

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

**FACULTY OF TREATMENT AND PREVENTION**

Evaluation materials on practice

"Therapeutic Profile Practice"

(appendix to the work program of practice)

Specialty 05/31/01 General Medicine

## 1. List of competencies formed by practice

### ***professional (PC):***

Code and name of general professional competence
PC-2

## 2. Types of assessment materials in accordance with the competencies being developed

Name competencies	Types of assessment materials	number of tasks for 1 competency
PC-2,	Open type tasks: Situational tasks Control questions Skills	60 with standard answers

### **Control questions:**

1. Name the preferred time of day for measuring body temperature.

Sample answer: Thermometry - measuring body temperature. Thermometry is carried out twice a day - in the morning on an empty stomach (at 7-8 a.m.) and in the evening before the last meal (at 5-6 p.m.). According to special indications, body temperature can be measured every 2-3 hours (temperature profile).

2. List the places where body temperature is measured.

Sample answer:

Places for measuring body temperature: armpits, oral cavity (the thermometer is placed under the tongue), inguinal folds (in children), rectum (usually in seriously ill patients; the temperature in the rectum is usually 0.5-1°C higher than in armpit).

3. What questions should the doctor ask the patient before measuring blood pressure?

Sample answer:

1. What medications the patient is taking (including nasal and eye drops).

2. Did the patient smoke 1.5 - 2 hours before the procedure?

3. Was there any physical activity in the next few hours before the procedure?

4. Did the patient drink alcoholic beverages, tonic drinks, tea, coffee.

4. Describe the correct patient position when measuring blood pressure in a sitting position.

Sample answer:

The patient's feet are on the floor, knee joints are bent at an angle of about 90 degrees, legs are not crossed. The back is adjacent to the back of the chair. Hand on the table, palm surface up, shoulder at heart level.

5. What is an auscultatory gap?

Sample answer:

This is a period of silence, sometimes recorded between phases I and II of Korotkoff sounds.

6. How to determine the maximum inflation pressure when measuring blood pressure with a mechanical tonometer?

Sample answer:

Palpate to determine the pulse on the radial artery. Then, continuing to keep your hand on the pulse, inflate the cuff until the pulse can no longer be felt. After this, a slow, 2 mm Hg. Art. air is pumped out of the cuff per second. Pulse phenomena are noted. The maximum inflation pressure is equal to the determined systolic pressure when the pulse appears + 30 mm Hg. Art.

7. List the conditions that are characterized by an increase in the number of eosinophils in the CBC.

Sample answer:

Allergic reactions, bronchial asthma, helminth infections, tumors, lymphogranulomatosis, chronic myeloid leukemia, scarlet fever, taking sulfonamides, antibiotics, PAS.

8. List the conditions that are characterized by an increase in the number of monocytes in the CBC.

Sample answer:

Chronic infections, spicy infections (children's infections), leukemia, lymphogranulomatosis, infectious mononucleosis, sarcoidosis, systemic scleroderma, systemic lupus erythematosus, phosphorus poisoning.

9. In what diseases does the osmotic resistance of erythrocytes increase?

Sample answer:

Thalassemia, hemoglobinopathies.

10. What diseases are characterized by a decrease in the number of reticulocytes?

Sample answer:

Hypoplastic anemia caused by various causes, Addison-Birmer anemia.

11. Which serum should give a positive agglutination reaction if the patient has blood type II?

Sample answer:

Anti - A+B and Anti - A.

12. Which serum should give a positive agglutination reaction if the patient has blood type III?

Sample answer:

Anti - A+B and Anti - B.

13. Describe the algorithm for performing a biological test for blood compatibility

donor and recipient.

Sample answer:

1. 10 ml of blood transfusion medium is transfused once at a rate of 2 - 3 ml (40 - 60 drops) per minute,
2. Then the transfusion is stopped and the recipient is observed for 3 minutes, monitoring his pulse, breathing, blood pressure, general condition, skin color, and body temperature is measured.
3. The procedure is repeated twice more.

14. During a biological test during red blood cell transfusion, the patient developed pain in the lumbar region and nausea. Evaluate the results of biological blood transfusion and describe your actions.

Sample answer:

The appearance during the test of one of the clinical symptoms such as chills, lower back pain, feeling of heat and tightness in the chest, headache, nausea or vomiting requires immediate cessation of the transfusion and refusal to transfuse this transfusion medium.

## **Situational tasks**

### **SITUATIONAL TASK 1**

Patient S., 47 years old, is seeing a therapist about constant pain in the upper abdomen that worsens after errors in diet, sometimes radiating to the back, and weight loss.

At the age of 40 she underwent cholecystectomy for calculous cholecystitis. Six months after the operation, almost constant pain appeared in the upper abdomen, intensifying after errors in diet, sometimes radiating to the back. When using antispasmodics and following a diet, my health improved. Over the past 1.5-2 years, almost constant unformed stools have appeared, and I began to lose weight (lost 8 kg in 2 years). During the same time, itching of the perineum arose, she began to drink more fluids, and urination became more frequent.

Upon examination, the patient's condition is satisfactory. The physique is correct, slightly increased nutrition. Height - 175 cm, weight - 90 kg, BMI - 29 kg/m<sup>2</sup>. The shins are pasty. With comparative percussion of the lungs, a pulmonary sound is determined. Auscultation: breathing is harsh, carried out in all parts. Heart sounds are muffled, rhythmic, no murmurs are heard. Heart rate = 80 beats/min, blood pressure - 156/85 mm Hg. Art. The tongue is moist, covered with a white coating at the root. On superficial palpation of the abdomen, some pain is noted in the epigastrium and right hypochondrium. There are no symptoms of peritoneal irritation. With deep palpation, the sigmoid colon is palpated in the form of a moderately mobile painless cylinder, 1.5 cm in diameter. There is pain in the Shoffar area. Positive Kerthe's symptom, Mayo-Robson's symptom. On percussion of the abdomen - tympanitis. The dimensions of the liver according to Kurlov are 15x13x11 cm. The liver protrudes from under the costal arch by 3-4 cm, the edge is moderately dense, painless. Pasternatsky's symptom is negative on both sides.

Question:

1. Which organ can be assumed to be affected, and what is the reason for this?

Sample answer:

1. Damage to the pancreas is associated with surgery on the gallbladder and biliary tract.

## SITUATIONAL TASK 2

A 25-year-old patient, a driver, consulted a local physician with complaints of episodes of suffocation with difficulty in exhaling, coughing with difficult to separate sputum almost every day. Attacks of suffocation occur 2-3 times a week, often at night, and pass spontaneously within an hour with the disappearance of all symptoms. Slight shortness of breath on exertion. Didn't take any medication. Considers himself sick for about 3 months. This was the first time I sought medical help. Since childhood, frequent bronchitis with exacerbations in the spring and autumn periods. Denies other chronic diseases. There were no operations or injuries. Smokes 1.5 packs a day for 5 years. The mother has bronchial asthma, the father has hypertension.

There is no allergic history. Has no occupational hazards. On physical examination: the patient's condition is mild. Body temperature 36.7°C. The skin is clean and moist. Height 175 cm, weight 81 kg. Peripheral lymph nodes are not enlarged. The thyroid gland is not enlarged. The chest is normosthenic. On palpation the chest is painless. BH – 18 per minute. On percussion there is a clear pulmonary sound. Borders of relative dullness of the heart: within normal limits. On auscultation, vesicular breathing is carried out in all parts; a small amount of dry, scattered, treble rales are heard. Heart sounds are clear and rhythmic. Pulse 80 beats/min with satisfactory filling and tension. Blood pressure – 120/80 mm Hg. On palpation, the abdomen is soft and painless. Liver dimensions according to Kurlov: 10x9x7 cm. There are no dysuric phenomena.

Questions:

1. Preliminary diagnosis.
2. Make a plan for laboratory and instrumental examination.

Sample answer:

1. Non-allergic bronchial asthma, moderate, newly diagnosed, uncontrolled. Respiratory failure 1st degree.
2. Examination plan: clinical blood test; ECG, spirometry; pulse oximetry; X-ray of the chest organs in two projections; general sputum analysis; consultation with a pulmonologist.

## SITUATIONAL TASK 3

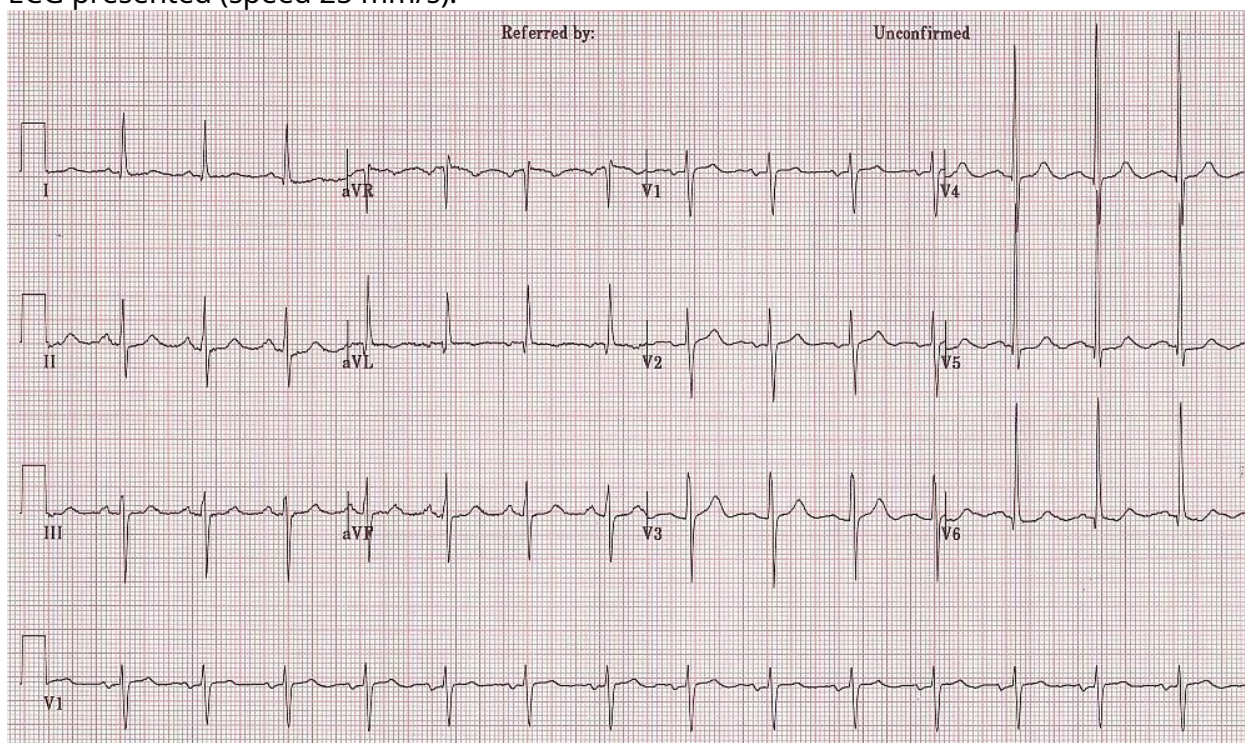
Patient D., 56 years old, was admitted to the hospital with complaints of severe headache, dizziness, a feeling of pulsation in the head, nausea, and blurred vision. These symptoms first appeared in my life six months ago due to stress. She was taken to the hospital, where an increase in blood pressure to 180/120 mm Hg was first discovered. Art. She was subsequently observed by a local physician and took antihypertensive therapy. Recently, blood pressure with irregular measurements has been 150/80 mm Hg. Art. Objectively: the general condition is of moderate severity. Body mass index - 29.7 kg/m<sup>2</sup>. The face is hyperemic. Breathing is vesicular, no wheezing. NPV - 16 per minute. Pulse - 96 beats per minute, blood pressure - 190/90 mm Hg. Art. on both hands. The left border of relative cardiac dullness is shifted 1 cm outward from the midclavicular line. Heart sounds are clear, rhythmic, no murmurs. The abdomen is soft and painless. The liver is not

increased.

There is no swelling in the lower extremities.

A general blood test showed no pathological changes.

ECG presented (speed 25 mm/s):



Questions:

1. What syndrome is leading in the clinical picture of this disease?
2. Assume the most likely diagnosis.
3. Name the deviations from the norm visible on the presented ECG and formulate an ECG conclusion.

Sample answers:

1. Arterial hypertension syndrome.
2. Stage II hypertension, stage 3 arterial hypertension, risk 4. Hypertensive crisis.
3. Deviation of the electrical axis of the heart to the left, high RV4-V6,  $RV4 < RV5 > RV6$ , high RaVL ( $>11$  mm),  $RV5 + SV2 = 41$  mm. Left ventricular hypertrophy.

#### SITUATIONAL TASK 4

Patient F., 78 years old, called his local doctor to his home with complaints of palpitations, interruptions in heart function, which were accompanied by weakness and shortness of breath. Attacks of arrhythmia have been bothering me for the last six months, lasting a few minutes, and go away on their own with a change in body position.

From the anamnesis it is known that over the past few years memory has begun to decline, and rarely an increase in blood pressure to 160/90 mm Hg is noted. Art. Previous diseases: duodenal ulcer, focal pneumonia. Currently retired, he worked as a teacher at a university. Has no bad habits.

Upon examination, the patient's condition was moderate. The physique is correct, height - 168 cm, weight - 70 kg.

The shape of the chest is conical, breathing is free through the nose. The pulsation of the neck veins is noticeable. RR - 17 beats/min. On percussion, the sound is clear, pulmonary, the boundaries of the lungs are within normal limits. On auscultation, breathing is harsh, there are no wheezes.

Circulatory system. Borders of relative cardiac dullness: right - right edge of the sternum, left - 1 cm medially from the left midclavicular line, upper - upper

edge of the third rib. On auscultation, heart sounds are muffled and rhythmic. Heart rate – 112 beats/min, pulse deficit. Blood pressure – 130/80 mm Hg. Art.

The abdomen is soft, painless in all parts. The liver is not palpable, dimensions according to Kurlov are 9x8x7 cm.

General blood and urine analysis without pathology. A biochemical blood test determines high cholesterol levels.

An ECG was recorded: there are no P waves in all leads. Between QRS complexes, small “f” waves, ventricular rate 110-150 per minute.

Questions:

1. What rhythm disturbance does the patient have?
2. What additional examination methods will you prescribe for the patient?

Sample answer:

1. Based on the ECG recorded during an attack of arrhythmia, the patient has a paroxysmal form of atrial fibrillation, tachysystolic variant. 2. Daily ECG monitoring to identify forms of cardiac arrhythmia.

### SITUATIONAL TASK 5

Patient R., 45 years old, consulted a doctor with complaints of a feeling of heaviness, fullness in the abdomen that occurs 40-50 minutes after eating, and nausea. She has been suffering from chronic gastritis for 20 years, with exacerbations 1-2 times a year. During exacerbations, he usually takes proton pump inhibitors and antacids.

She did not receive eradication therapy. The real deterioration occurs within 2 weeks due to errors in the diet. She took almagel on her own if she felt any discomfort.

On examination: condition is satisfactory. Height 166 cm, weight 64 kg. The skin is clean and of normal color. In the lungs, breathing is vesicular, there are no wheezes. Heart sounds are clear and rhythmic. Heart rate – 70 beats. per minute, blood pressure – 120/70 mm Hg. The abdomen is soft, painful in the epigastrium and pyloroduodenal zone. Symptoms of cholecystitis are negative. The liver is not changed. There is no dysuria. The symptom of tapping in the lumbar region is negative. Stool once a day, formed, without pathological impurities.

On fibrogastroscopy: the esophagus is freely passable, its mucous membrane is not changed. The cardia closes completely. The mucous membrane of the stomach is hyperemic, with areas of atrophy in the antrum, the folds are smoothed out, and can be expanded well with air. We pass the gatekeeper. The mucous membrane of the duodenal bulb and the subbulb section are not changed. A biopsy specimen was taken from the antrum of the stomach: the rapid urease test is positive. The result of histological examination of the biopsy specimen: gastric mucosa with atrophy and chronic polymorphic cell infiltration.

Questions:

1. Assume the most likely diagnosis.
2. Justify your diagnosis.

Response standards;

1. Chronic atrophic gastritis associated with *Helicobacter pylori*, exacerbation. Functional dyspepsia.

2. The diagnosis of “chronic gastritis” was made on the basis of anamnesis (suffering from chronic gastritis for 20 years), examination data (pain in the epigastrium and pyloroduodenal zone during palpation), fibrogastroscopy data (hyperemia of the gastric mucosa), histological examination (polymorphic cell infiltration mucous membrane). Atrophic gastritis is diagnosed on the basis of endoscopy data confirmed by histological examination of a mucosal biopsy. Connection

with *Helicobacter pylori* infection was proven by a positive rapid urease test. Functional dyspepsia was diagnosed based on the patient's complaints of heaviness, a feeling of fullness in the abdomen after eating, and nausea.

### SITUATIONAL TASK 6

Patient L., 55 years old, came to the clinic with complaints of frequent headaches, dizziness, and discomfort in the left half of the chest. Ill for about 6 years, an increase in blood pressure to 180/100 mm Hg was periodically recorded. Art. He was treated occasionally for increased blood pressure (Capoten, Furosemide). He smokes a pack of cigarettes a day for about 20 years and notes frequent alcohol abuse. The work involves frequent business trips. Heredity: mother has hypertension, type 2 diabetes.

Objectively: general condition is satisfactory. Hypersthenic build, BMI - 34 kg/m<sup>2</sup>. The skin of the face is hyperemic. There is no peripheral edema. Breathing in the lungs is harsh, there is no wheezing. NPV - 18 per minute. Borders of the heart: right - at the right edge of the sternum in the 4th intercostal space, upper - in the 3rd rib, left - along the left midclavicular line in the 5th intercostal space. Heart sounds are muffled, accent 2 tones on the aorta,

the rhythm is correct. Heart rate - 88 beats per minute. Blood pressure - 190/110 mm Hg. Art. The liver is not enlarged. The symptom of tapping in the lumbar region is negative.

Blood lipids: total cholesterol - 7.4 mmol/l; triglycerides - 2.6 mmol/l; low-density lipoprotein cholesterol - 5.2 mmol/l.

Questions:

1. Assume the most likely diagnosis. Make a plan for additional examination Sample answers

1. Arterial hypertension grade 3, stage 2, risk of cardiovascular disease 4. Hyperlipidemia. Obesity 2 tbsp. 2.

Daily blood pressure monitoring to assess the daily blood pressure profile; ECG; ECHO-CG to assess target organ damage (detection of left ventricular hypertrophy, systolic and diastolic heart function); laboratory examination (general blood and urine tests; blood test for creatinine, glucose, potassium, sodium); examination of the fundus vessels; Ultrasound of the kidneys to assess target organ damage; CDS of cerebral vessels (to identify target organ lesions).

### SITUATIONAL TASK 7

Patient 30 years old. She went to the clinic with complaints of frequent and painful urination, pain in the lumbar region on the right, the passage of cloudy urine, and an increase in body temperature to 37.6°C.

From the anamnesis: for the first time such manifestations were observed in the patient 10 years ago during pregnancy. Antibacterial therapy was carried out in the hospital, childbirth was without complications. There were no subsequent exacerbations of the disease. The condition worsened 5 days ago after hypothermia.

Objectively: the condition is of moderate severity. The skin is of normal color, there is no peripheral edema. Peripheral lymph nodes are not enlarged. The chest is of normal shape. Respiration rate - 20 per minute. In the lungs, breathing is vesicular, wheezing is not heard. The limits of relative cardiac dullness are within normal limits. Heart sounds are muffled, the rhythm is correct. Heart rate - 90 per minute. Blood pressure - 140/90 mm Hg. Art. The abdomen is soft and painless. The liver is at the edge of the costal arch. The symptom of effleurage is positive on the right.

Blood test: hemoglobin - 130 g/l, erythrocytes -  $4.5 \times 10^{12}/l$ , leukocytes -  $14.0 \times 10^9/l$ ,



eosinophils - 1%, band neutrophils - 10%, segmented neutrophils - 65%, lymphocytes - 20%, monocytes - 4%, platelets -  $200.0 \times 10^9/l$ , ESR - 24 mm/hour. Biochemical blood parameters: creatinine - 0.08 mmol/l, urea - 6.5 mmol/l. General urine analysis: specific gravity - 1010, protein - 0.07 mg/l, acidic reaction, leukocytes - 15-20 in the field of view, erythrocytes - 0-1 in the field of view.

Ultrasound of the kidneys: kidneys of normal shape and size. The renal collecting system is deformed and compacted. There are no stones.

Questions:

1. What diagnosis can be made?
2. What additional examination methods should be prescribed to the patient to clarify the diagnosis?

Sample answers:

1. Chronic primary right-sided non-obstructive pyelonephritis, art. exacerbations. CKD stage 1
2. Bacteriological examination of urine (urine culture); urine analysis according to Zimnitsky, Nechiporenko test; determine the glomerular filtration rate;

## SITUATIONAL TASK 8

Patient K., 24 years old, student, was hospitalized in the cardiology department. Complaints of shortness of breath when walking up to 100 m, increased shortness of breath in a horizontal position, palpitations, general weakness, swelling in the legs. Within 2 months, he notices the appearance of shortness of breath and weakness. A week ago, interruptions in the functioning of the heart and palpitations appeared, and from that time swelling appeared in the legs.

Past illnesses include acute respiratory infections, appendectomy in childhood, and influenza about 4 years ago.

Objectively: the general condition is serious. The skin is pale. Swelling of the legs, feet. Peripheral lymph nodes are not enlarged. Dullness of percussion sound in the lower parts of the lungs. Breathing is vesicular, crepitating rales in the lower parts, respiratory rate is 26 per minute. Apical impulse in the VI intercostal space 3 cm outward from the left midclavicular line. Borders of relative dullness of the heart: right 2 cm outward from the right edge of the sternum, upper - II intercostal space along the left midclavicular line, left - along the anterior axillary line. Heart sounds are muffled, systolic murmur at the apex and at the V point of auscultation. The heart rhythm is incorrect, cf. Heart rate - 122 beats per 1 minute, blood pressure - 100/80 mm Hg. Art., average pulse - 105 per minute, irregular. The dimensions of the liver according to Kurlov are  $14 \times 11 \times 10$  cm.

General blood test: hemoglobin - 125 g/l, leukocytes -  $4.0 \times 10^9/l$ , ESR - 10 mm/h. Chest X-ray revealed cardiomegaly syndrome. Echo-CS: dilatation of the left and right ventricles, diffuse hypokinesis, ejection fraction - 28%. ECG: atrial fibrillation, cf. Heart rate - 132 per 1 min.

Questions:

1. Suggest the most likely diagnosis.
2. What instrumental studies allowed us to make a reliable diagnosis.
3. List the ECG signs of atrial fibrillation. Sample

answers:

1. Dilated cardiomyopathy. Rhythm disturbances such as permanent atrial fibrillation, tachysystole. CHF IIB stage. III FC
2. Echo-CG, ECG

3. Absence of the P wave, irregular rhythm (RR intervals of different durations), narrow QRS complexes (in most patients), presence of fibrillation waves f SITUATIONAL TASK 9

A 56-year-old man consulted a local general practitioner with complaints that appeared after hypothermia: a cough with a small amount of difficult-to-discharge mucopurulent sputum, shortness of breath with slight physical exertion, and an increase in body temperature to 37.4°C.

Cough with sputum has been noted for 10 years. Exacerbations of the disease 3-4 times a year, mainly in cold, damp weather. About 2 years ago, shortness of breath appeared during physical activity, and sputum began to come out with difficulty. The patient has been smoking 1 pack per day for 30 years.

On examination: the face is puffy, there is warm cyanosis, swelling of the neck veins on exhalation. The chest is barrel-shaped. Above the pulmonary fields there is a percussion sound with a box-like tint. Breathing is uniformly weakened, dry wheezing sounds are heard on both sides. NPV - 24 per minute. Heart sounds are muffled, emphasis of 2 tones is on the pulmonary artery, diastolic murmur is heard there, the rhythm is correct, heart rate is 90 beats per minute. Blood pressure - 120/80 mm Hg. Art. The abdomen is soft and painless. The liver and spleen are not palpable. There is no peripheral edema.

Blood test: hemoglobin - 168 g/l, leukocytes -  $9.1 \times 10^9/l$ , eosinophils - 1%, neutrophils - 73%, lymphocytes - 26%, ESR - 28 mm/h.

X-ray of the chest organs: pulmonary fields of increased transparency, the pulmonary pattern is strengthened, deformed, the vascular pattern is strengthened in the center and depleted at the periphery, the roots of the lungs are expanded, the trunk of the pulmonary artery is bulging. No infiltrative changes were detected.

ECG: signs of right ventricular hypertrophy.

Spirography data: decrease in vital capacity - up to 80%, FEV1 - up to 32% of the required values.

Questions:

1. Formulate a clinical diagnosis.
2. What additional studies need to be performed to confirm the diagnosis?

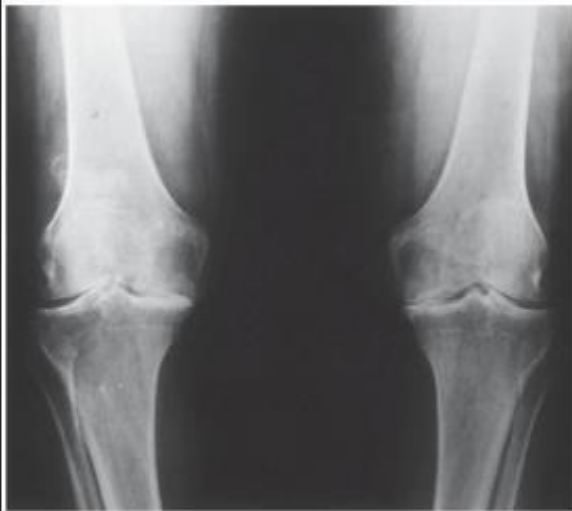
Sample answers:

1. Chronic obstructive pulmonary disease, mixed form, bronchial obstruction of the 3rd degree, severe exacerbation. Chronic pulmonary heart disease, compensation. DN II.

2. ECHO-CS, blood gas composition, pulse oximetry, bronchodilator test, cytological and microbiological examination of sputum, FBS. SITUATIONAL TASK 10

A 75-year-old patient was diagnosed with polyosteoarthrosis, nodular form (Heberden's, Bouchard's nodes). Bilateral gonarthrosis, X-ray st. III (according to Kellgren), FNS 2. Osteoarthritis of the lumbar spine.

Below are x-rays of the knee joints and lumbar spine.



Рентгенограмма коленных суставов



Рентгенограмма поясничного  
отдела позвоночника

Questions:

1. Describe the pathological changes in the radiographs presented above.

Sample answers:

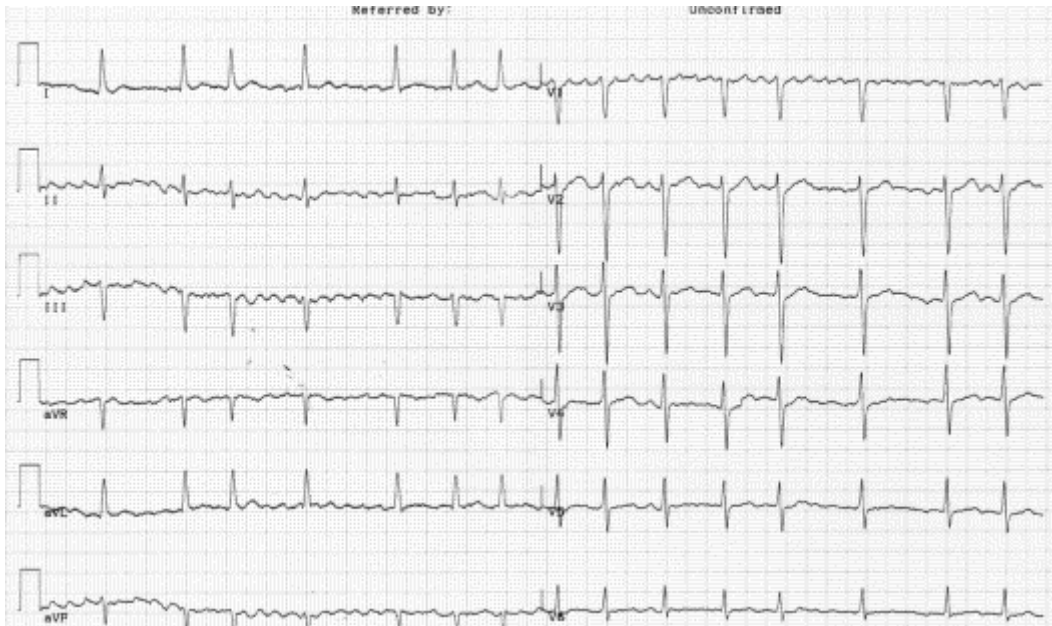
1. X-ray changes in the knee joints: subchondral sclerosis, osteophytes, narrowing of the joint space (X-ray stage III is characterized by narrowing of the joint space, the presence of single osteophytes). and lumbar spine: osteosclerosis of the vertebral bodies, decreased height of the intervertebral discs, spondylophytes.

#### SITUATIONAL PROBLEM 11

Patient B., 38 years old, was admitted to the clinic due to the development of shortness of breath during normal physical activity and rapid, irregular heartbeat about 5 days ago. As a child, she suffered from frequent sore throats, which stopped in adolescence; Tonsillectomy was not performed. Every year she suffers from an acute respiratory viral infection (ARVI), and has repeatedly noted the appearance of a herpetic rash on her lips. A month before the appearance of these complaints, she suffered from herpes zoster, for which symptomatic therapy was carried out. She tolerated physical activity well.

On examination: the condition is relatively satisfactory. Body temperature 37.2°C, no chills. The constitution is normosthenic. The skin is clean. There is no swelling. RR - 22 per minute, breathing is harsh in the basal regions, no wheezing. Heart rate - 115 beats per minute, irregular rhythm, pulse deficit - up to 10 per minute. Blood pressure - 110/70 mm Hg. Art. The abdomen is soft, painless, the liver and spleen are not enlarged.

Blood tests: CRP - 5.6 mg/l, ASLO - 125 IU/l (normal range 0-125 IU/l). ECG.



Questions:

1. Decipher the ECG, indicate what changes you see on the ECG.
3. What diseases should be differentially diagnosed in this patient, taking into account the clinical picture and ECG data.

Sample answers:

1. Atrial fibrillation (atrial fibrillation), tachysystolic form. There is an irregular rhythm, heart rate is 115 per minute, the p wave is absent, the f wave is on the isoelectric line.
2. With acute rheumatic fever, chronic rheumatic heart disease, viral myocarditis, thyrotoxicosis, infective endocarditis.

## SITUATIONAL TASK 12

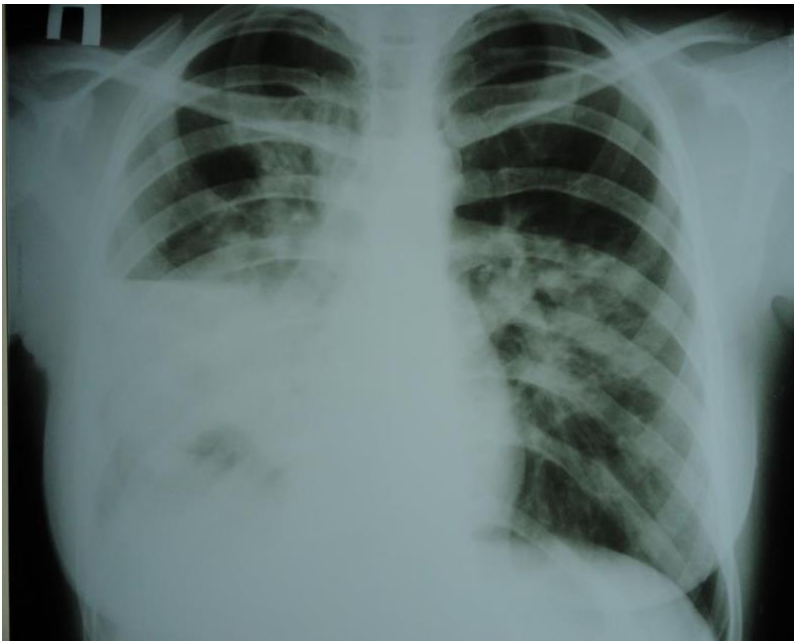
A 47-year-old man was admitted to the emergency department with complaints of an increase in body temperature to 38.5°C degrees, a cough with difficult-to-clear "rusty" sputum, pain in the right half of the chest, aggravated by coughing, a feeling of lack of air, and dizziness.

From the anamnesis it is known that the patient fell ill 3 days ago - after hypothermia, the body temperature increased and a cough appeared. He was treated independently (Aspirin, Paracetamol), but the condition worsened: the above complaints appeared. The ambulance team took him to the hospital.

On examination: the condition is serious. The skin is clean, cyanosis of the lips and fingertips. The right half of the chest lags behind when breathing. Dullness of percussion sound, increased bronchophony in the IV-V intercostal space along the midclavicular line on the right. On auscultation in the same region, there is bronchial breathing and crepitus. Heart sounds are muffled and rapid. Heart rate - 96 beats per minute, blood pressure - 85/50 mm Hg. Art. Saturation - 80%. The abdomen is soft and painless on palpation in all parts.

In the general blood test: leukocytes -  $22 \times 10^9/l$ , young forms - 10%, band neutrophils - 23%, segmented neutrophils - 30%, eosinophils - 2%, lymphocytes - 30%, monocytes - 5%. SRP - 125 mg/l.

An X-ray of the chest was performed in frontal and lateral projections.



Questions:

1. Assume the most likely diagnosis.
2. Describe the radiological signs of the disease you have identified on the radiograph presented above

Sample answers:

1. Community-acquired right-sided middle lobe pneumonia, severe. ONE 2 tbsp.
2. On the chest x-ray in direct projection, there is a darkening of the lower pulmonary field of the right lung; in the lateral projection the lesion is predominantly visible in the middle lobe of the right lung

### SITUATIONAL PROBLEM 13

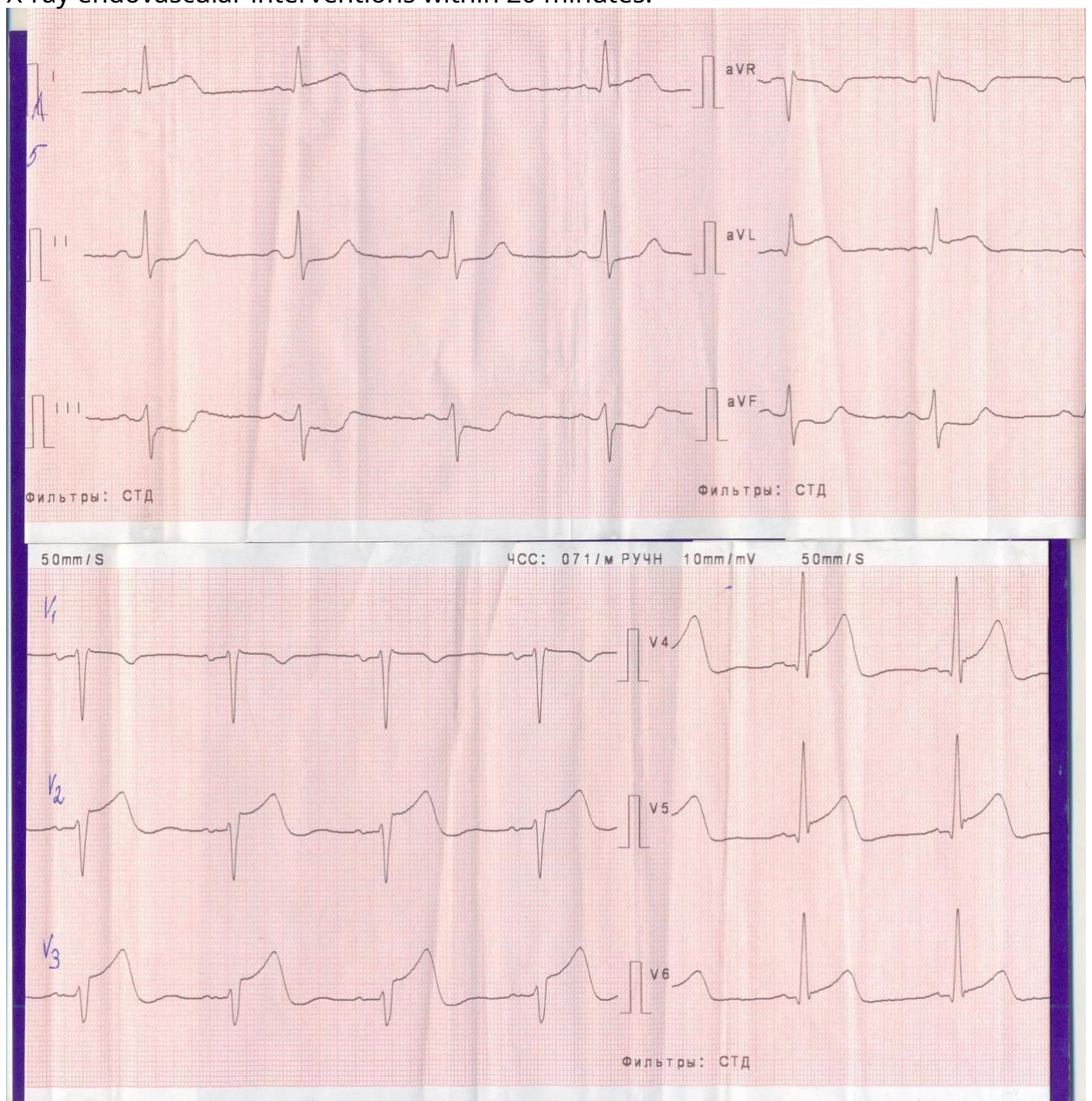
A 47-year-old man called an ambulance due to pressing pain in the chest. The pain appeared 40 minutes ago, at rest, and was not relieved by 2 doses of isoket. The patient notes severe weakness and sweating.

Previously, chest pain did not bother me; I tolerated physical activity well. Over the course of 6 children, blood pressure periodically increased to 160/100 mm Hg. Art. When blood pressure increased, he took Captopril, but did not receive constant antihypertensive drugs. He smokes 1 pack of cigarettes a day for 25 years. Heredity is not burdened.

Objectively: the condition is of moderate severity. The skin is moist. NPV - 18 per minute. In the lungs, breathing is vesicular, there are no wheezes. Heart sounds are muffled, rhythmic, heart rate - 70 beats per minute, blood pressure - 160/100 mm Hg. Art. The abdomen is soft and painless on palpation in all parts. The liver is not enlarged. The pulse in the vessels of the lower extremities is preserved.

ECG registered.

The patient was delivered to the reception department of the hospital. With department X-ray endovascular interventions within 20 minutes.



Questions:

1. Assume the most likely diagnosis.

2. Justify the diagnosis.

Sample answers:

1. IHD. Acute coronary syndrome with ST segment elevation, anteroseptal-lateral. OSN 1 (Killip). Arterial hypertension stage 3, risk 4.

2. The diagnosis of "IHD: acute coronary syndrome" was established on the basis of the clinical picture: pain in the chest that arose at rest, not relieved by Isoket, lasting 40 minutes, accompanied by weakness and cold sweat. ECG data: ST elevation in leads I, avL, V2-V6 and reciprocal changes in III, avF indicate ACS with ST elevation of anteroseptal-lateral localization. OCH 1 (Killip) - based on the absence of wheezing in the lungs.

The diagnosis of arterial hypertension was established on the basis of data on increased blood pressure over 6 years. The presence of ACS indicates stage 3 and degree 4 risk.

#### SITUATIONAL PROBLEM 14

A 55-year-old man consulted a local general practitioner with complaints of compressive pain behind the sternum, occurring when walking a distance of 200 meters or when climbing one flight of stairs, radiating to the left shoulder, passing 3-5 minutes after stopping. I did not use nitroglycerin. I am also concerned about shortness of breath during normal physical activity and fatigue, which appeared several weeks ago.

From the anamnesis it is known that similar pain has been bothering me for a year and a half. At the beginning they arose under a greater load than now, but the last few months have been of the nature described above. The patient receives Bisoprolol 5 mg per day and Cardiket 40 mg 2 times a day. Against this background, the attacks persist. I smoked ½ pack a day for 20 years. Quit smoking 5 years ago. Family history: Father died suddenly at the age of 59 years. On examination: condition is satisfactory. BMI – 24 kg/m<sup>2</sup>. Waist circumference – 96 cm. The skin is clean and of normal color. In the lungs, breathing is vesicular, there are no wheezes. Heart sounds are muffled and rhythmic. Heart rate – 70 beats per minute, blood pressure – 130/85 mm Hg. Art. The abdomen is soft and painless on palpation in all parts. The liver and spleen are not enlarged. There is no peripheral edema. There is no dysuria. The symptom of tapping in the lumbar region is negative. Tests: total cholesterol – 6.5 mmol/l, LDL-C – 3.5 mmol/l, TG – 2.7 mmol/l, fasting glucose – 5.1 mmol/l, creatinine – 96 µmol/l, GFR (according to the CKD-EPI formula) – 86.6 ml/min. On the ECG: sinus rhythm, heart rate - 82 beats per minute, normal position of the EOS, the ratio of the R and S waves in the chest leads is not disturbed. VEM completed –

the test was stopped at a load of 75 W due to discomfort in the chest and ST depression of 2 mm in leads V4, V5, V6. "Double product" was 195. Questions:

1. Assume the most likely diagnosis.
2. Justify your diagnosis.

Sample answers:

1. IHD. Stable angina pectoris III FC. CHNIIIA stage, FCII. Hyperlipidemia.

2. The diagnosis of "IHD, stable angina III FC" was established on the basis of the patient's complaints of compressive pain in the chest, which occurs when walking a distance of 200 meters or when climbing one flight of stairs, radiating to the left shoulder, passing after stopping. This diagnosis is also supported by VEM data - at a load of 75 W, the test was stopped due to discomfort in the chest and changes in the ECG: ST depression of 2 mm in leads V4, V5, V6. "Double

work" amounted to 195.

Chronic heart failure stage IIA is determined based on the presence of shortness of breath and the absence of signs of right ventricular failure.

FCII is determined by signs of limitation of physical activity during habitual physical activity.

Hyperlipidemia was detected by determining total cholesterol and its fractions.

#### SITUATIONAL PROBLEM 15

A 65-year-old patient, a pensioner, came to the clinic with complaints of general weakness, fatigue, palpitations, shortness of breath during exercise, nausea, belching, and heaviness in the epigastrium. Signs of gastric dyspepsia for about 15 years. In the last six months, weakness, palpitations, shortness of breath on exertion, and numbness of the lower extremities have appeared. I didn't go to the doctors.

Objectively: the general condition is of moderate severity. The skin is pale, slight yellowing of the skin and sclera of a lemon tint. The face is puffy. Height - 160 cm, body weight - 68 kg. Vesicular breathing in the lungs. The borders of the heart are shifted to the left by 1 cm, the sounds are slightly muffled, heart rate is 90 per minute, blood pressure is 130/80 mm Hg. Art. The tongue is crimson in color, the papillae are smoothed. The abdomen is soft and painless. The liver protrudes 1 cm from under the edge of the costal arch, the spleen is not enlarged.

Clinical blood test: hemoglobin - 70 g/l, erythrocytes -  $2.9 \times 10^{12}/l$ , color index - 1.3, reticulocytes - 0.1%, leukocyte formula without features, ESR - 30 mm/hour, MCV - 70 fl. The blood smear revealed hypersegmented neutrophils, Jolly bodies, and Cabot rings.

Questions:

1. What is the most likely diagnosis for this patient?
2. What pathological changes in the general blood test confirm your diagnosis?

Sample answers:

1. B12 deficiency anemia,
2. Hemoglobin - 70 g/l, erythrocytes -  $2.9 \times 10^{12}/l$ , CP - 1.3, reticulocytes - 0.1%, leukocyte formula without features, ESR - 30 mm/hour, MCV - 70 fl. The blood smear revealed hypersegmented neutrophils, Jolly bodies, and Cabot rings.

#### SITUATIONAL PROBLEM 16

A 50-year-old patient came to the clinic. From the anamnesis: for the last year she has been experiencing pain in the upper third of the sternum at night, which lasts about 15 minutes and goes away on its own or after taking Nitroglycerin. Blood pressure - 120/80 mm Hg. Art., pulse - 62 beats per minute. ECG at rest without pathological changes. The exercise test is negative with high exercise tolerance. During an attack of pain, an ECG taken by an emergency physician showed an elevation of the ST segment in leads II, III and AVF with a discordant decrease in this segment in leads V1 and V2.

Questions:

1. What is the most likely preliminary diagnosis for the patient?
2. What pathological changes on the ECG confirm your diagnosis?

Sample answers:

1. IHD: variant Prinzmetal angina.
2. Elevation of the ST segment in leads II, III and AVF with a discordant decrease in this segment in leads V1 and V2.



### SITUATIONAL PROBLEM 17

A 60-year-old patient has shortness of breath, moderate hemoptysis, general weakness. She became acutely ill a few hours ago when she suddenly had an attack of suffocation. The skin is pale cyanotic. There is swelling of the lower extremities, more than the left one, and hyperemia of the skin of the left leg with a cyanotic tint. Respiration rate - 26 per minute. Pulse - 110 beats per minute, rhythmic, small filling. Blood pressure - 90/60 mm Hg. Art., the first tone at the apex of the heart is weakened, the accent of the second tone is over the pulmonary artery. The ECG showed an increase in Q waves in lead III and S waves in lead I, elevation of the ST segment and a negative T wave in lead III, and right bundle branch block.

Questions:

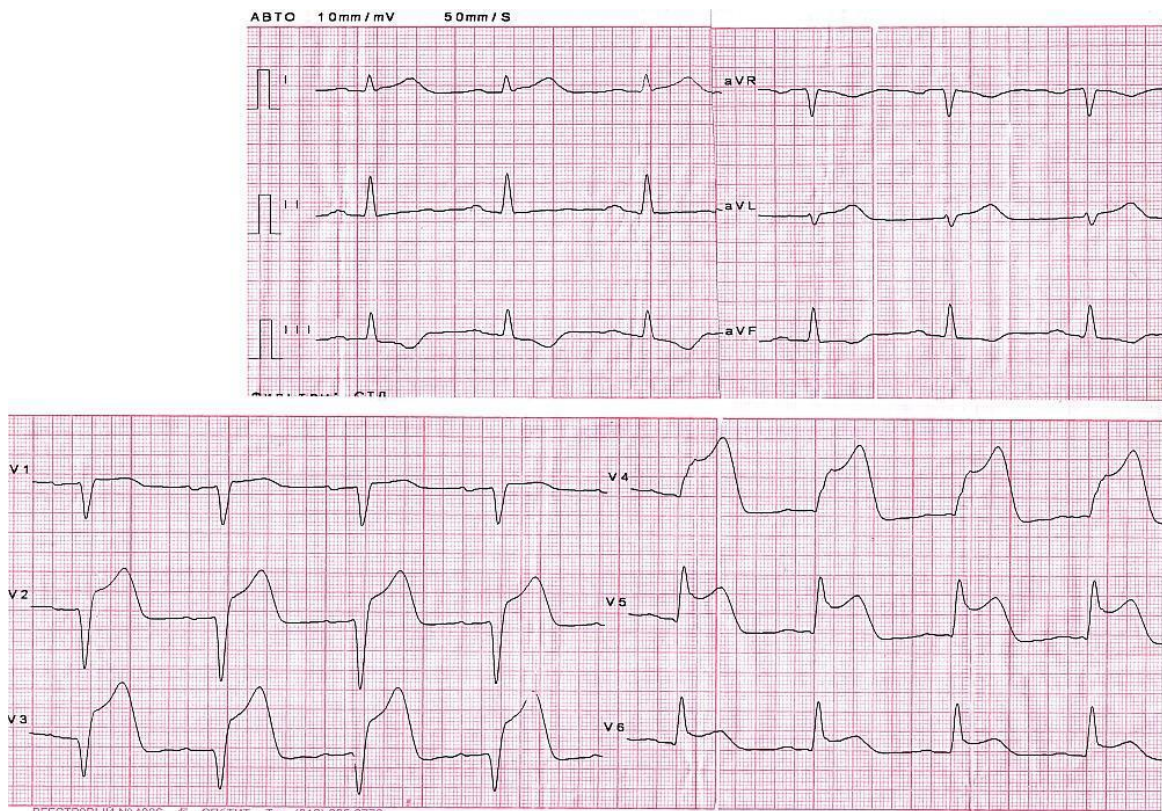
1. What is the most likely preliminary diagnosis for this patient?
2. What pathological changes on the ECG confirm your diagnosis?

Sample answers:

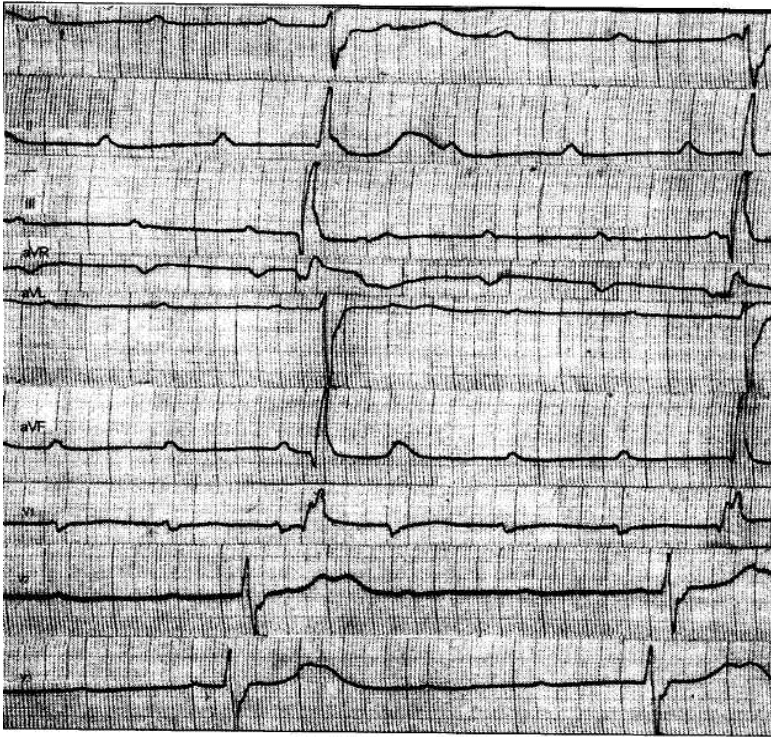
1. Thrombosis of the veins of the left leg. Pulmonary embolism.
2. Increased Q waves in lead III and S waves in lead I, ST segment elevation and negative T waves in lead III, right bundle branch block.

### SITUATIONAL PROBLEM 18

A 42-year-old man came to the clinic with a first-time attack of intense compressive chest pain without clear irradiation, accompanied by nausea, profuse sweating, and shortness of breath. At the time of treatment, the duration of the attack was about 3 hours. He has been smoking for many years, 10-15 cigarettes a day. There is no history of arterial hypertension and other diseases of the cardiovascular system, diabetes mellitus, neurological diseases, head injuries, coagulopathies or significant bleeding. Consciousness is clear. Pale skin, hyperhidrosis. Breathing is vesicular, no wheezing. NPV - 18 per minute. Heart sounds are rhythmic. Heart rate - 90 beats per minute, blood pressure - 130/80 mm Hg. Art. The abdomen is soft, painless in all parts. The liver is not enlarged. An emergency ECG was taken:







Questions:

1. What rhythm/conduction disorder was recorded on the ECG? Make an ECG conclusion (justify).

Sample answers:

1. Atrioventricular block III stage. (complete AV block). Rare ventricular rhythm. QRS complexes are widened and deformed. Complete dissociation of the atrial and ventricular complexes.

#### SITUATIONAL PROBLEM 21

Woman, 47 years old. It is known that over the past 8 years, after a decrease in physical activity, she has noticed an increase in body weight, against the background of which she began to notice a paroxysmal, predominantly dry, painful cough, accompanied by a feeling of lack of air. After some time, she also began to notice pain in the chest during physical activity, most pronounced while working in the garden (weeding beds). She was examined on an outpatient basis. A diagnosis of severe, continuously relapsing bronchial asthma was made. IHD: angina pectoris III stage. j. Obesity II degree." The prescribed treatment had little effect. Moreover, nitrates, according to the patient, were effective, leading to relief of chest pain within half an hour. Over the past 3 weeks, he has noticed the appearance of substernal pain at night in the first half of the night, especially after a heavy late dinner, which became the reason for seeking medical help. The ambulance team, based on the clinical picture, as well as the ECG and troponin test, rejected the diagnosis of ACS. On auscultation, breathing is harsh, there are no wheezes. X-ray of the chest organs - without pathology.

Questions:

1. Formulate the most likely diagnosis of the disease that combines the patient's complaints.
2. What special research methods are used for this disease?

Sample answer:

1. GERD. Chronic reflux esophagitis, exacerbation.
2. FEGDS, histological examination, pH-metric examination, esophageal manometry, X-ray examination, impedance measurement. Test with Gaviscon for pain relief.

#### SITUATIONAL TASK 22.

A 56-year-old man who abuses alcohol came to the office of a local general practitioner with complaints of abdominal pain spreading upward, occurring more often 1.5-2 hours after a heavy, spicy or fatty meal, lasting up to 3 hours, worsening in a lying position on the back, decreasing in a sitting position, leaning forward, pulling the legs to the chest. Sometimes the pain radiates to the left half of the chest. Worried about nausea, lack of appetite, bloating. After each meal, mushy stool containing drops of fat appears within 1 hour. Notes a decrease in body weight.

Questions:

1. Formulate the most likely preliminary diagnosis.
2. What examination methods are used to confirm and clarify the diagnosis?

Sample answer:

1. Chronic alcoholic pancreatitis of moderate severity with exocrine pancreatic insufficiency.
2. Determination of the level of amylase in the blood and urine, coprological examination, determination of the level of elastase-1 in feces, abdominal radiography, CT, MRI, ERCP, ultrasound, endo-ultrasound.

#### SITUATIONAL TASK 23.

A 29-year-old female patient has been suffering from Addison's disease for three years. Receives replacement therapy: 5 mg of prednisolone in the morning, 2.5 mg at 16.00, fludrocortisone 0.1 mg in the morning. The condition was satisfactory. Four days ago I fell ill with the flu. The dose of glucocorticoids did not change. The patient's condition sharply worsened a day ago: extreme weakness, adynamia, nausea, and vomiting appeared. Delivered to the hospital with manifestations of vascular collapse by emergency medical services. Objectively: the condition is serious. Productive contact is not available. The skin is dry, dark, noticeable is the pronounced hyperpigmentation of the skin in the nipple area, on the neck, and elbow bends. Pulse - 124 beats per minute, weak filling, blood pressure - 60/40 mm Hg. Art.

Question:

Formulate the most likely diagnosis.

Standard answer.

Acute adrenal insufficiency.

#### SITUATIONAL TASK 24.

A 40-year-old patient at an appointment with a local general practitioner complains of weakness, frequent urination, sleep disturbances, and weight loss. From the anamnesis it is known that the first symptoms of the disease appeared approximately 2 months after a severe flu, which occurred with a disorder of consciousness and convulsions, for which the patient was hospitalized in an infectious diseases hospital. After discharge from the hospital, fatigue persisted, weakness, insomnia increased, appetite deteriorated, sweating and salivation decreased, thirst appeared, due to which he began to drink up to 5-6 liters of liquid daily, and lost 4.6 kg. The examination revealed no pathology of the internal organs. Exchange disorders

no glucose. Urine density is 1005 g/l.

Question:

Formulate and justify the diagnosis.

Sample answer:

Based on the above complaints, medical history and laboratory changes, a diagnosis of central diabetes insipidus was made.

#### SITUATIONAL TASK 25.

A 30-year-old patient was diagnosed with diabetes 3 years ago. Since the diagnosis, he has been on intensive insulin therapy (daily dose 32-46 units), and actively uses self-monitoring tools. For the last 2 weeks, my diet has been disrupted due to work. She often began to notice bouts of hunger, which were accompanied by body tremors, palpitations, headaches, and aggressive behavior. When measured with a glucometer, blood glucose at this moment is 2.8-3.5 mmol/l. These phenomena were stopped by eating food containing a lot of carbohydrates.

Questions:

Guess the most likely diagnosis.

Sample answer:

Diabetes mellitus type 1. Target HbA1c <6.5%. Hypoglycemic conditions.

#### SITUATIONAL TASK 26.

A 65-year-old patient was brought to the emergency room with complaints of chills, shortness of breath, lack of air, and severe weakness. He became acutely ill 3 days ago, when he developed chills, his body temperature rose to 40°C, and he began to experience a dry and then a wet cough with pink sputum that was difficult to separate. Weakness and shortness of breath progressively increased, the cough intensified, and he had not urinated for the last 24 hours. Upon examination, the condition is serious, consciousness is confused. The skin is pale, cool, cyanosis of the lips, acrocyanosis. Subicteric sclera. Body temperature - 35.8°C. Breathing is shallow. BH - 44 per minute. Pulse - 118 per minute, thread-like. Heart sounds are muffled. Blood pressure - 84/50 mm Hg. Art. Above the lungs, there is a shortening of the percussion tone in the posterolateral parts of the right lung. In these same areas, breathing is weakened, moist rales and pleural friction noise are heard. The abdomen is soft, the liver protrudes 3 cm from under the edge of the costal arch, the edge is soft, moderately painful. There is no peripheral edema.

Blood test: leukocytes -  $21 \times 10^9/l$ , basophils - 1%, band neutrophils - 18%, segmented neutrophils - 63%, lymphocytes - 16%, monocytes - 2%, ESR - 59 mm/hour, AST - 0, 7; ALT - 1.28; Basic acid: pH - 7.5; R CO<sub>2</sub> - 20; P O<sub>2</sub> - 50; BE - 10.

Questions:

Formulate a presumptive diagnosis.

Standard answer.

Community-acquired pneumonia of the lower lobe of the right lung, severe. Respiratory failure 3rd degree. Infectious-toxic shock. Acute kidney damage.

#### SITUATIONAL TASK 27.

A 29-year-old patient came to the clinic with complaints of weakness, dizziness, and jaundice. Sick since the age of 5.

On examination: the skin and sclera are icteric. Noteworthy are the "tower skull" and "Gothic palate". There are trophic ulcers on the skin of the legs. Pulse - 99 per minute, rhythmic. Heart sounds are muffled, systolic murmur is heard over all points. Vesicular breathing.

The abdomen is soft, the liver protrudes 3 cm from under the edge of the costal arch, the spleen protrudes 6 cm. There is anemia of the hyperregenerative type in the blood (reticulocytosis). Bilirubin - 49  $\mu\text{mol/l}$ , indirect - 40  $\mu\text{mol/l}$ . Microspherocytosis of erythrocytes.

Questions:

Formulate a presumptive diagnosis.

Sample answer:

Minkowski-Choffard disease, acute phase, hepatolienal syndrome, trophic ulcers of the legs.

#### SITUATIONAL TASK 28.

A 57-year-old patient was diagnosed with coronary heart disease (CHD), stable exertional angina, FC II. Since the age of 30, he has suffered from moderate atopic bronchial asthma. As a basic therapy, he receives seretide by inhalation. Asthma attacks are controlled with salbutamol. For IHD, I started receiving metoprolol 25 mg 2 times a day. On the second day of starting metoprolol, the patient experienced more frequent asthma attacks, and a decrease in peak expiratory volume flow was observed.

Questions:

Suggest the reason for the increase in asthma attacks and the decrease in the peak rate of asthma.

Sample answer:

The cause of deterioration in respiratory function is the bronchospastic effect of the adrenergic blocker metoprolol.

### Skills with performance standards

**Skill 1.** Describe the algorithm of actions when measuring body temperature in the armpit cavity and recording data in the temperature sheet.

Skill performance standard:

1. Wipe the patient's axillary area dry
2. Inspection of the axillary area: in the presence of hyperemia, local inflammatory processes cannot be measured
3. Remove the thermometer from the glass with the disinfectant solution. After disinfection the thermometer should be rinsed with running water and thoroughly wiped dry.
4. Shake the thermometer so that the mercury column drops to levels below 35°C.
5. Place the thermometer in the armpit so that the mercury the tank was in contact with the patient's body on all sides; ask the patient to press his shoulder tightly to his chest (if necessary, the health care worker should help the patient hold his arm).
6. Remove the thermometer after 10 minutes and take readings.
7. Shake the mercury in the thermometer to below 35 °C.
8. Place the thermometer in a container with a disinfectant solution.
9. Record the thermometer readings on the temperature sheet.

**Skill 2.** Describe the algorithm for preparing for the lung auscultation procedure.

Skill performance standard:

1. Offer or help the patient to find a comfortable position, sitting on a chair or standing.
2. Make sure that the phonendoscope is in working position.
3. Treat the olives and the membrane of the phonendoscope with a cotton pad with an antiseptic.
4. Ask the patient to remove clothing from the chest.
5. Invite the patient to stand with his arms down along his body.
6. Ask the patient to breathe evenly through the nose during the examination.
7. Treat your hands hygienically with a skin antiseptic.
8. Stand to the side or in front of the patient.
9. Insert the stethoscope tubes into the external auditory canals.

**Skill 3.** Describe the algorithm for performing the procedure of superficial palpation of the abdomen.

Skill performance standard:

1. Place the patient on his back with his legs extended, his arms placed along torso.
2. Place the palm of your right hand flat on the abdomen of the patient's left iliac region.
3. With four fingers slightly bent, apply gentle pressure on the abdominal wall. Assess the degree of tension in the anterior abdominal wall.
4. Move your hand to the right iliac region and palpate,
5. Palpate the abdomen, gradually moving the hand up to the epigastrium symmetrical areas of the left and right half of the abdominal wall.

**Skill 4.** Measuring chest circumference for men and women

Skill performance standard:

1. Chest circumference is measured in a standing position, arms down, with maximum inhalation, full exhalation and calm breathing. A measuring tape is applied horizontally, at the back under the angles of the shoulder blades, at the front: in men, along the areola, and in women, under the mammary glands.

**Skill 5.** Algorithm for determining voice tremors.

Skill performance standard:

1. Warn the patient that you will be assessing vocal tremor
2. After asking the patient to repeat "33" out loud several times, place his palms in symmetrical areas: a) supraclavicular, b) subclavian. c) lateral, d) suprascapular, e) interscapular, f) subscapular.

**Skill 6.** Algorithm for determining chest elasticity

Skill performance standard:

1. Warn the patient that you will be assessing the elasticity of the chest.
2. Squeeze the chest with your palms in the anteroposterior direction, placing one hand on the sternum, and the other on the interscapular area, apply 1-2 pressures with springy movements.
3. Squeeze the chest with your palms in the transverse direction, placing your hands parallel to the course of the ribs on the lateral surfaces of the chest, perform 1-2

pressing with springy movements.

4. Ask the patient about pain during palpation.

**Skill 7.**Algorithm for comparative percussion of the chest from the front

Skill performance standard:

1. Carry out comparative percussion in the supraclavicular fossa on the left and right.
2. Carry out comparative percussion on the collarbones, using plessimeter of the clavicle.
3. Carry out comparative percussion in the I, II, III intercostal spaces along the midclavicular lines left and right.
4. Percuss the right half of the chest in the IV, V intercostal spaces

**Skill 8.**Rear chest percussion algorithm

Skill performance standard:

1. Carry out comparative percussion in the supraspinous areas on the left and right along scapular lines at symmetrical points
2. Ask the patient to lean forward slightly, lowering his head, crossing his arms chest, placed on shoulders
3. Carry out comparative percussion in the interscapular area on the left and right along along the paravertebral lines at the upper edge of the shoulder blades, then at the lower edge of the shoulder blades along the paravertebral lines at symmetrical points (the plessimeter finger is located vertically).
4. Ask the patient to lower his arms
5. Carry out comparative percussion in the VII, VIII and IX intercostal spaces on the left and right along the scapular lines at symmetrical points

**Skill 9.**Algorithm for comparative auscultation of the lungs along the anterior and lateral surfaces of the chest

Skill performance standard:

1. Carry out auscultation in the I, II, III intercostal spaces on the left and right midclavicular lines in symmetrical points
2. Ask the patient to clasp his hands at the back of his head
3. Carry out auscultation in the III, IV, V intercostal spaces on the left and right along the middle axillary lines at symmetrical points

**Skill 10.**Algorithm for comparative auscultation of the lungs from behind

Skill performance standard:

1. Carry out auscultation in the supraspinous areas on the left and right along the scapular line at symmetrical points
2. Ask the patient to lean forward slightly, lowering his head, crossing his arms chest, placing your palms on your shoulders
3. Carry out auscultation in the interscapular areas on the left and right along paravertebral line in the upper and lower parts of the scapula at symmetrical points
4. Ask the patient to lower his arms



5. Carry out auscultation in the subscapular areas in the 7, 8 and 9 intercostal spaces on the left and to the right along the scapular line at symmetrical points

**Skill 11.**Algorithm for performing peak flowmetry

Skill performance standard:

1. Disinfect the peak flow meter before use.
2. Keep the peak flow meter parallel to the floor, and the slider should remain motionless at the beginning of the scale. The procedure can be performed either standing or sitting;
3. Inhale as much as possible, and then tightly grasp the mouthpiece of the peak flow meter lips and make a sharp, forced exhalation into the device. Number of repetitions – 3.
4. The best result is taken into account

**Skill 12.**Algorithm for inhalation from a metered dose aerosol inhaler without a spacer

Skill performance standard:

1. Shake the inhaler before use
2. Take a deep breath
3. Gently wrap your lips around the mouthpiece of the inhaler and begin to inhale slowly
4. Immediately after you start inhaling, press the inhaler once
5. Slowly continue inhaling to maximum
6. Hold your breath for 10 seconds or, if this is impossible, hold your breath  
As far as possible, it is advisable not to remove the inhaler from your mouth
7. Exhale through your mouth
8. Repeated inhalation no earlier than after 30 seconds
9. Rinse your mouth with water if you have inhaled a corticosteroid.

**Skill 13.**Inhalation algorithm from a metered dose inhaler with a spacer

Skill performance standard:

1. Remove the protective cap, shake the inhaler and insert it into the spacer.
2. Place your lips around the mouth end of the spacer.
3. Press the inhaler so that the medicine enters the spacer.
4. Take a deep, slow breath.
5. Hold your breath for 5-10 seconds.
6. Disconnect from the spacer and exhale
7. Rinse your mouth if you have inhaled a corticosteroid.

**Skill 14.**Describe the technique for assessing capillary pulse on a limb.

Skill performance standard:

1. It is necessary to press on the tip of the patient's fingernail, observing the pulsation vessels of the nail bed.
2. Release your fingertip.

**Skill 15.**Describe the algorithm for correctly applying a blood pressure cuff to the shoulder patient.

Skill performance standard

1. Ask the patient to bare his arm (do not roll up the sleeve).
2. Place the cuff 2 – 2.5 cm above the elbow.
3. Find the place of pulsation of the brachial artery.

4. Apply the membrane of the stethoscope to the pulsation point of the brachial artery at elbow bend.

**Skill 16.** Describe the algorithm for visual assessment of the chest.

Standard for performing the skill: 1. Having warned the patient

about the purpose of the examination,

2. stand in front of the patient.

3. Assess: the shape of the chest (the shape and severity of the supraclavicular and subclavian fossae. Assess the epigastric angle. From the back, assess the position of the shoulder blades).

4. Assess for the presence of chest deformation,

5. Assess the symmetry of the left and right halves of the chest,

6. Assess the synchronicity of movements of the left and right halves of the chest during breathing.

7. Assess the type of breathing, breathing rhythm and the participation of auxiliary muscles in the act of breathing.

**Skill 17.** Describe the correct technique for inflating and deflating air when measuring blood pressure?

Skill performance standard:

Air pumping should be done as quickly as possible. Air pumping should be done slowly, at a speed of 2 mmHg. Art. per second

**Skill 18.** List the rules for applying ECG electrodes.

Skill performance standard:

The skin in the area where the electrode is applied is degreased using alcohol; Severe hair is treated with a soap solution or shaved off. ECG electrodes are coated with a specialized gel that improves electrical conductivity.

It is necessary to follow safety regulations when working with electrical devices. In particular, ensure grounding if the device is operated from the mains.

**Skill 19.** List the application points for chest ECG electrodes

Skill performance standard:

1st – 4th intercostal space on the right side of the

sternum; 2 – 4 intercostal space on the left side of the

sternum; 3rd – 5th rib along the left parasternal line;

4th – 5th intercostal space along the left line of the middle

clavicle; 5 – 5 intercostal space along the axillary line in

front; 6th – 5th intercostal space along the midaxillary line.

**Skill 20.** List the points at which cardiac auscultation is performed.

Skill performance standard:

1) area of the apex of the heart (mitral valve);

2) II intercostal space at the right edge of the sternum (aortic valve);

3) II intercostal space at the left edge of the sternum (pulmonary valve);

- 4) at the base of the xiphoid process (tricuspid valve);
- 5) III intercostal space at the left edge of the sternum (Botkin-Erb point).

**Skill 21.**List the general rules for auscultation of the chest organs.

Skill performance standard:

1. to increase the sensitivity of the auditory analyzer, the doctor should be in silence for 5 minutes before auscultation;
2. you must always use the same phonendoscope;
3. The phonendoscope must be pressed tightly with its entire circumference to the patient's skin, avoiding too much pressure;
4. the room should be quiet and warm;
5. Avoid listening above the surface of skin that has hair (if this is not possible, moisten the hair with water).

**Skill 22.**Describe the technique for determining liver size according to Kurlov.

Skill performance standard:

1. Percussion is carried out along the right midclavicular line from the navel to the lower border of the liver and from a clear pulmonary sound down the intercostal spaces until hepatic dullness appears. By connecting two points, the first size of the liver is measured according to Kurlov.
2. The midline of the abdomen is percussed upward until hepatic dullness appears. The upper point of this size is conventionally taken to be a point lying on the same level as the upper limit of the first size of hepatic dullness (a horizontal line is drawn through this point until it intersects with the midline). By connecting these points, the second size of the liver is measured according to Kurlov.
3. The third size of the liver according to Kurlov is determined by percussion near the left costal arch parallel to it, starting percussion from the anterior axillary line. The upper point corresponds to the upper point of the second liver size according to Kurlov.