in the blood.

Hospitalization required. Taking into account the presence of a relative overdose, it is necessary: discontinuation of digoxin, administration of activated charcoal (to reduce absorption), administration of antidotes (unithiol, EDTA, antibodies to digoxin), symptomatic therapy. Continuous ECG monitoring is carried out. Due to the presence of atrial fibrillation, prescribe: prescribe a NOAC (dabigatran).

To clarify the genesis of AF, to consider the use of surgical correction of rhythm disturbances in a planned manner (operation "Labyrinth", thoracoscopic RFA).

Situational task No. 41

The patient is 42 years old and has been suffering from rheumatic mitral heart disease for 13 years. 3 weeks ago atrial fibrillation appeared. In the hospital, treatment with quinidine was started according to the regimen. On day 3, sinus rhythm was restored, but diarrhea appeared (2 times a day). What is the cause of dyspeptic disorder? What are your next tactics?

Answer: Stop quinidine and prescribe a drug from class III antiarrhythmics – amiodarone.

Situational task No. 42

A 58-year-old patient suffering from functional class II angina pectoris and ventricular extrasystole was prescribed mexilit in medium therapeutic doses. Before treatment, 1264 extrasystoles were recorded during daily monitoring. On the 2nd day of treatment, the patient's condition worsened. During daily monitoring, 1572 ventricular extrasystoles were registered. Assess the clinical situation.

What are your next steps?

Answer: The proarrhythmogenic effect of mexilit may occur. It is necessary to discontinue the drug. Adequately manage angina, which can lead to elimination of ectopic activity associated with ischemia. In accordance with clinical guidelines for the treatment of stable coronary heart disease, it is recommended to prescribe at least one drug to eliminate angina pectoris/myocardial ischemia in combination with drugs to prevent cardiovascular complications as optimal drug therapy. For stable angina FC 1-2, it is recommended to prescribe beta-blockers as a 1st-line drug. If the effectiveness is insufficient, it is recommended to supplement with dihydropyridine AK (amlodipine 5 mg/day). If the 1st line drugs are insufficiently effective and/or the target heart rate is not achieved, it is recommended to add one of the 2nd line drugs (ivabradine) to the treatment. Long-acting nitrates or ranolazine or nicorandil depending on blood pressure, heart rate and tolerability. To prevent cardiovascular complications, it is recommended to prescribe acetylsalicylic acid 75 mg/day as an antiplatelet agent. or clopidogrel 75 mg - continuous use.

Situational task No. 43

Patient A., 42 years old, was hospitalized with a diagnosis of coronary artery disease, stable angina pectoris, FC II, stage 2 hypertension, very high risk. He constantly took propranolol at a dose of 120 mg per day. After suffering from acute respiratory viral infection, expiratory shortness of breath appeared, which decreased after taking 2 doses of salbutamol. I stopped using propranolol on my own, having read in the annotation for the drug about its ability to cause bronchial obstruction. 24 hours after discontinuation, severe compressive pain in the chest appeared, radiating to the left shoulder, tachycardia, and increased blood pressure. ECG: atrial extrasystole, ST segment depression in V5, V6 up to 1 mm, left ventricular hypertrophy. The patient attributes the deterioration of his condition to taking salbutamol. Specify the reason for the deterioration of the patient's condition and correct antianginal therapy.

Answer: The patient discontinued propranolol, which belongs to the group of beta-blockers and should be discontinued gradually. A withdrawal syndrome occurred with the development of an attack of angina pectoris. Salbutamol, due to the presence of a positive chrono- and bathmotropic effect, could also contribute to coronary insufficiency and rhythm disturbances. You need nitroglycerin in tablets under the tongue or nitroglycerin on the oral mucosa by inhalation. Dynamic observation and exclusion of acute coronary syndrome with ST segment depression (determine troponin T). It is necessary to prescribe a highly selective beta a long-acting adrenergic blocker, however, taking into account expiratory shortness of breath until it is eliminated and the presence and genesis of bronchial obstruction is verified, it is more rational to use a calcium antagonist with a negative chronotropic effect (outside of acute coronary syndrome, since non-dihydropyridine calcium antagonists reduce contractility). If the 1st-line drugs are insufficiently effective, it is recommended to add one of the 2nd-line drugs to the treatment (ivabradine or long-acting nitrates or ranolazine or nicorandil) - depending on blood pressure, heart rate and tolerability. To prevent cardiovascular complications, it is recommended to prescribe acetylsalicylic acid 75 mg/day as an antiplatelet agent.

(first dose for suspected ACS - 300 mg/day once). Risk 4 requires the prescription of a statin titrated to an LDL level of <1.4 mmol/l.

Situational task No. 44

Patient G., 47 years old, developed cardiac asthma against the background of acute myocardial infarction: blood pressure - 100/65 mm Hg. Art., heart rate - 97 per minute, respiratory rate - 29 per minute, frequent ventricular extrasystoles, PQ-0, 16, QRS - 0.08. The position is orthopnea, wheezing in the lungs is moist, medium and coarse bubble. The liver is not enlarged. Is it necessary to administer cardiac glycosides? If yes, which ones: strophanthin, digoxin, digitoxin? Are antiarrhythmics needed and if so, which ones? Are nitrates necessary? If so, which route of administration should I choose?

Answer: The administration of cardiac glycosides does not correspond to modern tactics for the management of acute coronary syndrome. Antiarrhythmic therapy is not indicated. Ectopic rhythms are usually leveled out against the background of adequate management of coronary pathology. Intravenous nitrates and sodium nitroprusside should be considered in patients with heart failure and elevated blood pressure to improve blood pressure control and reduce symptoms (Level IIa C).

The use of nitrates is recommended for the patient to reduce symptoms and reduce congestion (intravenously). Further tactics for managing a patient with acute heart failure during ACS in accordance with clinical recommendations. ACE inhibitors (or ARBs if intolerant) are indicated for immediate use in hemodynamically stable patients with LVEF $\leq 40\%$ and/or evidence of HF to reduce the risk of hospitalization and death. After stabilization, patients with LVEF $\leq 40\%$ and/or signs of HF are advised to take beta blockers to reduce the risk of death, recurrent myocardial infarction, and hospitalization due to HF. Mineralocorticoid receptor antagonists are indicated if the patient has an LVEF $\leq 40\%$ without evidence of severe renal dysfunction or hyperkalemia to reduce the risk of cardiovascular events and death. Loop diuretics are indicated for the patient because... fluid stagnation (to reduce symptoms). Oxygen therapy should be prescribed to him in case of pulmonary edema and oxygen saturation $< 90\%$ until saturation reaches $> 95\%$.

Situational task No. 45

Patient N., 15 years old, began taking diclofenac 25 mg 3 times a day on her own to eliminate pain due to arthralgia. On the 2nd day of pharmacotherapy, body temperature increased to 39.3, swollen, painful erythematous spots of various sizes appeared on the skin of the torso and limbs. The patient was hospitalized as an ambulance. In the hospital, the condition worsened - the rash became bullous, covering up to 70% of the skin surface, on the 3-4th day the blisters opened, there was severe pain, the patient died from intoxication due to sepsis on the 8th day. What is the cause of this complication?

Answer: While taking diclofenac sodium, a patient developed a severe acute allergic reaction in the form of toxic epidermal necrolysis (Lyell's syndrome).

Situational task No. 46

A patient with acute rhinitis instilled a solution of substance A into his nose every 10-15 minutes. After some time, despite the continued administration of the drug, the effect of the drug stopped, swelling of the mucous membrane and difficulty in nasal breathing reappeared.

Answer: xylometazoline (or other decongestant), tachyphylaxis phenomena.

Situational task No. 47

Patient P., 45 years old, suffers from bronchial asthma and uses salbutamol to eliminate bronchospasms. One day, while on vacation, he had problems with his heart function, and on the advice of friends, he took propranolol. Heart function returned to normal, but bronchospasm occurred, which was not eliminated by inhalation of salbutamol. Explain the cause of the complication and the interaction of the substances taken. How can I help the patient? Answer: antagonism phenomena: propranolol blocked β_2 -adrenergic receptors, salbutamol could not interact with them. Help: m-anticholinergics (ipratropium bromide - inhalation); myotropic antispasmodics (aminophylline - intravenously); glucocorticosteroids (prednisolone - intravenously).

Situational task No. 48

Patient M., 65 years old, suffering from hypertension, received a drug from the group of adrenergic drugs for a long time. Blood pressure dropped to 150/90 mm Hg. Art., after which the patient independently stopped taking the drug. The next day the patient experienced a hypertensive crisis. Name the observed phenomenon. What drug did the patient receive? Help measures.

Answer: withdrawal syndrome occurred after stopping moxonidine. To relieve a hypertensive crisis, it is necessary to take moxonidine sublingually and subsequently gradually withdraw the drug.

Situational task No. 49

A patient suffering from pain in the lumbar region was prescribed an anti-inflammatory drug. On the 5th day after the start of treatment, he developed pain in the epigastric region, a hemorrhagic skin rash, and had nosebleeds twice during the day. Which drug could cause these complications and why?

Answer: NSAIDs are a non-selective inhibitor of COX1 and COX2 (diclofenac). Replace the drug with a selective COX2 inhibitor (nimesulide, meloxicam). Complications are caused because the gastroprotective effect of prostaglandin E has decreased due to a decrease in its synthesis.

Situational task No. 50

Patient A., 52 years old, diclofenac was prescribed parenterally for the treatment of arthritis, with a history of

– aspirin-induced bronchial asthma. Is it possible that the concomitant disease may worsen? Justify your answer.

Answer: exacerbation is possible. Diclofenac is a non-selective inhibitor of COX-1 and COX-2, reduces the synthesis of prostaglandins with a bronchoprotective effect.

Situational task No. 51

Patient L., 59 years old, called an ambulance with complaints of a feeling of lack of air, suffocation, palpitations, shortness of breath with difficulty breathing. The attack developed at rest about 3 hours ago and is poorly controlled by inhaled fenoterol. Over the past 5 years, he has been taking glucocorticosteroids orally. What is your diagnosis and treatment tactics?

Answer: the patient has hormonally dependent bronchial asthma, continue taking glucocorticosteroids, mainly inhaled (beclomethasone).

Situational task No. 52

A patient suffering from hypertension was prescribed a diuretic. History of diabetes mellitus. During treatment, the patient developed heart pain, muscle weakness, anorexia, blood sugar increased,

hypokalemia. What drug was prescribed, what was the cause of the side effects? What should be prescribed to this patient?

Answer: Hydrochlorothiazide – increases blood sugar and removes potassium.

Correction of the level of potassium and magnesium in the blood is necessary: the drug potassium and magnesium aspartate is prescribed.

Situational task No. 53

Patient N., 43 years old, was prescribed rectal indomethacin for the treatment of osteochondrosis; he has a history of duodenal ulcer. Is it possible that the concomitant disease may worsen? Justify your answer.

Answer: exacerbation is possible. Indomethacin is a non-selective inhibitor of COX-1 and COX-2, reduces the synthesis of prostaglandins with gastroprotective effects (PGE1), regardless of the route of administration.

Situational task No. 54

A 63-year-old patient was admitted to the clinic with complaints of fatigue, drowsiness, weight gain, and pain in the heart area. Upon admission: dry skin, swollen face, slightly enlarged tongue, rough voice, slow speech, sparse and dry hair, muffled heart sounds, bradycardia. After examination, the patient was prescribed a medicine, the systematic use of which helped to increase vitality, swelling decreased, and performance increased. What drug was prescribed to the patient? Justify your choice.

Answer: the patient has hypothyroidism. Replacement therapy was prescribed - a thyroid hormone drug (levothyroxine), which eliminated the symptoms of hypothyroidism.

Situational task No. 55

An emergency doctor is called to see a patient registered with an endocrinologist. The patient is unconscious. On examination: the patient is of average height, plump, the skin is pale, moist, the pupils are dilated, muscle tone is increased. Motor restlessness is noted. Pulse – 78 beats per minute, breathing 10-12 per minute, shallow. Blood was taken for express analysis. Blood glucose level is 2 mmol/l.

Answer: hypoglycemic coma. Helpful measures - intravenous administration of 40% glucose solution.

Situational task No. 56

A 56-year-old man was admitted to the therapeutic department with complaints of dyspeptic symptoms, fatigue, and decreased performance. When examining the patient, a sharp pallor of the skin and mucous membranes was noted. A blood test showed a decrease in the number of red blood cells, poikilocytosis, anisocytosis, megalocytosis; color index is greater than one. From the anamnesis it is known that the patient had a subtotal gastrectomy a year ago for a peptic ulcer. Name the drugs used to treat this form of anemia. Select from them those that should be prescribed in this case, taking into account the characteristics of the blood test and medical history, indicate the route of administration of the drugs.

Answer: hyperchromic anemia, cyanocobalamin IM

Situational task No. 57

A patient in the post-infarction period was prescribed the drug for maintenance antithrombotic therapy at home. A few days later, the patient consulted a doctor with complaints of pain in the stomach and dark-colored stool. What drug was prescribed to the patient? Explain the mechanism of its action.

Answer: acetylsalicylic acid. A non-selective inhibitor of COX-1 and COX-2, reduces the synthesis of prostaglandins with a gastroprotective effect. It has an antiplatelet effect, reduces the synthesis of thromboxane, and increases bleeding.

Situational task No. 58

Patient R., 40 years old, has been under observation for several years for duodenal ulcer. A recent bacteriological analysis revealed the presence of *Helicobacter pylori* in the stomach. Select medications to treat the patient.

Answer: for the eradication of *Helicobacter pylori*, amoxicillin, clarithromycin, and metronidazole are prescribed. In addition, the treatment regimen includes antisecretory agents (omeprazole, ranitidine, pirenzepine), gastroprotectors (bismuth tripotassium dicitrate).

Situational task No. 59

The cardiologist needs to choose drugs that can be used to treat hypertension and angina in patients who simultaneously suffer from (2) and do not suffer from (1) bronchial asthma. The pharmacy has: atenolol, betaxolol, propranolol, metoprolol nadolol, nebivolol, pindolol, talinolol, oxprenolol.

1. Select drugs that can be used to treat hypertension and angina in patients who do not suffer from bronchial asthma
2. Select drugs that can be used to treat hypertension and angina in patients simultaneously suffering from bronchial asthma

Answer:

- 1. Propranolol, nadolol, pindolol, oxprenolol.**
- 2. Atenolol, betaxolol, metoprolol, nebivolol, talinolol**

Situational task No. 60

A patient with bronchial asthma and sinus tachycardia was prescribed Berotec (aerosol) and anaprilin (tablets). Determine the group affiliation of these drugs.

Note how the effects change if these drugs are taken together. Indicate ways to eliminate these effects.

Answer: Berotec is a beta2-adrenergic agonist; anaprilin is a beta1,2-adrenergic blocker. When these drugs are used simultaneously, there will be no stimulating effect on beta2-adrenergic receptors. For the treatment of coronary heart disease, it is advisable to prescribe drugs that will act only on beta1-adrenergic receptors - metoprolol

Situational task No. 61

In the cardiology department, a 16-year-old patient suffering from heart failure and atrial fibrillation is being treated with a group of antiarrhythmic drugs.

2 weeks after the start of treatment, the patient developed symptoms of mental disorders - agitation, hallucinations, headache; skin rash, nausea, diarrhea and vomiting; muscle weakness, blurred vision, increased frequency of extrasystoles. What is your diagnosis? What physiological antagonist is used? What drug should be used for arrhythmia?

Answer: Poisoning with cardiac glycosides. The physiological antagonist is potassium. It is necessary to administer potassium supplements. Difenin, lidocaine

Situational task No. 62

An 18-year-old patient received a drug for the treatment of peptic ulcer for about 2 months. As a result, after improvement of the condition, towards the end of the patient's drug therapy,

disturb the feeling of fullness and distension in the epigastric region, nausea and flatulence. Compensatory hypergastrinemia was noted. What drug did the patient receive, what group of medicinal substances does it belong to, what are its contraindications? What is the cause of compensatory hypergastrinemia? What is the therapeutic dose of the drug.

Answer: Omeprazole is a proton pump blocker. Contraindicated in hypoacid conditions. The cause of hypergastrinemia is blockade of the “acid pump” and a decrease in acid in the stomach and duodenum. Prescribed 20 mg

Situational task No. 63

A patient with a tendency to bronchospasms was prescribed an antihypertensive drug, which caused an increase in asthma attacks. What drug did the patient receive? What is the cause of the side effect? What contraindications does the drug have? What group of medicinal substances does it belong to?

Answer: Anaprilin is a beta blocker that does not selectively block bronchial beta adrenergic receptors. This leads to bronchospasms. Anaprilin is contraindicated in bronchial asthma, broncho-obstructive syndrome, sinus bradycardia, diabetes mellitus, and a-v blockade. Anaprilin is a non-selective beta-blocker.

Situational task No. 64

The patient felt a sharp pain in the heart area. Took the medicine. The attack of pain passed, but the patient developed weakness, severe headache, and dizziness. When measuring blood pressure, acute hypotension is evident. What drug did the patient take? What group of drugs does it belong to? What could be the cause of the described complication after taking this drug? What are the indications for its use? What is the therapeutic dose of the drug

Answer: Nitroglycerin is an organic nitrate. Side effects of the drug are expressed during the first doses of the drug; in case of an overdose of the drug, a sharp decrease in blood pressure is possible. Indicated for an attack of angina pectoris. Prescribed in doses of 0.0005 g.

Situational task No. 65

Patient K., 18 years old, consulted a doctor with complaints of constant shortness of breath, sharply increasing with physical activity, interruptions in heart function, constant dull pain in the right hypochondrium, swelling in the legs, cough with mucous sputum, and general weakness. At the age of 15, mitral heart disease was diagnosed. The condition worsened over the last month when atrial fibrillation appeared.

1. Determine your tactics regarding the patient.
2. Name the necessary drug for treatment.
3. List possible complications during treatment
4. Name the main effects of the drug
5. Mode of application

Answer: 1. For the treatment of CHF, it is necessary to prescribe cardiac glycosides

2. Digitoxin

3. Bradycardia, arrhythmias, extrasystoles

4. Carditonic (positive inotropic effect), diastolic (negative chronotropic), negative dromotropic effect, positive bathmatropic effect.

5. The drug can be prescribed orally 0.1 mg.

Situational task No. 66

Patient V., 19 years old, turned to a paramedic with complaints of daily attacks of suffocation, exhalation was especially difficult, general weakness, and malaise. After the attack goes away

a small amount of viscous, glassy sputum. She has been ill for 3 years, these complaints are seasonal. Hereditary history is aggravated on the maternal side. The patient is allergic to strawberries and penicillin. Which drug from the group of selective β -adrenergic agonists should be prescribed to the patient? How long does the drug last? What are the complications of an overdose?

Answer: Salbutamol, lasts 4-6 hours. In case of overdose, tachycardia, arrhythmia, muscle tremors, dilatation of peripheral vessels are possible.

Situational task No. 67

A 19-year-old patient is undergoing hospital treatment with a diagnosis of Rheumatoid arthritis, stage II activity. She is receiving hormonal therapy, against the background of which the patient began to notice an increase in appetite, rounding of the face, weight gain, increased blood pressure, swelling of the lower extremities, and sometimes a feeling of heaviness or pain in the epigastric region. What group of drugs was used to treat the patient?

Explain the mechanism of the anti-inflammatory action of the drug. What can you attribute the increase in blood pressure and swelling in the patient to?

Answer: A drug from the glucocorticoid group – prednisolone, dexamethasone. Inhibits phospholipase A2 through the lipocortin protein, thereby disrupting the formation of arachidonic acid and prostaglandins. Glucocorticoids are able to increase the reabsorption of sodium ions in the renal tubules and increase the secretion of potassium ions. In this regard, plasma volume increases, tissue hydrophilicity increases, and blood pressure increases.

Situational task No. 68

The patient is 18 years old. Suffering from type I diabetes mellitus (insulin dependent) for 3 years. Receives short- and long-acting insulin preparations in a total dose of 20 units/day. After the next injection, the patient suddenly developed a sharp feeling of hunger, profuse sweating, headache, and palpitations. Objectively: tachycardia, hypothermia, increased ophthalmotonus, involuntary muscle twitching. What complication of insulin therapy is described in the problem? What drug is indicated to relieve this condition?

Answer: Hypoglycemic state (coma) associated with an overdose of insulin. It is necessary to administer a 40% glucose solution intravenously

Situational task No. 69

For an 18-year-old teenager suffering from depression, prescribe an antidepressant – a selective inhibitor of neuronal serotonin reuptake. List drugs from the group of antidepressants - selective inhibitors of neuronal serotonin reuptake. How quickly does the antidepressant effect of fluoxetine develop with continuous use? Does fluoxetine cause sedation?

Answer: Selective inhibitors of neuronal serotonin reuptake include: paroxetine, fluoxetine, fluvoxamine, sertraline. When taken continuously, the antidepressant effect of fluoxetine develops within 1-3 weeks.

Fluoxetine has some psychostimulant effects

Situational task No. 70

A 27-year-old man was admitted to the hospital in a pre-shock state with a penetrating chest wound and a persistent cough accompanied by hemoptysis. Which drug will have both strong antishock and antitussive effects? Is the use of this drug recommended for cough relief in other situations?

Answer: Narcotic analgesic – promedol, morphine. It is impossible to use promedol, morphine to eliminate cough in other situations (bronchitis, pneumonia, laryngitis, etc.), since these drugs cause many side effects, the most important of which is the formation of physical and mental dependence in the patient.

Situational task No. 71

Patient M. was admitted to the clinic with a diagnosis of coronary heart disease. History of bronchial asthma. Prescribe an adrenotropic drug for treatment, taking into account the concomitant disease. Explain your choice.

Answer: cardioselective β -blockers (atenolol, metoprolol, bisoprolol). In therapeutic doses, they do not block β_2 -adrenergic receptors and do not cause bronchospasm.

Situational task No. 72

In an attempt to eliminate the hypertensive crisis, one of the antihypertensive drugs was administered intravenously. Due to the doctor's incorrect actions, blood pressure readings increased even more. Name the drug and explain what the doctor's mistake was?

Answer: clonidine (alpha2-adrenergic agonist). When administered rapidly intravenously, clonidine first excites peripheral alpha1-adrenergic receptors, which leads to vasoconstriction and increased blood pressure. To prevent this complication, the drug is administered intravenously slowly in dilution in an isotonic sodium chloride solution.

Situational task No. 73

Patient S., 35 years old, suffers from chronic tonsillitis and chronic cholecystitis. A week ago, during an examination, the growth of Staphylococcus aureus, which forms penicillinase, was noted in the culture of the discharged pharynx. In the last 2 days, the patient showed signs of exacerbation of chronic cholecystitis, occurring with low-grade fever, pain in the right hypochondrium, and therefore the patient consulted a doctor. The diagnosis was confirmed by examination of duodenal contents: Staphylococcus aureus, sensitive to oxacillin, was found in bile culture. There was a history of an allergy to oxacillin (urticaria).

A. Select the most optimal antimicrobial drug a. Ceftriaxone

b. Gentamicin

V. Co-trimoxazole

c. Cefipime d.

Amoxicillin

B. The patient's creatinine clearance is 50 ml/min. Is it necessary to adjust the dosage regimen of the drug? If yes, then how?

A. Leave the previously selected dosage regimen b.

Reduce the frequency of administration

V. Reduce the single dose of the drug

d. Immediately discontinue the drug

Answer: cefipime, leave the previously selected dosage regimen

Situational task No. 74

A 48-year-old patient has a prolonged paroxysm of atrial fibrillation (more than 48 hours). As a preparation for planned EIT (electrical pulse therapy), anticoagulant therapy with warfarin is carried out at a dose of 5 mg/day. The patient's INR value is

during the entire period of taking the anticoagulant – 1.5. Specify the duration of warfarin therapy before and after cardioversion and assess the adequacy of the dose in the clinical situation. Answer: Warfarin therapy: before cardioversion - 3 weeks, after - 4 weeks; target INR is 2.0-3.0.

Situational task No. 75

A 49-year-old patient with acute coronary syndrome accompanied by ST segment elevation was admitted to a hospital that does not have a cardiac surgery service. History of ischemic stroke 5 months ago. Suggest the most rational regimen for thrombolytic therapy.

Answer: Thrombolytic therapy is not indicated.

CRITERIA for assessing competencies and rating scales

Grade “unsatisfactory” (not passed) or lack of competence	Grade “satisfactory” (passed) or satisfactory (threshold) level of competence development	Grade “good” (passed) or sufficient level of mastery competencies	Grade “excellent” (passed) or high level of mastery of competence
The student’s inability to independently demonstrate knowledge when solving tasks, lack of independence in applying skills. The lack of confirmation of the development of competence indicates negative results in mastering the academic discipline.	The student demonstrates independence in applying knowledge, skills and abilities to solve educational tasks in full accordance with the model given by the teacher; for tasks the solution of which was demonstrated by the teacher, it should be considered that the competence is formed at a satisfactory level.	The student demonstrates independent application of knowledge, skills and abilities when solving tasks similar to the samples, which confirms the presence of developed competence at a higher level. The presence of such competence at a sufficient level indicates a firmly established practical skill	The student demonstrates the ability to be completely independent in choosing a way to solve non-standard tasks within the discipline using knowledge, skills and abilities acquired both in the course of mastering this discipline and related disciplines; competence should be considered developed at a high level.

Criteria for assessing test control:

percentage of correct answers	Marks
91-100	Great
81-90	Fine
70-80	satisfactorily
Less than 70	unsatisfactory

When grading tasks with multiple correct answers, one error is allowed.

Interview assessment criteria:

Mark	Descriptors		
	strength of knowledge	ability to explain	logic and

		(represent) the essence of phenomena, processes, draw conclusions	sequence answer
Great	strength of knowledge, knowledge of the basic processes of the subject area being studied, the answer is distinguished by the depth and completeness of the topic; mastery of terminology; logic and consistency answer	high ability to explain the essence, phenomena, processes, events, draw conclusions and generalizations, give reasoned answers, give examples	high logic and consistency of the answer
Fine	strong knowledge of the basic processes of the subject area being studied, distinguished by the depth and completeness of the topic; mastery of terminology; fluency in monologue speech, but one is allowed - two inaccuracies in the answer	the ability to explain the essence of phenomena, processes, events, draw conclusions and generalizations, give reasoned answers, give examples; however, one or two inaccuracies in the answer are allowed	logic and consistency of the answer
Satisfactory	satisfactory knowledge of the processes of the subject area being studied, an answer characterized by insufficient depth and completeness of the topic; knowledge of the basic issues of theory. Allowed several errors in content answer	satisfactory ability to give reasoned answers and give examples; satisfactorily developed skills in analyzing phenomena and processes. Several errors are allowed in content of the answer	satisfactory logic and consistency of the answer
dissatisfy strictly	poor knowledge of the subject area being studied, shallow coverage of the topic; poor knowledge of basic theoretical issues, poor skills in analyzing phenomena and processes. Serious mistakes are made in content of the answer	inability to give reasoned answers	lack of logic and consistency in the answer

Criteria for assessing situational tasks:

Mark	Descriptors			
	understand ing the problem	analysis of the situation	situation solving skills	professional thinking
Great	full understanding of the problem. All requirements for the task have been met	high ability to analyze a situation and draw conclusions	high ability to choose a method to solve a problem, confident solution skills situations	high level of professional thinking
Fine	full understanding of the problem. All requirements for the task completed	ability to analyze a situation and draw conclusions	ability to choose a method to solve a problem, confident solving skills situations	sufficient level of professional thinking. Allowed one or two inaccuracies in the answer
Satisfactory	partial understanding of the problem. Most of the job requirements have been met.	satisfactory ability to analyze a situation and draw conclusions	satisfactory skills in solving a situation, difficulties in choosing a method for solving a problem	sufficient level of professional thinking. More than two inaccuracies in the answer or an error in the sequence are allowed solutions
dissatisf y strictly	misunderstand ing of the problem. Many requirements for the assignment have not been met. No answer. Did not have attempts to solve the problem	low ability to analyze the situation	insufficient situation-solving skills	absent