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

FACULTY_THERAPY-PREVENTIVE

Evaluation materials

in the discipline FUNCTIONAL DIAGNOSTIC METHODS IN CARDIOLOGY

Specialty 05/31/01 - “General Medicine”

2023

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

general professional (OPK):

Code and name of general professional competence	Indicator(s) of achieving general professional competence
OPK-2	

2. Types of assessment materials in accordance with formedcompetencies

Name of competency	Types of assessment materials	number of tasks **for 1 competency**
OPK-2	Closed tasks	25 with sample answers
	Open type tasks: Situational tasks	75 with sample answers

Closed type tasks:
Task 1. Instructions: Choose one correct answer.
How is the maximum heart rate calculated when performing PPT:
A) according to the patient's weight;
B) 220 - patient's age;
C) according to concomitant pathology;
D) by gender.
Standard answer: B) 220 - patient's age

Task 2. Instructions: Choose one correct answer. The most common causes of decreased blood pressure during PFN:
A) activation of the SAS;
B) stenosing coronary atherosclerosis; C) diseases of the thyroid gland;
D) taking medications.
Standard answer: B) 220 - stenosing coronary atherosclerosis.

Task 3. Instructions: Choose one correct answer.
The patient, when performing PFN, refused to continue the study, the sample is considered:
A) negative;
B) doubtful;
C) unfinished;
D) positive.
Sample answer: C) incomplete.

Task 4. Instructions: Choose one correct answer.
When performing PFN, depression of the ST2 mm segment appeared on the ECG, there were no complaints, blood pressure and heart rate corresponded to the load, the test is considered:
A) negative;
B) doubtful;
C) unfinished;
D) positive.
Standard answer: D) positive.

Task 5. Instructions: Choose one correct answer.
When performing PFN, the patient developed discomfort in the chest without signs of ischemia on the ECG, the test is considered:
A) negative;
B) doubtful;
C) unfinished;
D) positive.
Sample answer: B) doubtful

Task 6. Instructions: Choose one correct answer.
To perform PTEX, the following equipment is sufficient:
A) multichannel computer electrocardiograph, pacemaker, special diagnostic electrode, defibrillator; a laryngoscope, air ducts and a set of medications necessary for conducting research and providing emergency care to the patient;
B) multichannel computer electrocardiograph, pacemaker, special diagnostic electrode, defibrillator;
C) multichannel computer electrocardiograph, pacemaker, set of medications necessary for conducting research and providing emergency care to the patient;
D) Performing TEE does not require special equipment; a multichannel computer electrocardiograph and a special diagnostic electrode are sufficient.
Sample answer: A) multichannel computer electrocardiograph, pacemaker, special diagnostic electrode, defibrillator; laryngoscope, air ducts and a set of medications necessary for conducting research and providing emergency care to the patient.

Task 7. Instructions. Choose one correct answer.
VVFSAU (recovery time of sinoatrial node function) is:
A) the interval from the P wave of the last spontaneous contraction before the application of atrial stimulation to the beginning of the P wave caused by an impulse from the SAU after TEE;
B) the interval from the last artifact of the electrical impulse of the stimulator to the beginning of the P wave caused by the impulse from the ACS;
C) the interval from the first artifact of the electrical impulse of the stimulator to the beginning of the P wave caused by the impulse from the ACS;
D) the interval from the last artifact of the electrical impulse of the stimulator to the beginning of the P wave of the fifth impulse emanating from the ACS.
Sample answer: B) the interval from the last artifact of the electrical impulse of the stimulator to the beginning of the P wave caused by the impulse from the ACS.

Task 8. Instructions: Choose one correct answer.
Corrected time for recovery of sinoatrial node function (CRRT) is defined as:
A) the difference between the maximum duration of post-stimulation pause and duration of the last cardiac cycle before TEE;
B) the difference between the maximum duration of the post-stimulation pause and the average duration of the 5 initial cardiac cycles;
C) the difference between the maximum duration of the post-stimulation pause and the average duration of 10 initial cardiac cycles;
D) the difference between the average duration of 10 cardiac cycles after TEE and the average duration of 10 initial cardiac cycles;

Standard answer: C) the difference between the maximum duration of the post-stimulation pause and the average duration of 10 initial cardiac cycles.

Task 9. Instructions: Choose one correct answer. Medical cardiac denervation (MDS) is performed using:
A) beta blockers;
B) alpha blockers;
C) beta and alpha blockers;
D) beta blockers and M-anticholinergics.
Sample answer: D) beta blockers and M-anticholinergics.

Task 10. Instructions: Choose one correct answer.
The advantages of TEE over other stress tests are that when exposed to stimulation:
A) there is a simultaneous increase in heart rate and blood pressure;
B) only an increase in heart rate occurs;
C) there is only an increase in blood pressure;
D) Coronary insufficiency may be provoked with unchanged values of blood pressure and heart rate
Standard answer: B) only an increase in heart rate occurs.

Task 11. Instructions: Choose one correct answer.
TEE as a stress test is the method of choice in patients with:
A) damage to the musculoskeletal system and bronchopulmonary system:
B) damage to the urinary system and cardiovascular system: C) in patients with obesity and endocrine pathology;
D) in patients in the acute period of myocardial infarction to assess myocardial viability.
Sample answer: A) damage to the musculoskeletal system and bronchopulmonary system.

Task 12. Choose one correct answer.
Instructions: Absolute indications for therapeutic TEE include:
A) sinus tachycardia with heart rate more than 120 per minute;
B) constant form of atrial fibrillation, tachysystolic form;
C) Morgagni-Adams-Stokes attack due to third-degree AV block;
D) new-onset atrial fibrillation.
Sample answer: C) Morgagni-Adams-Stokes attack against the background of third-degree AV block.

Task 13. Instructions: Choose one correct answer.
What indicator increasethroughout life underlies the mechanism of increase in pulse arterial pressure
A) Arteriolar and capillary stiffness coefficient;
B) Stiffness coefficient of large muscular arteries;
C) Myocardial masses of the left ventricle of the heart;
D) Minute volume of blood flow;
Sample answer:B) Coefficient stiffness of large muscular arteries.

Task 14. Instructions: Choose one correct answer.
Due to the high variability of DBP at night, which of the boundaries presented below can be used for correct interpretation and results?
A) 8 mm. rt. Art.;
B) 12 mm. rt. Art.;

C) 16 mm. rt. Art.;
D) 20 mm. rt. Art.
Sample answer:B)12 mm. rt. Art..

Task 15. Instructions: Choose one correct answer.
What average daily value of pulse arterial pressure is most typical for patients at high risk of cardiovascular events?
A) 13 mm. rt. Art.;
B) 25 mm. rt. Art.;
C) 33 mm. rt. Art.;
D) 53 mm. rt. Art.;
Sample answer:D)53 mm. rt. Art.

Task 16. Instructions: Choose one correct answer.
It is possible to determine the effectiveness of antihypertensive therapy after at least
A) 5 successful measurements within every hour;
B) 20 measurements in the daytime per day;
C) 50 measurements at night and daytime per day;
D) 2 successful measurements within every hour;
Sample answer:D)2-x successful measurements within every hour.

Task 17. Instructions: Choose one correct answer.
Fluctuations in the values of the daily blood pressure index within 10-20% are typical for the following type(s) of patient(s)
A) dipper;
B) night-peaker;
C) non-dipper;
D) over-dipper;
Sample answer:A)dipper.

Task 18. Instructions: Choose one correct answer. The most accurate characteristic of the time index is:
A) determines the percentage of time during which blood pressure values exceed the critical ("safe") level;
B) determines the percentage of time during which blood pressure exceeds the threshold level in the morning time interval;
C) determines the percentage of time during which blood pressure exceeds the threshold level only during sleep;
D) determines the percentage of measurements in which blood pressure values exceed the threshold level only during physical activity;
Sample answer:A)determines the percentage of time during which blood pressure values exceed the critical ("safe") level.

Task 19. Instructions: Choose one correct answer. Standard indicators of ABPM include
A) The magnitude of the morning rise in blood pressure;
B) Hypotension time index;
C) Hourly average blood pressure and heart rate values;
D) Rate of morning rise in blood pressure;
Sample answer:C) Hourly average blood pressure and heart rate values.

Task 20. Instructions: Choose one correct answer. The level of the maximum value of the morning rise in DBP is equal toA)10-15 mm. rt. Art.;
B)10-25 mm. rt. Art.;
C)30-36 mm. rt. Art.;
D)45–52 mm. rt. Art.;
Sample answer:C)30-36 mm. rt. Art.

Task 20. Instructions: Choose one correct answer. The rate of morning rise in SBP is maximum equal to
A) 5 mm. rt. st./hour;
B) 10 mm. rt. st./hour;
C) 15 mm. rt. st./hour;
D) 20 mm. rt. st./hour;
Sample answer:B)10 mm. rt. Art./hour

Task 21. Instructions: Choose one correct answer.
The necessary conditions for carrying out correct measurements in M-mode are all except:
A) adequate visualization of the endocardium, myocardium, and valve structures;
B) maintaining a 90 degree angle between the cursor and the structures being examined;
C) maintaining an angle of 270 degrees between the cursor and the structures being studied;
D) application of anatomical M-mode
Sample answer:C)compliance an angle of 270 degrees between the cursor and the structures being studied;

Task 22. Instructions: Choose one correct answer.
Pulsed wave Doppler studies are characterized by:
A) allows you to evaluate the speed of blood flow throughout the entire ultrasound beam;
B) used to assess ventricular diastolic function;
C) used to calculate pressure in the cavities of the heart;
D) used to determine the direction of regurgitant flow.
Standard answer: B) is used to assess ventricular diastolic function//

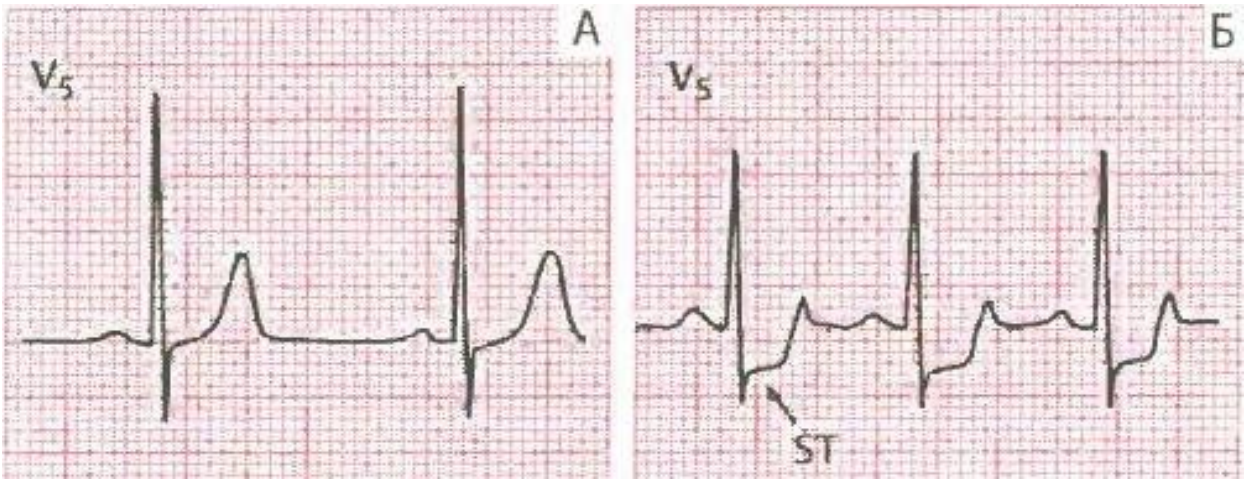
Task 23. Instructions: Choose one correct answer.
Continuous wave Doppler studies are characterized by:
A) allows you to estimate the speed of blood flow at a specific point;
B) used to study transmitral blood flow to assess ventricular diastolic function;
C) used to calculate LVEF;
D) used to determine the speed and other parameters of valve regurgitation.
Sample answer: D) is used to determine the speed and other parameters of valvular regurgitation.

Task 24. Instructions: Choose one correct answer.
The main application of color Doppler mapping in echocardiography:
A) used to study transmitral blood flow to assess ventricular diastolic function;
B) used to determine the direction of regurgitant flow;

C) allows you to identify the presence of zones of local contractility impairment;
D) allows you to identify areas of local contractility impairment.
Sample answer: B) is used to determine the direction of regurgitation flow

Task 25. Instructions: Choose one correct answer. Tissue pulsed doppler is used for:
A) transmitral blood flow studies;
B) assessment of mitral regurgitation;
C) assessment of LV diastolic function;
D) calculation of pressure in the pulmonary artery.
Standard answer: C) assessment of LV diastolic function.

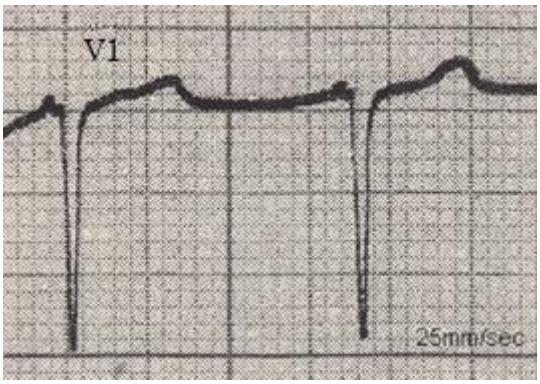
Open type tasks:
Exercise 1.



A - initial ECG, B - ECG during the test.
A 48-year-old patient complained of chest discomfort that arose during an exercise test.

1. What do changes on the ECG indicate?
2. What other changes can be observed during the test? Sample answer:
1. On the ECG (B), a classic sign of myocardial ischemia is ST segment depression.
2. Tall, pointed T waves may appear as a nonspecific sign of myocardial ischemia

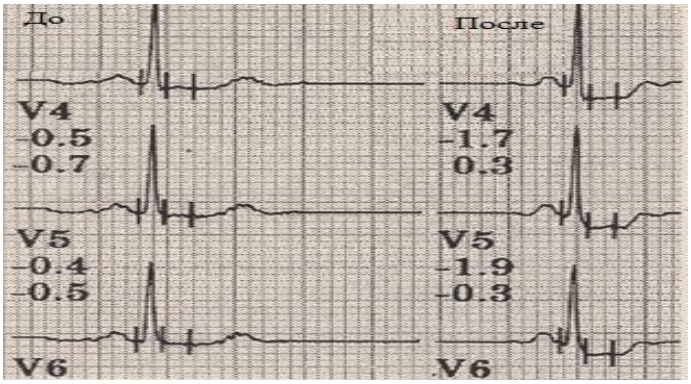
Task 2.



Before employment, an ECG was performed on a 30-year-old patient.
1. Specify the pathological changes in the ECG.
2. What is this condition called?
Standard branch
1. Registered followingpathological changes:
– Short PQ interval, less than 0.12 sec
– Narrow QRS complexes
– Absence of delta wave on QRS

2. Against the background of repeated paroxysms of SVT, this condition is known as Lown-Ganong-Levine syndrome

Task 3.



A 47-year-old patient completed a stress stress test without complaints.

1. Specify the main pathological sign on the ECG.
2. Is this stress test positive?

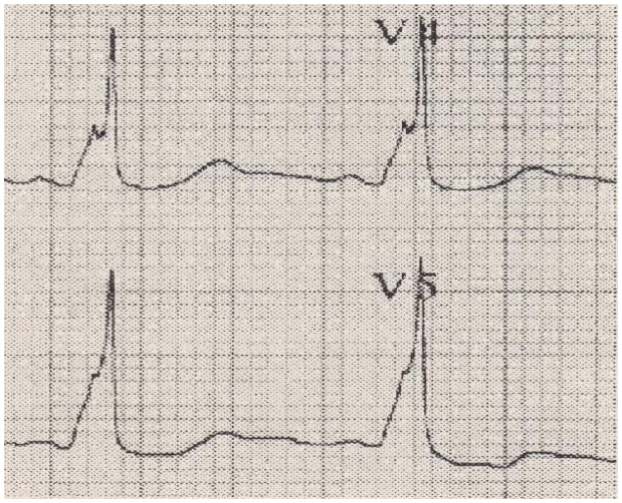
Standard answer.

1. Horizontal depression of the ST segment is recorded in V4-V6, the PQ interval corresponds to the isoline, the distance from the J point is 80 ms.

Three perpendicular lines mean:
- The PQ interval corresponds to the isoline from which the ST segment depression is measured;
- Point J is the beginning of the 80 ms period;
- The end of the 80 ms period during which ST segment depression can transition to ventricular repolarization.

2. This stress test is positive according to ECG criteria. Clinical criteria can be used to evaluate the test if ECG data is not available or is inconclusive.

Task 4.



An 18-year-old boy has been suffering from heart attacks since childhood, which have become more frequent recently.

1. Indicate changes in the ECG.
2. What is this syndrome called?

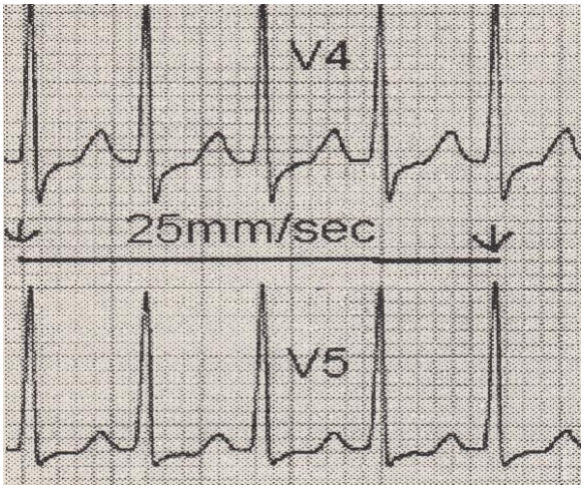
Response standard

1. Pathological changes:

– Shortening the PQ interval (less than 0.12 sec)
– Delta wave on the rising portion of the QRS complex in V1 makes it look like complete RBBB

2. Wolff-Parkinson-White syndrome (WWS), type A. This syndrome is also called premature ventricular excitation syndrome.

Task 5.



A 24-year-old patient developed collapse while playing football.

1. Determine the type of heart rhythm disorder.
2. What measures should be taken for this patient?

Sample answer:

1. SVT:

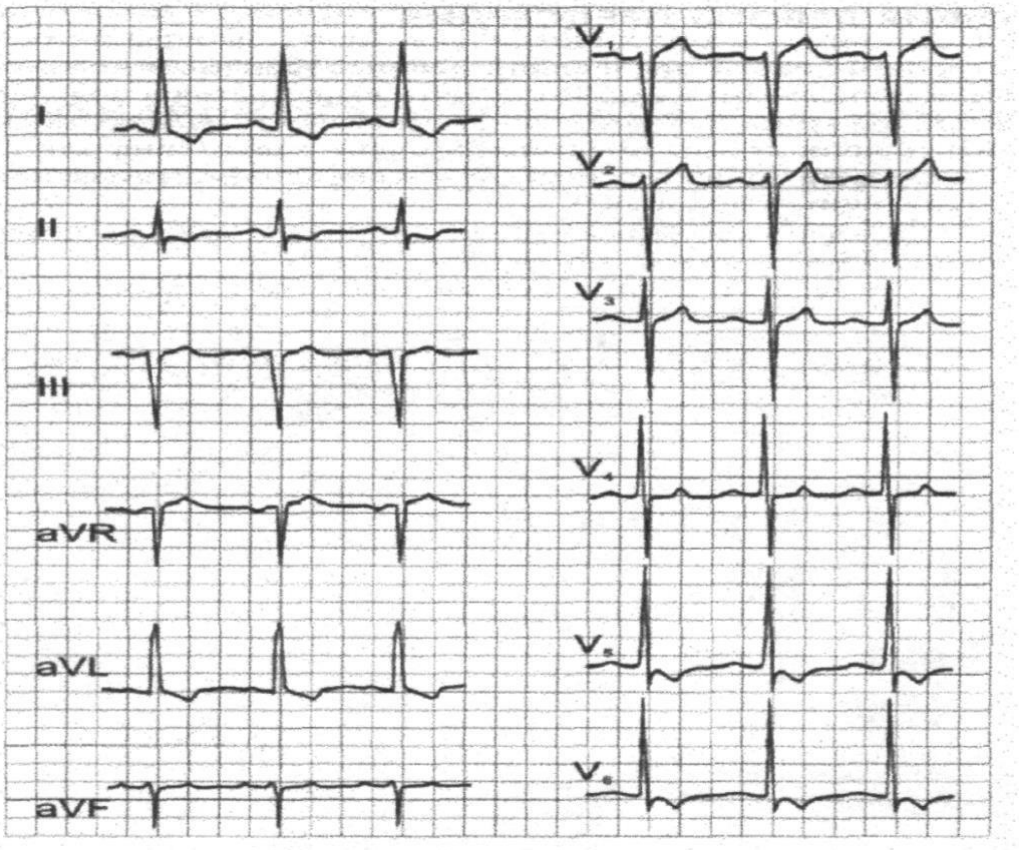
- QRS complexes are narrow and normal in shape;
- The rhythm is correct;
- P waves are not recorded;
- Heart rate is very high (at sinus tachycardia no more than 140 per minute).

2. Therapy must begin with vagal tests. Vagal tests are methods of physical influence aimed at increasing the tone of the vagus nerve, which suppresses the activity of arrhythmia:

- Valsalva maneuver (breath holding with sudden straining);
- Stimulation of the gag reflex by pressing on the root of the tongue;
- Massage of the carotid sinus (sharp and strong pressure in the area of the angle of the lower jaw).

Task 6.

Patient, 55 years old, smoker, is being treated by a gastroenterologist for GERD, does not feel any improvement: pain in the chest persists, blood pressure is 160\90, considers it "working" (does not receive therapy), ECG done:



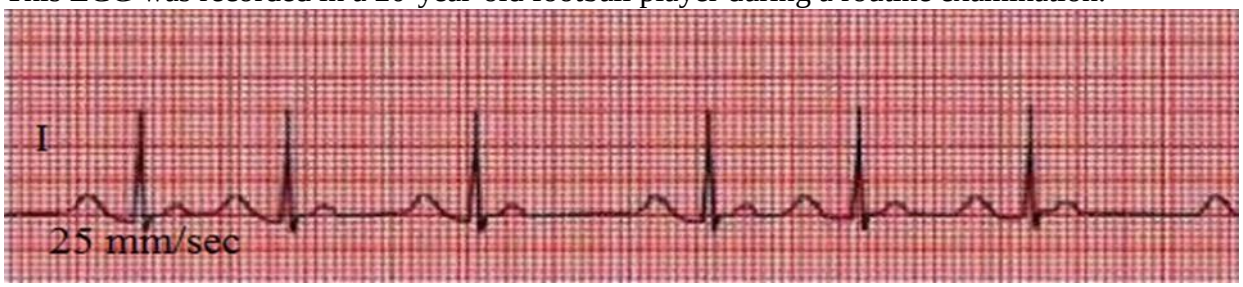
1. Describe ECG
2. What diseases need a differential diagnosis?

Standard answer.

1. Severe LV hypertrophy: levogram, high R waves in leads V5 and V6, depression of the ST segment there.
2. Considering the patient's risk factors: male gender, age, smoking, untreated hypertension, presence of target organ damage, coronary insufficiency should be excluded.

Task 7.

This ECG was recorded in a 20-year-old football player during a routine examination.

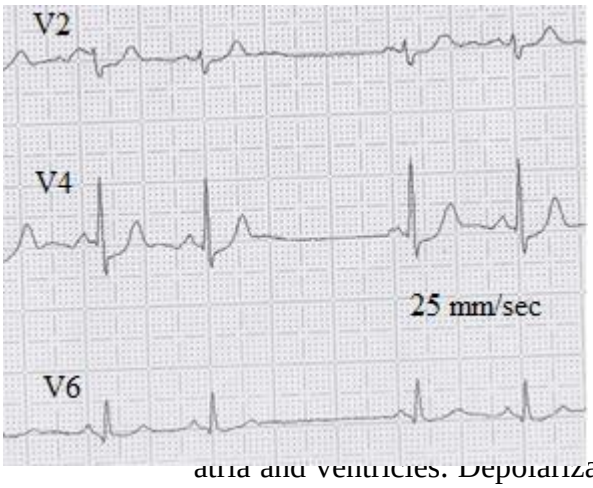


1. What is the cause of irregular heart rhythm?
2. What are the diagnostic criteria for this condition?

Standard answer.

1. The patient was diagnosed with respiratory sinus arrhythmia (heart rate – 64-72 per minute).
2. Diagnostic criteria:

– P wave of normal shape and size
– Heart rate changes cyclically
– Heart rate increases with inhalation and decreases with exhalation
– Same PQ interval
– Normal QRS shape



Task 8.

The patient has been involved in weightlifting for 20 years. During the next examination, the following ECG was recorded.

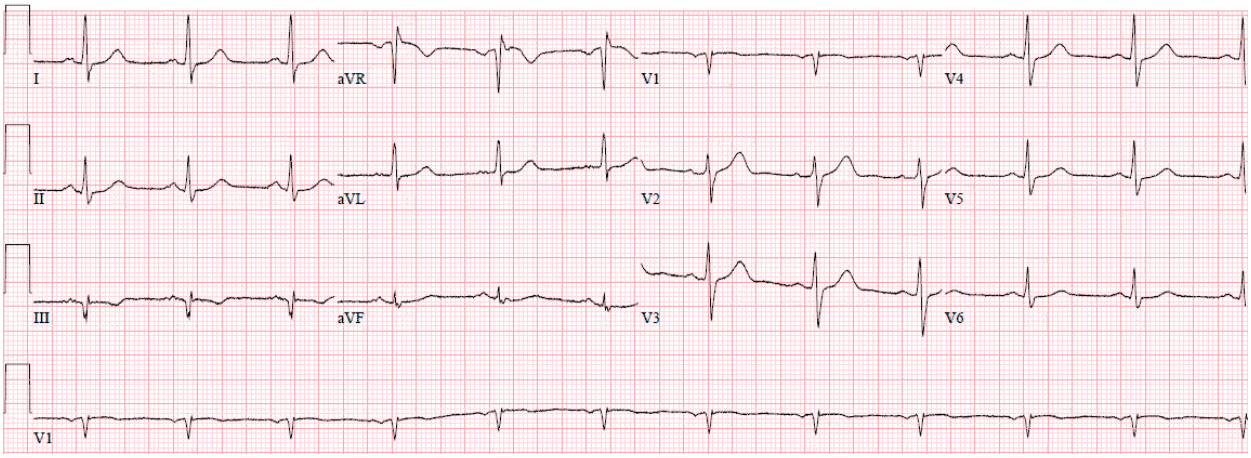
1. What ECG changes were detected?
2. What are the most common reasons for these changes?

Sample answer:

1. Transient SA blockade of the second degree, type II (without Samoilov-Wenckenbach periods) is recorded. After two QRS complexes with a preceding P wave, there is a sinus pause equal to 2 RR distances, there is no ectopic activity atria and ventricles. Depolarization of the SA node occurred, as evidenced by the appearance of the next P wave "strictly on schedule."
2. SA blockade is often physiological in trained patients. The cause of SA blockade can be inflammatory and degenerative diseases of the myocardium.

Task 9.

A 45-year-old woman notes recurring pain in the chest of an unspecified nature, unrelated to physical activity, and her blood pressure periodically increases. She had a hysterectomy at age 35 and did not receive replacement therapy. She is being observed and treated by a therapist for postmenopausal syndrome. ECG done:

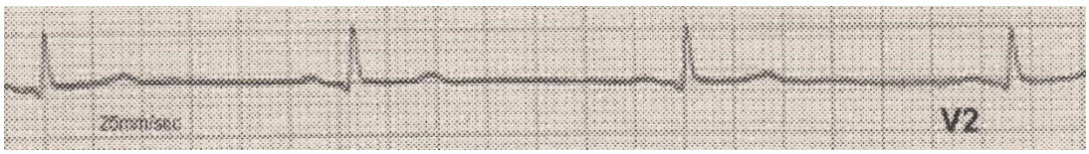


1. Formulate a preliminary diagnosis.
2. Decipher the ECG.

Sample answer:

1. Considering the presence of risk factors in the patient: “early” menopause, hypertension, recurring pain syndrome and lack of effect from the therapy, coronary insufficiency should be excluded. Diagnosis: IHD, angina pectoris FC 2.
2. Sinus rhythmcorrect, the electrical axis is not deviated, disruption of repolarization processes.

Task 10.



A 45-year-old patient complained of dizziness during antihypertensive therapy.

1. Determine your heart rate.
2. What is this type of rhythm called?

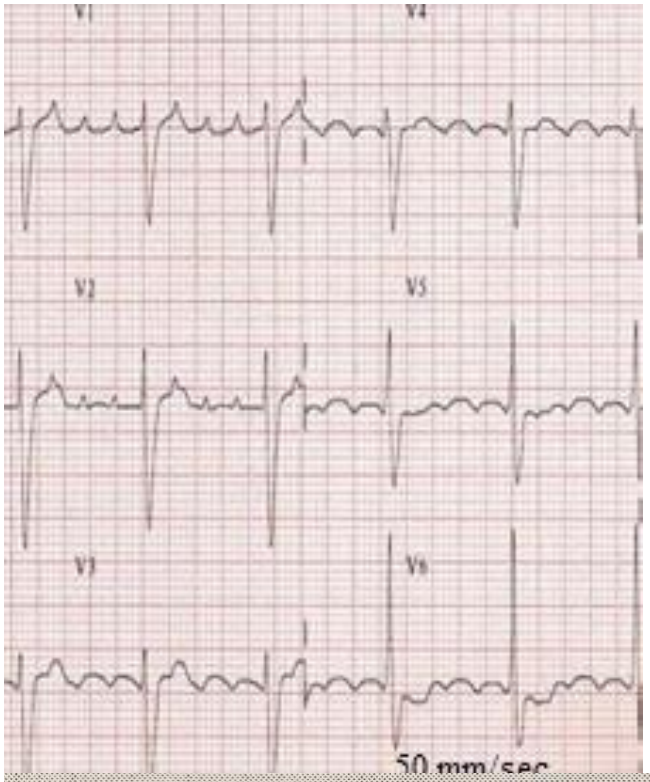
Sample answer:

1. Heart rate 44 per minute. Heart rate calculation: 300/6.8, where 6.8 is the number of large cells between RR
2. Sinus bradycardia:

- The distance between QRS is the same
- There is a P wave before each QRS
- Heart rate is less than 60 per minute.
- Normal QRS shape

Task 11.

A 32-year-old patient was diagnosed with mitral heart disease, mitral orifice stenosis.



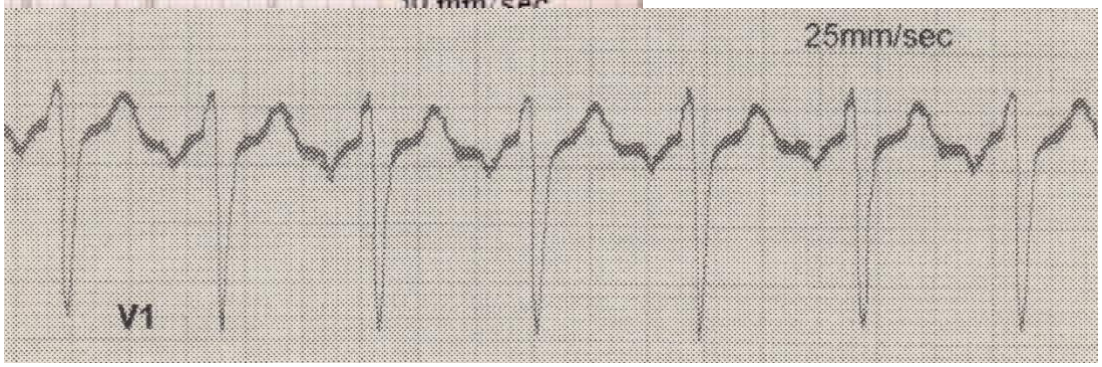
1. Determine your heart rate.
2. Assess the heart rhythm disturbance.

Sample answer:

1. Heart rate 150 per minute.
2. Flutter atria(correct form):

- The distance between QRS is the same
- Morphology of P waves: typical sawtooth configuration in leads II, III, heart rate 250-350 per minute.
- Tachycardianarrow ventricular complexes.

Task 12.



A 27-year-old patient was admitted to the hospital with a diagnosis of acute pneumonia.

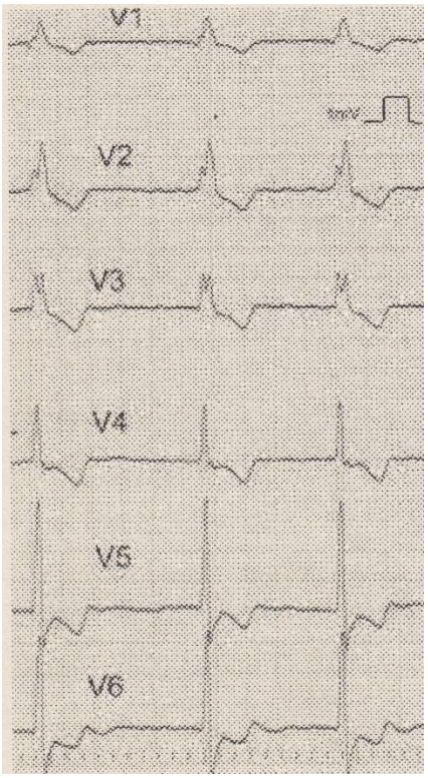
1. Determine your heart rate.
2. Give an assessment of the

heart rhythm. Sample answer:

1. Heart rate 110 per minute. Heart rate calculation: 300/2.8, where 2.8 is the number of large cells between RR
2. Sinus tachycardia:

- The distance between QRS is the same
- There is a P wave before each QRS
- Heart rate is more than 90 per minute.
- QRS normal form Task

13.



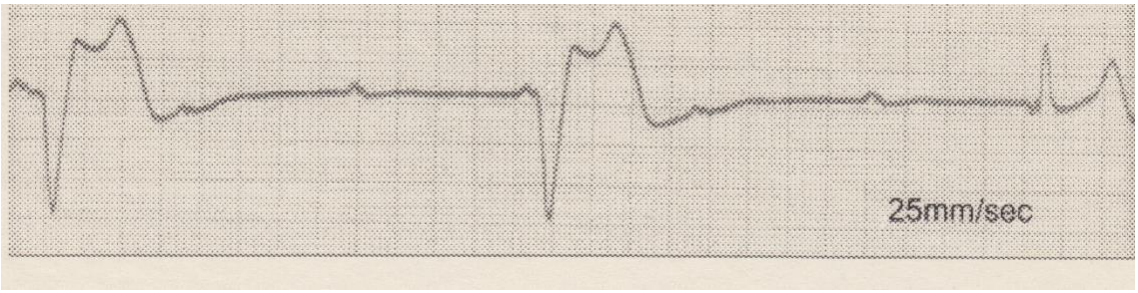
A 75-year-old patient presented with a sharp increase in blood pressure to 220\120 mmHg. severe shortness of breath developed with a respiratory rate of 28 per minute, accompanied by moist wheezing with the discharge of foamy pink sputum.

1. Give a clinical assessment of the patient's condition.
2. Determine the nature of the rhythm and conduction disturbance.

Sample answer:

1. Pulmonary edema due to hypertension.
2. Atrial fibrillation and PNPG block. Atrial fibrillation on this ECG is indicated by different distances between the QRS and the absence of P waves. GI signs of PNPG block are a complex in leads V1, V2 of the RSR type, expansion of the QRS complex > 0.12 sec.

Task 14.



An 82-year-old patient was admittedwith an attack of loss of consciousness in the intensive care unit. An ECG was taken

1. Determine existing conduction disturbances and heart rate.
2. Why is the third QRS complex different from the first two?

Answer standard:

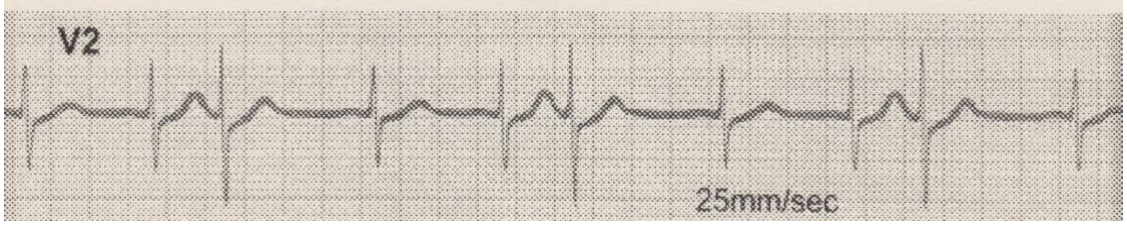
1. AV block of the third degree (complete, transverse):

- Regular P waves are completely dissociated from the QRS complex
- Slow idioventricular rhythm (heart rate – 25 per minute)

2. Sources of ventricular excitation in third degree AV block – AV junction and/or ventricular conduction system:

- The first two QRS complexes formed in the lower ventricles
- Third QRS complex at the AV junction

Task 15.



An ECG was performed on a patient in a state of strong emotional arousal.

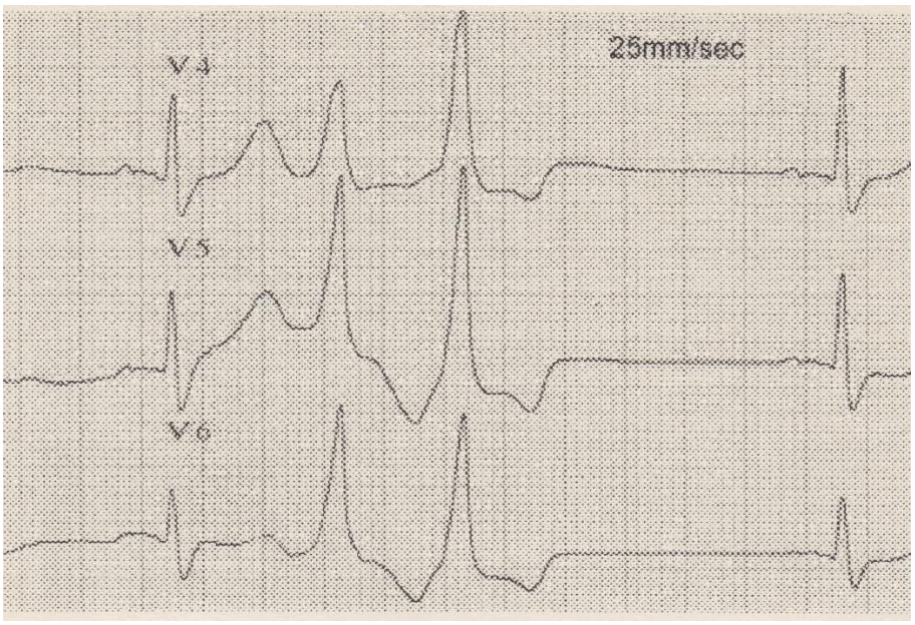
1. Assess heart rhythm disturbances
2. List ECG signs of ventricular and ventricularextrasystoles.

Sample answer:

1. Against the background of sinus rhythm, atrial extrasystole is determined:
2. Signs of supraventricular extrasystoles: premature QRS complexes with a P wave (not visible in this section of the ECG); unchanged QRS complex; the presence of an incomplete compensatory pause. Signs of ventricular extrasystoles: the appearance of premature QRS complexes; the P wave is absent before the extraordinary complex; widened, deformed QRS complex; the presence of a complete compensatory pause.

Task 16.

A 71-year-old patient suffering from coronary artery disease, post-infarction cardiosclerosis, complicated by chronic cardiac NKIIb, FC III (NYHA) with low ejection fraction (EF 25%) and receiving cardiac glycosides, an ECG was taken



QRS

- Absence of a preceding P wave
- Widening of the QRS complex (> 0.12 sec)
- After the second extrasystole there is a compensatory pause.

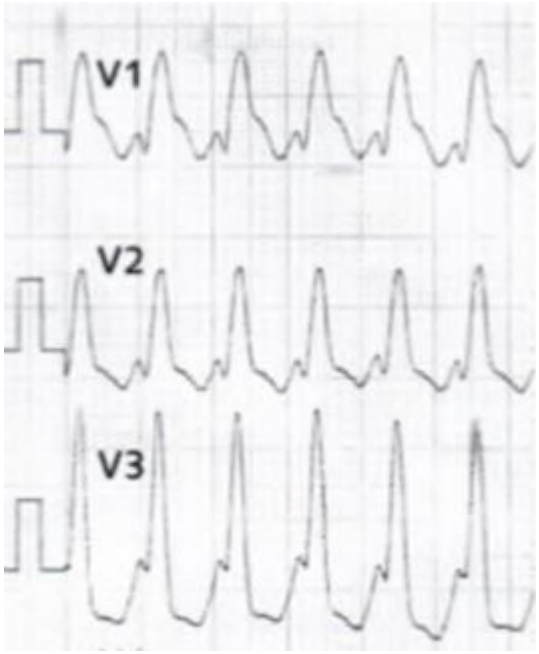
2.To the patient it is necessary to cancel cardiac glycosides

Task 17.

1. limits justify pathological changes on the ECG.
2. Do the changes detected on the ECG require correction? basic therapy. Sample answer:

1. Paired, polytopic ventricular extrasystoles:

- Extraordinaryappearance of the complex



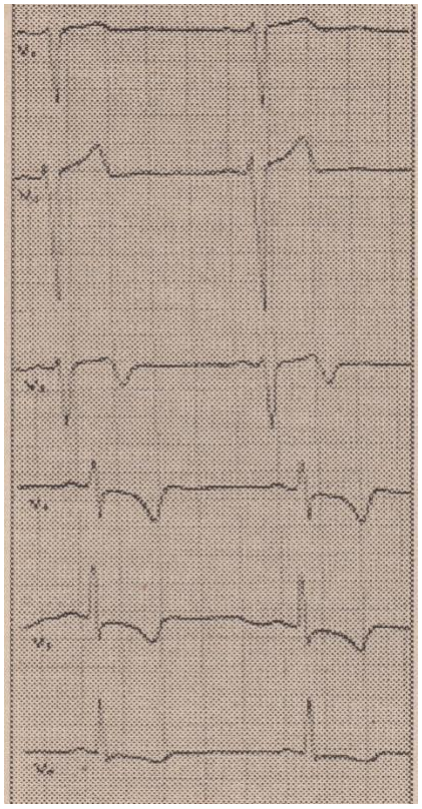
A 16-year-old patient called the emergency room due to complaints of palpitations accompanied by shortness of breath. An ECG was recorded.

1. Determine and justify the nature of the heart rhythm disturbance.
2. Specify the reason for the widening of the QRS complex.

Sample answer:

1. Atrial flutter with 1:1 impulse conduction
   - Prong P sawtoothconfigurations
   - The distance between the ventricular complexes is the same because a constant number of impulses per minute arrives at the ventricles
   - The heart rate and heart rate are equal to 270 per minute
2. Signs of complete RBBB

Task 18.



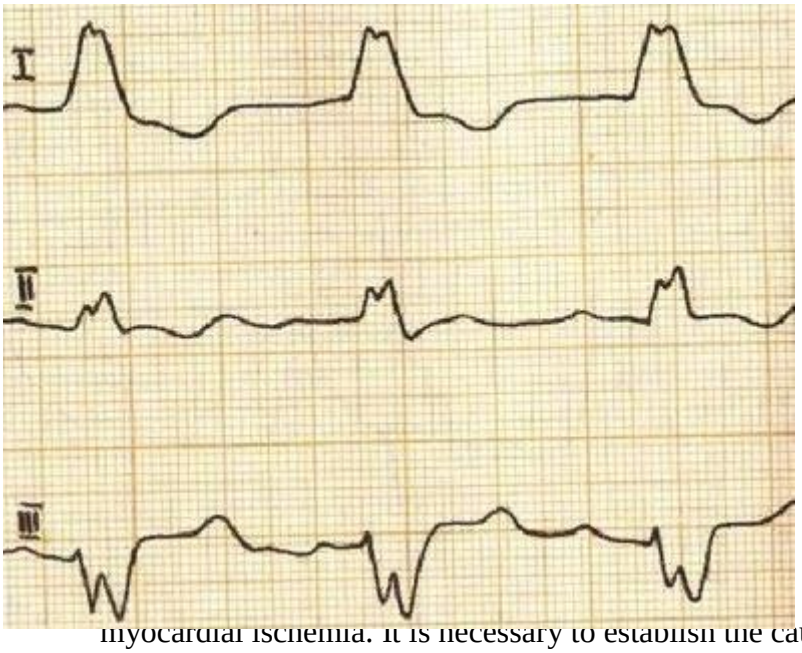
The patient is 64 years old, has been suffering from hypertension for 10 years with maximum blood pressure values up to 180/100 mmHg and the target achieved 130/80 mmHg. At about 3 years old, he began to complain of periodic short-term pain in the heart area that occurs during physical activity (walking 200-300 m). Over the past few days, the pain has become more frequent, it began to occur when walking 50-100 m, and the amount of nitroglycerin consumed per day has increased. An ECG was recorded at the time of pain

1. Indicate the possible cause of the patient's condition.
2. List the changes on the ECG.

Sample answer:

1. IBS. Progressive angina pectoris
2. Signs of myocardial ischemia:
   - ST segment depression in V3-V6
   - Biphasic T wave in V3
   - ST segment asymmetry in V4-V6

Task 19.



This ECG was recorded in a 40-year-old man during a medical examination.

1. Draw a conclusion
2. What is the significance of the findings?

Sample answer:

1. LBBB:

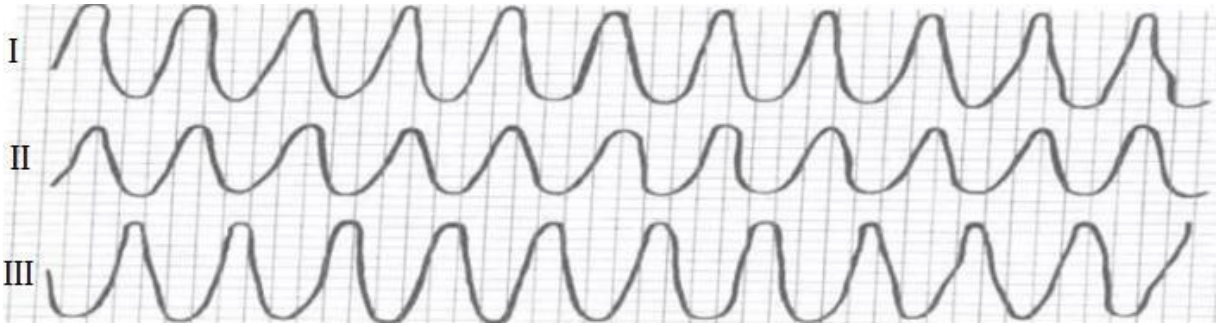
• QRS complex greater than 0.12 sec

• RSR complexes in I

• The ST segment is discordant with respect to the QRS complex

2.LBBB is a pathology. Against this background it is very difficult to diagnose AMI or myocardial ischemia. It is necessary to establish the cause of its occurrence.

Task 20.



A 76-year-old patient was admitted to the hospital emergency department with complaints of chest pain. Suddenly lost consciousness.

1. Make an ECG conclusion.
2. What urgent measures need to be taken. Sample answer:

1. Ventricular flutter:

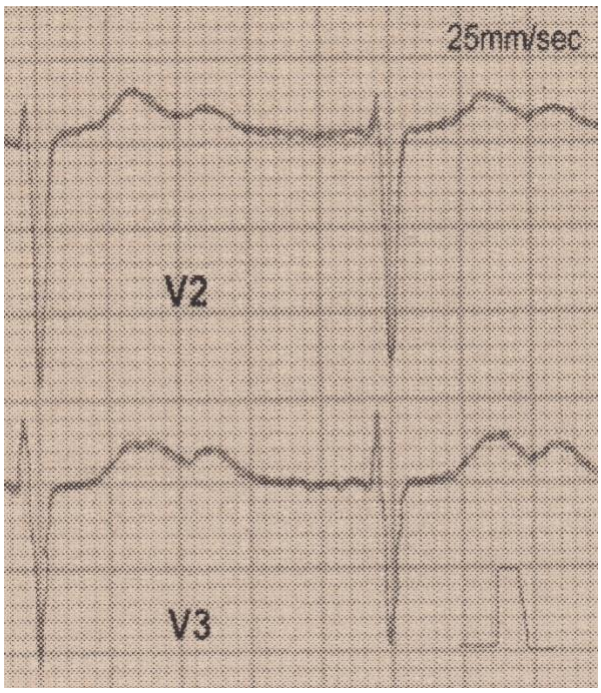
• Monomorphic ventricular complexes without isoline

• Scallop configuration

• Heart rate 240-300 per minute

2. For hemodynamic reasons (circulatory arrest), the patient is indicated for immediate defibrillation. In the future, in most cases, implantation of a cardioverter - defibrillator, support with antiarrhythmic drugs.

Task 21.



Patient 58 is infectious department with severe diarrhea.

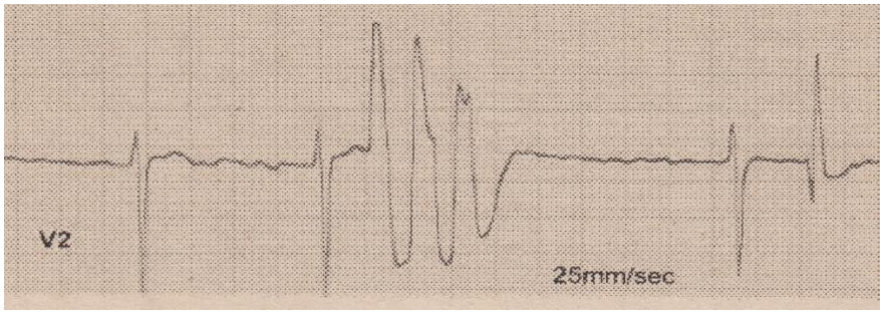
1. Make an ECG conclusion.
2. Indicate the main ECG signs of this pathology.

Sample answer:

1. Severe diarrhea may lead to hypokalemia
2. Signs of hypokalemia:

- Decreased T wave amplitude
- Presence of a U wave

Task 22.



A 71-year-old patient is being treated for CHF. He notes attacks dizziness.

1. Set the type of ventricular arrhythmia
2. Set the type of atrial arrhythmia.

Standard answer:

1. Group polymorphic ventricular extrasystoles:

- The QRS complex is widened and irregularly shaped
- QRS complexes of different sizes

2. Atrial fibrillation:

- There is no P wave before the QRS complex
- Uneven contour

Task 23.

A 53-year-old patient suffering from fibrosing alveolitis notes increased shortness of breath.

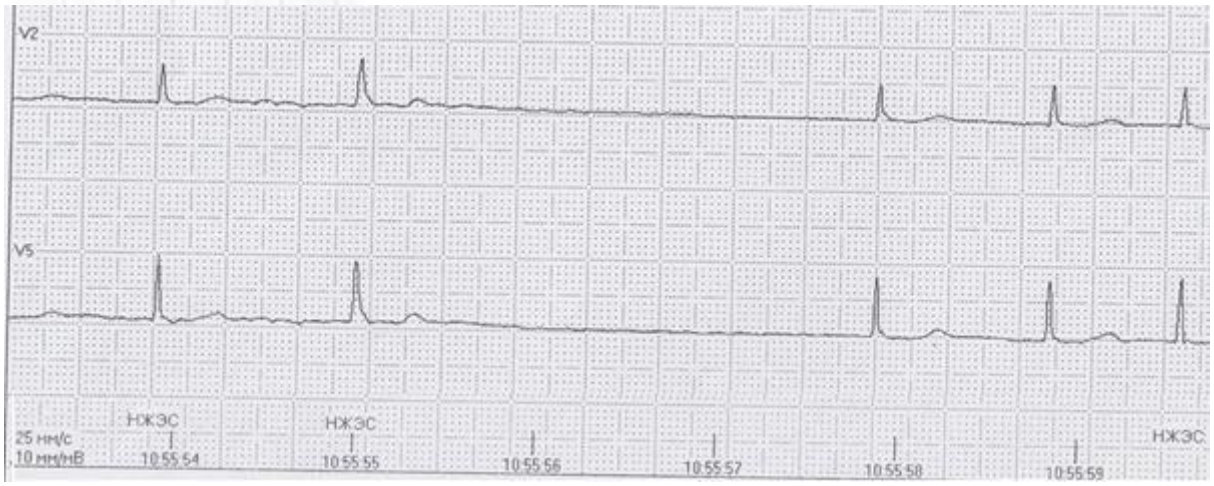
1. What changes are there on the ECG?
2. How are they related to his illness?

Sample answer:

1. Complete RBBB:
- QRS complex > 0.12 sec in all leads
- Violation processes repolarization ventricles (ST segment and T wave changes)
- QRS configuration – the S wave is wider than the R wave in I, V6

2. Overload of the right side of the heart and the appearance of chronic pulmonary heart disease against the background of chronic lung disease

Task 24.



During a HM ECG, a 45-year-old patient received the following ECG.

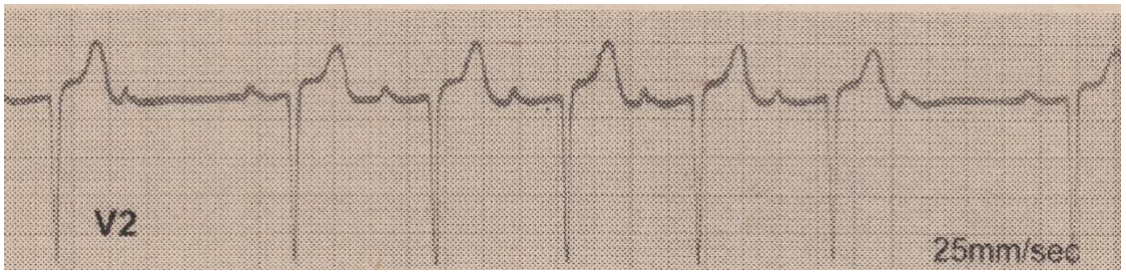
1. Set the type of arrhythmia.
2. What happened after the second reduction.

Sample answer:

1. Atrial fibrillation:
- Irregular frequency, amplitude and wave pattern f
- Uneven contour
- Electrical alternation (differences in QRS complexes in the same lead)

2. After the second QRS complex there is a long ventricular pause with no spontaneous ventricular rhythm

Task 25.



A 52-year-old patient is regularly observed by a cardiologist in the clinic. During the next examination, the following ECG was recorded.

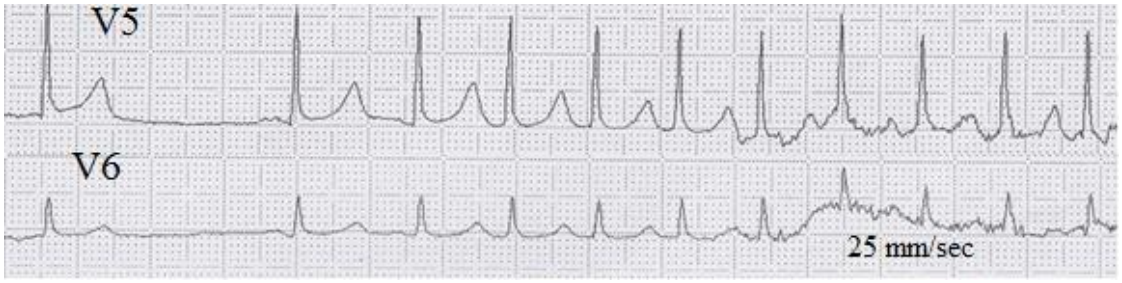
1. What type of conduction disorder is observed?
2. What reasons could lead to this pathology Sample

answer:

1. AV block II stage. (Mobitz I) with Samoilov-Wenckenbach periods:
- P waves present
- Progressive prolongation of the PQ interval
- There is a loss of QRS complexes after the longest PQ interval

2. Previous AMI:
- No R wave in V2
- Deep QS noted in V2

Task 26.



A 14-year-old boy notes the appearance of attacks of palpitations that suddenly begin and end suddenly.

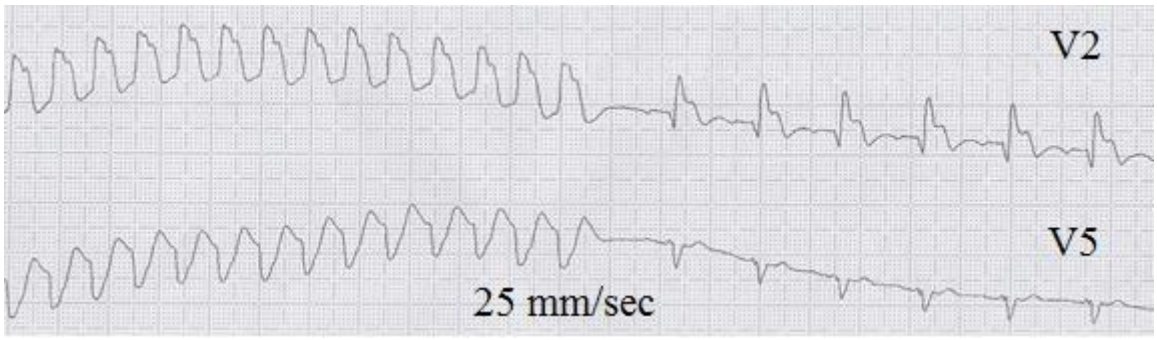
1. Set the type of arrhythmia.
2. Where should therapy begin for this patient? Sample

answer:

1. Paroxysmal supraventricular tachycardia:
- The P wave before the QRS complexes merges with the preceding T wave
- QRS complexes are narrow
- Heart rate – 150 per minute

2. Therapy must begin with vagal tests. Vagal tests are methods of physical influence aimed at increasing the tone of the vagus nerve, which suppresses the activity of arrhythmia:
- Valsalva maneuver (breath holding with sudden straining)
- Stimulation of the gag reflex by pressing on the root of the tongue
- Carotid sinus massage (sharp and strong pressure in the area of the angle of the lower jaw)

Task 27.



A 43-year-old patient who suffered an AMI underwent a HM ECG.

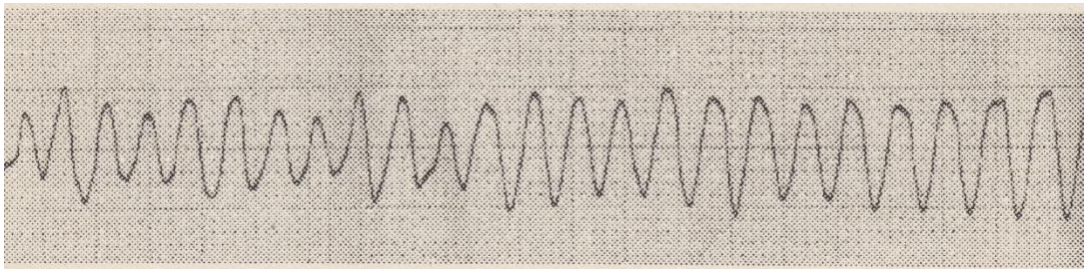
1. Specify the type of arrhythmia.
2. Describe the characteristic signs of arrhythmia.

Sample answer:

1. Paroxysmal VT
2. Signs of VT:

- Heart rate 200 per minute
- QRS more than 0.12 sec, irregular shape
- P wave dissociation

Task 28.



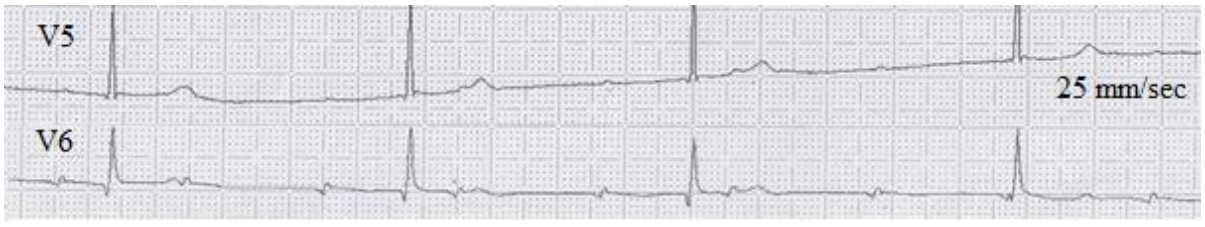
A 50-year-old patient undergoing treatment in the cardiology department suddenly lost consciousness.

1. Set the type of arrhythmia.
2. What urgent measures are indicated. Sample

answer:

1. VT (not ventricular fibrillation). On the ECG, the QRS complexes are clear, but widened and irregular in shape.
2. Bolus administration of lidocaine (preferably in the acute phase of AMI) and emergency cardioversion are indicated.

Task 29.



A 70-year-old patient complains of dizziness and notes periodic semi-fainting conditions.

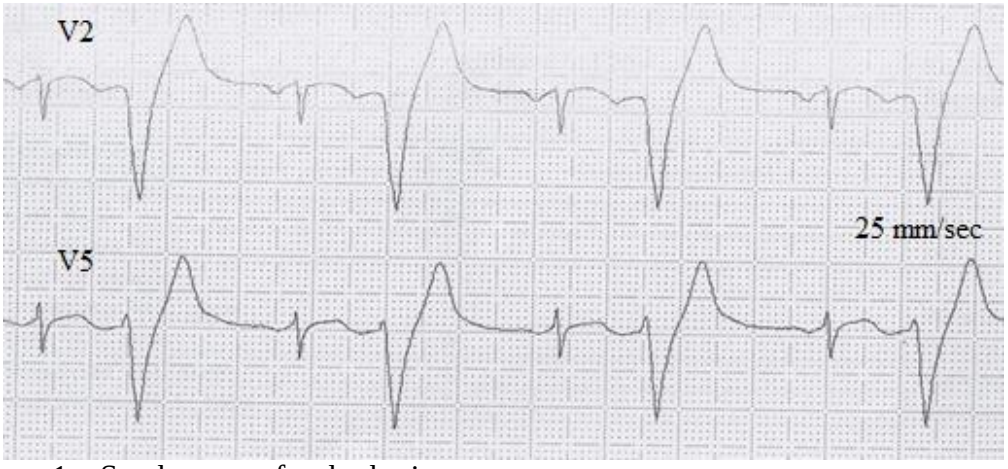
1. What heart rhythm disturbances are observed?
2. Describe the changes on the

ECG. Sample answer:

1. 3rd degree AV block with complete AV dissociation
2. Complete separation of the excitation of the atria and ventricles, not a single P wave is associated with the QRS complex, heart rate 66 per minute, heart rate 35 per minute

Task 30.

During a clinical examination, this ECG was recorded in a 16-year-old boy

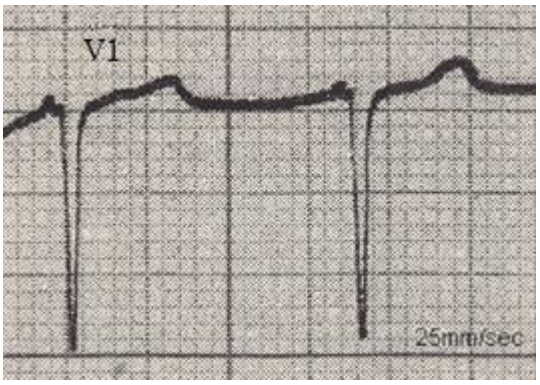


1. Set the type of arrhythmia.
2. Describe the

ECG. Sample answer:

1. Allorhythmia-ventricular bigeminy
2. A premature widened QRS complex without a P wave alternates with a rhythm from the sinus node (the usual configuration and width of the QRS complexes with a preceding P wave

Task 31.



Before employment, an ECG was performed on a 30-year-old patient.

1. Specify the pathological changes in the ECG.
2. What is this condition called?

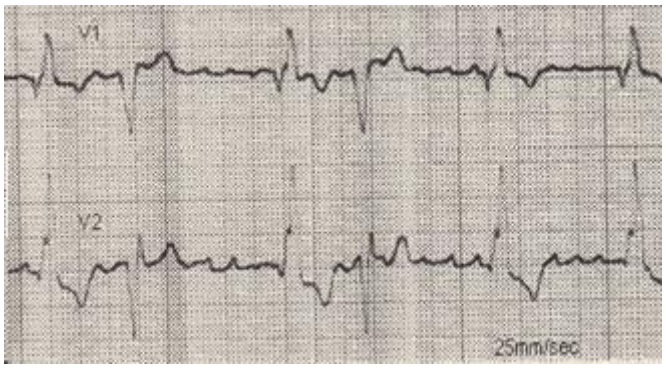
Sample answer:

1. Registered followingpathological changes:

•Short PQ interval, less than 0.12 sec
•Narrow QRS complexes
•Absence of delta wave on QRS

2. Onbackground of repeated paroxysms of SVT, this condition is known as Lown-Ganong-Levine syndrome

Task 32.



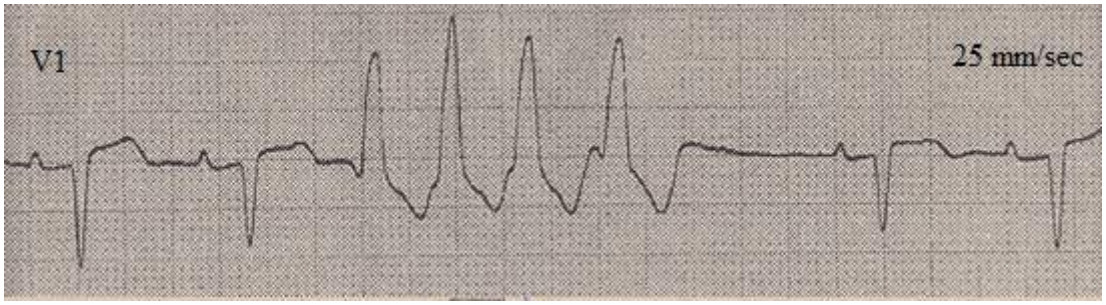
A 75-year-old patient suffers from coronary artery disease. Angina pectoris FC II-III CHF II A-B. The patient notes interruptions in the functioning of the heart.

1. Determine the type of arrhythmia.
2. Why are two types of QRS complexes recorded?

Sample answer:

1. AFL and intermittent complete LBBB and RBBB. Atrial flutter waves clearly recorded at a frequency of about 300 per minute. However, the response contractions of the ventricles are irregular
2. Variable bundle branch block is noted.

Task 33.



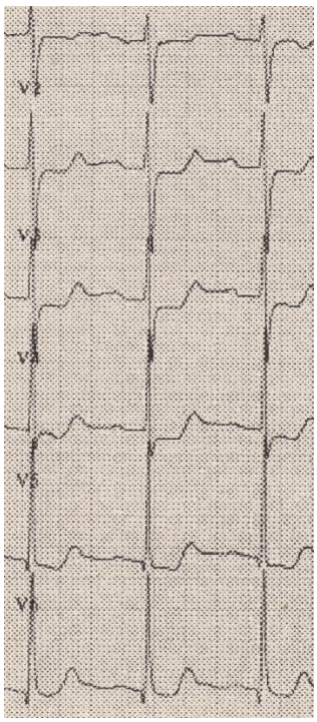
The patient is in the intensive care unit due to severe chest pain. He is undergoing thrombolytic therapy.

1. What causes chest pain?
2. Set the type of arrhythmia.

Sample answer:

1. In a patient with AMI of the anterior wall of the LV (QS wave in V1)
2. Against the background of sinus rhythm, a short burst of isolated, acceleratedidioventricular rhythm

Task 34.



A 63-year-old patient is being treated in the gastroenterology department. During the endoscopic procedure, she complained of discomfort in the heart area.

1. In which leads are pathological changes recorded?

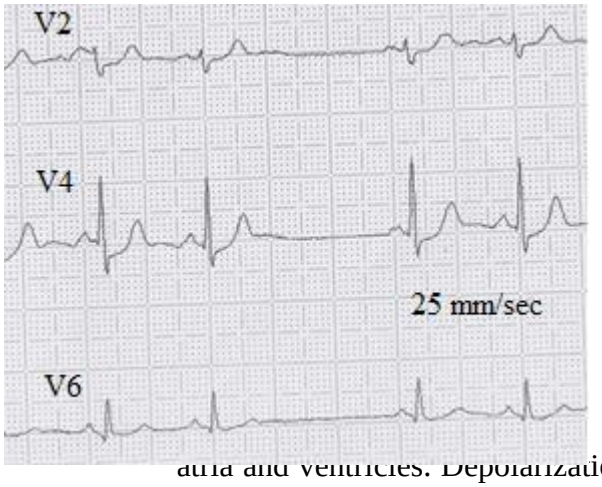
2. Draw a conclusion.

Tactics for further management

Sample answer:

1. In leads V3, V4
2. There is horizontal depression of the ST segment of about 2 mm, which indicates myocardial ischemia

Task 35.



The patient has been involved in weightlifting for 20 years. During the next examination, the following ECG was recorded.

1. What ECG changes were detected?
2. The most common reasons for these changes.

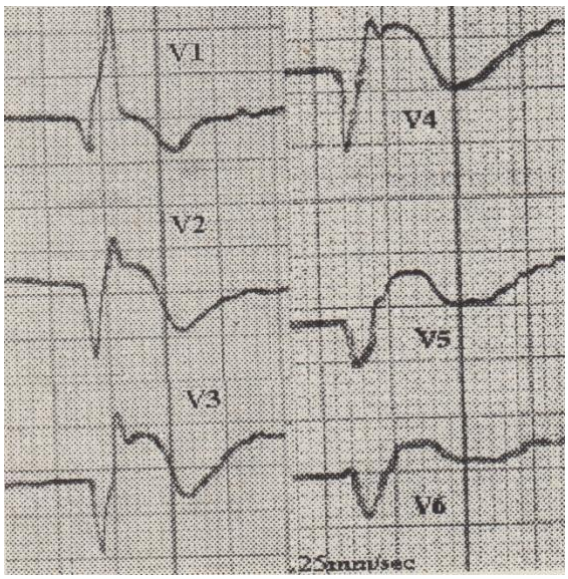
Sample answer:

1. Transient SA blockade of the second degree, type II (without Samoilov-Wenckenbach periods) is recorded. After two QRS complexes with a preceding P wave, there is a sinus pause equal to 2 RR distances, there is no ectopic activity

atria and ventricles. Depolarization of the SA node occurred, as evidenced by the appearance of the next P wave "strictly on schedule"

2. SA blockade is often physiological in trained patients. The cause of SA blockade can be inflammatory and degenerative diseases of the myocardium.

Task 36.



A 69-year-old patient is in the hospital due to severe cardialgia.

1. Determine the type of conduction disorder.
2. What are the ECG signs? explaincardialgia.

Sample answer:

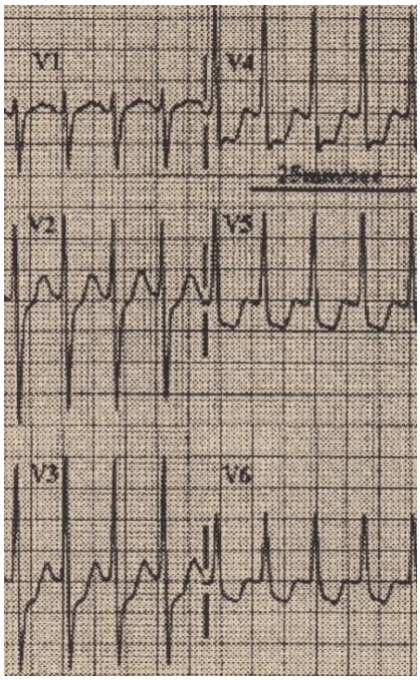
1. Complete RBBB:

- ComplexQRSexpanded everyoneleads (more than 0.12 seconds)
- rSR is recorded in V1, the ST segment is located discordantly

2. ECG signs explaining cardialgia:

- Deep QS tooth in V2-V6
- ST segment elevation in V2-V6

Task 37.



The patient complains of sudden palpitations and chest pain.

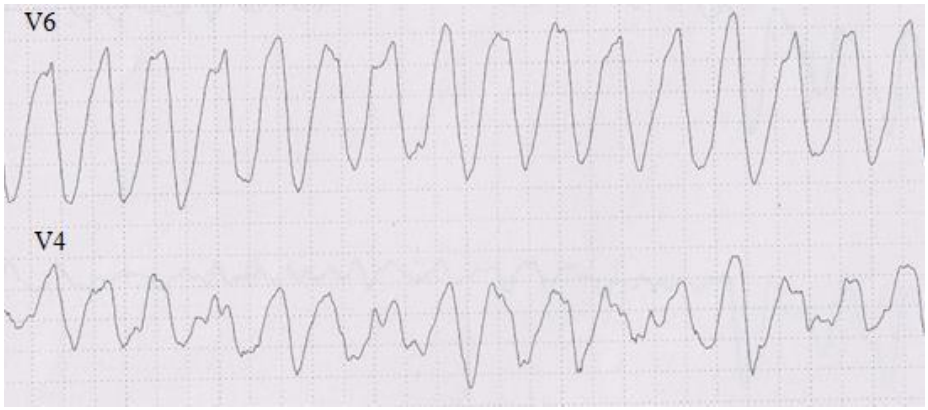
1. Determine your heart rate.
2. Determine the type of heart rhythm disorder.

Sample answer:

1. Heart rate is about 190 per minute (300/1.6, where 1.6 is the number of large cells between RR)

2. SVT caused by the presence of a retrograde pathway of impulses. After T waves, late P waves are recorded

Task 38.

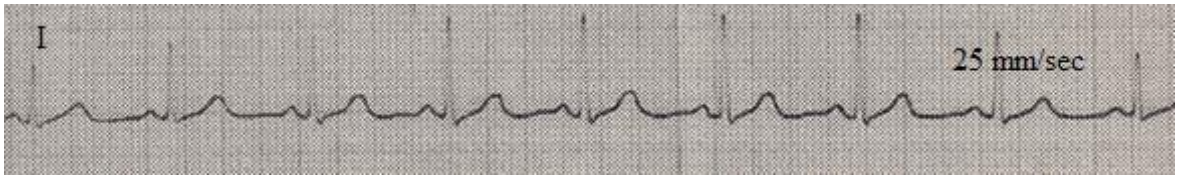


A 59-year-old patient complains of attacks of dizziness.

1. Set the type of arrhythmia.
2. What is the etiology of this arrhythmia.

Sample answer:
1. Tachycardia “pirouette” (Torsade de pointes) / This pathology is similar to VT, but has a high heart rate and is accompanied by a sinusoidal shape of the complexes. The episode of arrhythmia stops spontaneously, after a maximum of 10 seconds.
2. Causes:
- Congenital or acquired long QT syndrome
- Taking antiarrhythmic drugs (quinidine, sotalol, amiodarone)
- Electrolyte imbalance Task

39.



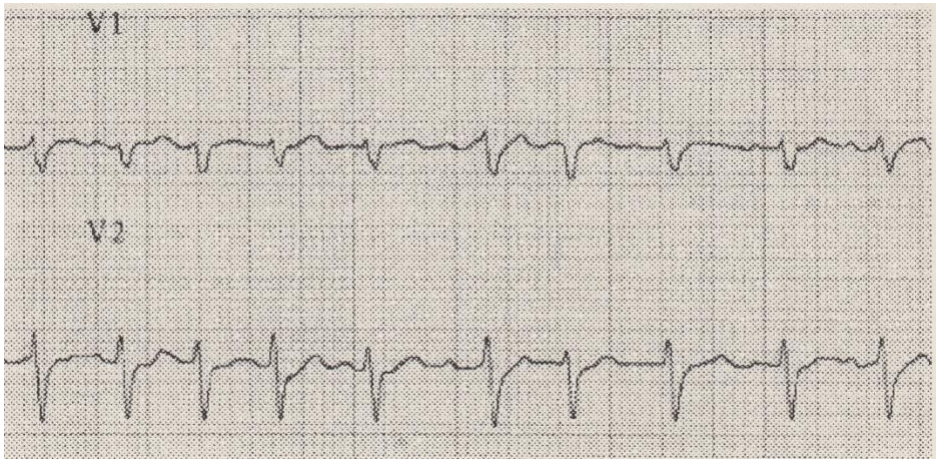
A 42-year-old patient is in the intensive care unit with a traumatic brain injury. He underwent a routine ECG.

1. Indicate changes in the ECG.
2. Suggest the reason for these changes.

Sample answer:

1. The ECG recorded sinus rhythm (P wave precedes each QRS complex) with a heart rate of 75 per minute (300/4, where 4 is the number of large cells between RRs). However, the amplitude of the QRS complexes changes sinusoidally
2. Such changes are most often caused by artificial ventilation.

Task 40.



A 30-year-old patient noticed that she had an irregular pulse.

1. What is the patient's rhythm?
2. Indicate the most likely causes of irregular pulse.

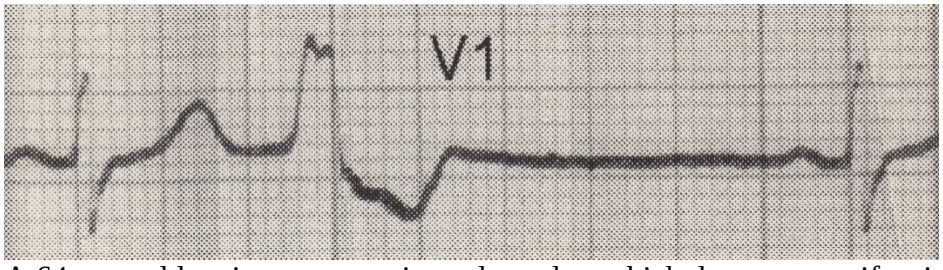
Sample answer:

1. Frequent supraventricular extrasystole:

- All QRS complexes are narrow and have the same shape
- P waves precede the QRS complexes, but they are of different shapes
- There is a change in the duration of the PQ interval

2. This arrhythmia most often has non-cardiac causes:
    - Stress influences
    - Thyrotoxicosis

Task 41.



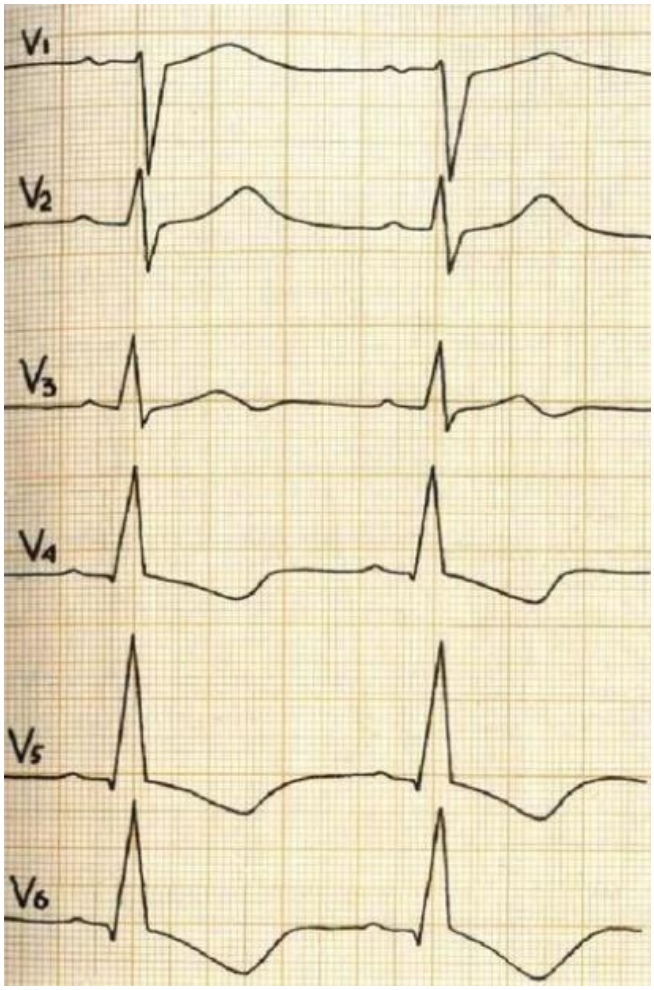
A 64-year-old patient notes an irregular pulse, which does not manifest itself clinically.

1. What is the name of the recorded change on the ECG?
2. Indicate the characteristic features of these changes.

Sample answer:

1. Ventricular extrasystole was recorded on the ECG
2. ECG signs:

- The QRS complex is widened (more than 0.12), deformed, discordant
- There is no P wave because early ventricular depolarization occurred
- The QRS complex is followed by a complete compensatory pause



Task 42. A 71-year-old patient lost hisconsciousness. During examination A rough systolic murmur is heard, most pronounced to the right of the sternum.

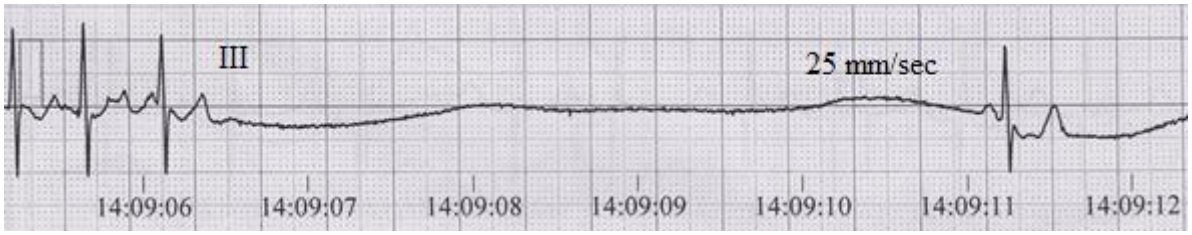
1. What changes are recorded on the ECG.
2. Indicate the characteristic ECG signs of this pathology.

Sample answer:

1. LVH
2. ECG signs:

- High R in V5-V6, more than in V4
- Deep S wave in V1
- Expansion of the QRS complex to 0.11 sec
- downward-sloping depression ST segment in V5, V6, which indicates systolic overload

Task 43.



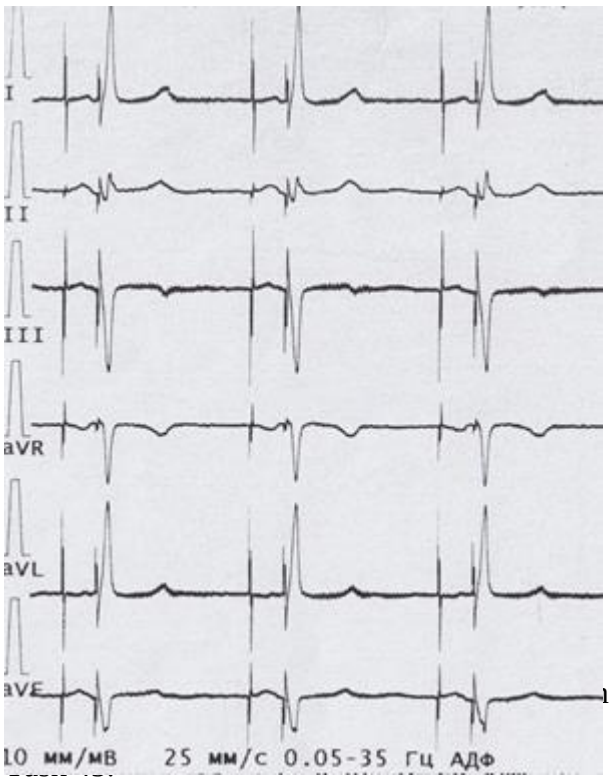
A 50-year-old patient is being treated in the endocrinology department. Recently, the patient has been experiencing semi-fainting conditions. The patient underwent HM.

1. What changes were detected on the ECG.
2. How long is the pause? Sample

answer:

1. AF with sinus pause
2. Pause duration is more than 5 seconds (there is no activity of the atria and ventricles)

Task 44.



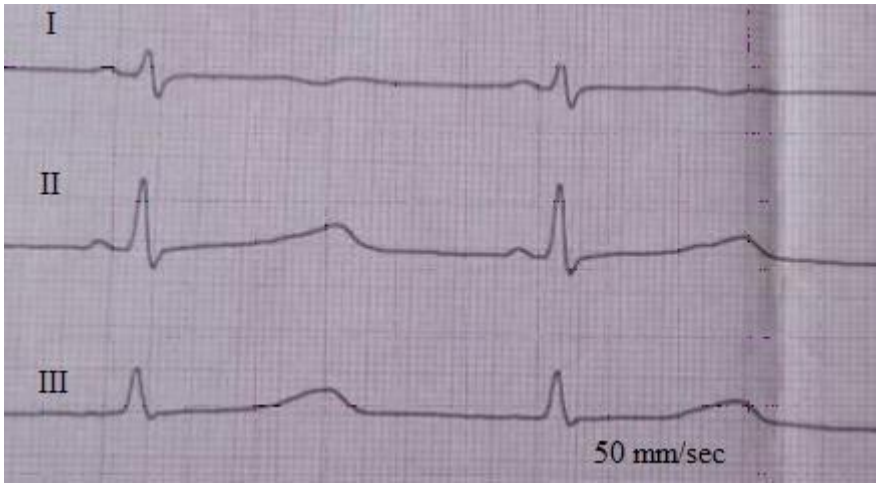
A 70-year-old patient suffered transmural AMI in the anteroseptal region with progression to the lateral wall, complicated by cardiac arrhythmia. Surgical treatment of this complication was performed.

1. What features are there on the ECG?
2. Which patients are indicated for this treatment? Sample answer:

1. ECG Features:

- Pacing spikes are visible before each P wave and before each QRS complex
- sick two-chamberpacing (atrial pacing followed by ventricular pacing)

2. Heart function is more efficient with sequential depolarization of the atria and ventricles than with isolated cardiac stimulation. It is performed on patients with severe, uscle



A 48-year-old patient is receiving treatment with antiarrhythmic drugs for frequent ventricular extrasystole.

1. What changes appeared on the ECG.
2. What reasons can lead to the appearance of this syndrome.

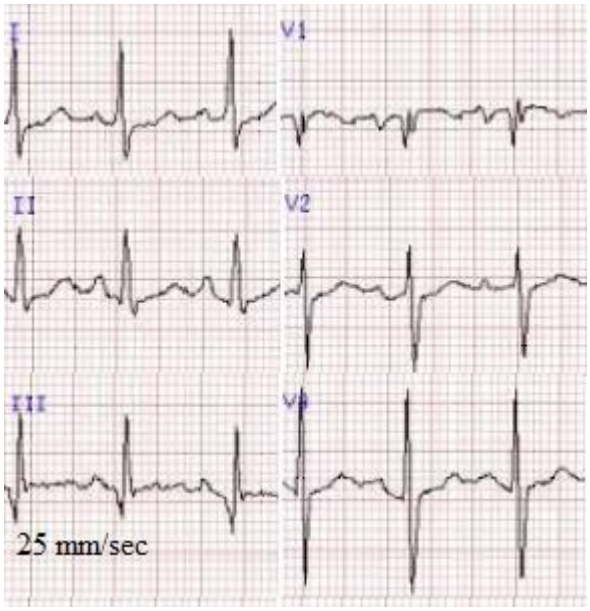
Sample answer:

1. Long QT syndrome:

• Sinus bradycardia 54 per minute (600/11, where 11 is the number of large cells between RR)
• QT prolongation
• No changes in the QRS complex

2. This syndrome can be congenital or acquired, often as a result of taking antiarrhythmic drugs, especially when they are combined

Task 46.



A 59-year-old patient in the trauma department suddenly developed severe shortness of breath and chest pain.

1. What changes on the ECG
2. Preliminary diagnosis.

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Sample answer:

1. ECG changes:
- Pointed P wave in lead II
- Deep S wave in lead I
- Deep Q wave in lead III
- rSr complex in V1 (incomplete RBBB)

2. Thromboembolismpulmonary arteries,most likely medium and small branches

Task 47.

List the main indicators characterizing the global systoliclеft ventricular function according to ultrasound examination.

Standard answer: LV ejection fraction, endocardial shortening fraction, stroke volume, minute blood volume.

Task 48.

Indicate the main methods for calculating LV ejection fraction based on echocardiography, their advantages and disadvantages, and differentiated use in patients.

Sample answer:

The main methods for calculating LVEF are in M-mode using the Teicholz method and in B-mode, the disk method. The advantages of the M-mode are simplicity and speed of execution; the disadvantages are that the geometry and disturbances of local contractility of the LV are not taken into account; a clear perpendicular between the ultrasound beam and the left ventricle must be maintained. The advantages of the disc method are that the contractility of all segments of the LV is taken into account as fully as possible, and violations of geometry and post-infarction remodeling are taken into account. The disadvantages of the method include the unreliability of the results in the absence of clear visualization of the endocardium-blood boundary and the duration of implementation.

Task 49.

List the main variants of disturbance of local contractility of the left ventricle. Sample answer: Normokinesis,hypokinesis, akinesis, dyskinesis, aneurysm (“bulging” of the affected LV wall at the time of systole from the LV cavity.

Task 50.

Based on what parameters is the size of the left ventricle assessed?

Standard answer: based on a comprehensive assessment of end-diastolic size, end-diastolic volume of the left ventricle, as well as indexed LV ICD and LV ICD, calculated as the ratio of absolute values to body surface area.

Task 51.

Define LV hypertrophy. What options for LV remodeling with hypertrophy of its walls do you know?
Sample answer: LV hypertrophy is an increase in the LV myocardial mass index and thickening of its walls. Hypertrophy can be eccentric and concentric. Concentric remodeling of the LV is also distinguished.

Task 52.
What indicator determines the nature of LV remodeling. How is it calculated? Standard answer: Relative LV wall thickness (RLT), which is calculated as the ratio of the sum of the thickness of the posterior wall and interventricular septum to the end-diastolic size of the LV (RTD = (LVAD + LVAD)/LVED).

Task 53.
What indicators characterize the size of the left atrium. What adverse outcomes are associated with LA enlargement.
Sample answer:
LA assessment is based on the anteroposterior size, LA volume, and LA volume index. LA dilatation is associated with the risk of developing atrial fibrillation, stroke and TIA, an increased risk of overall mortality after MI, an increased risk of death and hospitalization in patients with dilated cardiomyopathy, and is a marker of the severity and duration of LV diastolic dysfunction and the degree of increase in LA pressure.

Task 54.
What pathological conditions can lead to dilatation of the right ventricle. Sample answer: RV dilatation in adults is caused by a sharp increase in afterload on the RV due to pulmonary embolism and acute left ventricular failure. Dilatation of the pancreas can be an echographic sign of pancreatic infarction, as well as pancreatic dysplasia.

Task 55.
What pathological conditions can lead to right ventricular hypertrophy. Sample answer: With a chronic increase in afterload (chronic cor pulmonale, heart defects with pulmonary circle overload (mitral stenosis, mitral regurgitation), severe CHF), predominantly RV hypertrophy develops

Task 56.
Based on what parameters is the pressure in the pulmonary artery calculated? Sample answer: Systolic pressure in the pulmonary artery (SPAP) is calculated at the basemeasurements: speed tricuspid regurgitation using constant-wave Doppler studies,
measuring the size of the right atrium, measuring the diameter of the IVC, assessing its collapse depending on the phase of the respiratory cycle.

Task 57.
Which main vessels are subject to mandatory examination during echocardiography?
Sample answer: Aorta, inferior vena cava, pulmonary artery.

Task 58.
On which valve is physiological regurgitation not allowed? Sample answer: on the aortic valve.

Task 59.
What pathological conditions can be accompanied by aortic enlargement?

Sample answer: long-term aortic regurgitation, aneurysm of the sinuses of Valsalva, bicuspid aortic valve, Marfan syndrome, dissecting aortic aneurysm. long-term arterial hypertension (more dilation of the ascending aorta than of its root).

Task 60.
Define LV diastolic function. Sample answer:
Diastolic function of the heart can be characterized as the ability of the ventricles during diastole to accommodate the required volume of blood (end-diastolic volume) entering them from the atria.

Task 61.
What Doppler techniques are used to assess LV diastolic function?
Sample answer: using pulse-wave, tissue pulse-wave
Doppler study.

Task 62.
List the main variants of LV diastolic dysfunction.
Sample answer: Type I– impaired relaxation, type II – pseudonormal type of filling, type III – restrictive type of filling, IV SHOCK – irreversible restriction.

Task 63.
List the absolute indications for therapeutic TEE.
Sample answer: The absolute indications for the use of TEE are arrhythmias, during the occurrence of which, without the use of appropriate therapeutic measures, patients may develop life-threatening complications or sudden death. In the absence of the ability to effectively perform temporary endocardial pacemaker, the following are considered absolute indications for the use of therapeutic TEE:
– heart failure;
– acute AV block with Morgagni–Adams–Stokes attacks;
– severe bradycardia, accompanied by signs of circulatory failure;
– severe bradycardia that occurred during or after surgical interventions on the heart, as well as on other organs;
– Brady- or tachycardic heart rhythm disturbances that are not eliminated by other therapeutic measures.

Task 64.
List the relative indications for therapeutic TEE. Sample answer:
Relative indications for therapeutic TEE are clinical situations during which therapeutic measures can be applied routinely, for example, termination of reentrant supraventricular tachycardia.

Task 65.
List the contraindications for TEE.
Standard answer. Contraindications to TEE are diseases of the esophagus (diverticulosis, tumors, structures, achalasia of the esophagus, esophagitis in the acute stage, varicose veins of the esophagus) and nasopharynx, the inability to insert the electrode into the esophagus (severe nausea, vomiting, etc.), acute period of myocardial infarction

(if it is possible to use a temporary endocardial pacemaker), 2-3 degree AV block; heart defects with a pronounced disturbance of intracardiac (according to EchoCG) and central hemodynamics (clinical picture of heart failure above stage 2 or above functional class 2); cardiac aneurysm; acute stage of any disease (except for paroxysm of supraventricular tachycardia and atrial flutter); arterial hypertension above 220/120 mmHg. out of crisis; heart tumors (myxomas); pericarditis.

Task 66.
List the possible complications of TEE.
Standard answer. Possible complications include: insertion of an esophageal electrode into the trachea instead of the esophagus; a burning sensation in the area of the esophagus, behind the sternum, the appearance of these sensations is mandatory when stimulation is turned on, and their absence in the patient should be associated with a malfunction of the equipment, the degree of sensation the patient experiences is usually low or easily tolerated; sensation of pain in the back associated with contraction of the spinal muscles; when the stimulator is turned on, effective stimulation of the diaphragm occurs, which is accompanied by its rhythmic contractions with the frequency that the stimulator gives at a given time, the patient may experience frequent hiccups or shortness of breath, and the doctor observes frequent contractions of the diaphragm; getting the electrode stuck in the nose is the most unpleasant complication of TEES, as it injures the patient and leads to loss of the electrode.

Task 67.
Name the main modes of stimulation when performing TEE.
Sample answer: the main modes of stimulation include normorhythmic, increasing, frequent, ultra-frequent and programmed stimulation modes.

Task 68.
Name the main indicators characterizing the function of automatism of the sinus node. Sample answer:
VVFSAU (time of restoration of sinoatrial node function) and CVVFSAU (corrected VVFSAU). VVFSAU is measured as the interval from the last artifact of the electrical impulse of the stimulator to the beginning of the P wave caused by the impulse from the ACAS. CVVFSAU is defined as the difference between the maximum duration of the post-stimulation pause and the average duration of 10 initial cardiac cycles.

Task 69.
Name the main manifestations of sinus node dysfunction. Sample answer:
Autonomic dysfunction: These disorders are secondary in nature and occur in young patients, athletes, and may be a consequence of increased intracranial pressure and other reasons. VDSU is, as a rule, benign in nature and in the absence of a pronounced clinical picture associated with bradycardia, it mainly requires dynamic observation with periodic repeated examinations by a specialist, TEES and 24-hour Holter monitoring. Sick sinus syndrome (SSNS) is organic in nature. In this category of patients, sick sinus syndrome occurs due to damage to the coronary arteries, in particular the artery directly supplying the sinus node, or myocardial damage of an ischemic or inflammatory nature and are a consequence of coronary artery disease, myocarditis or cardiopathy.

Task 70.

How is the differential diagnosis of organic and autonomic dysfunction of the sinus node carried out?
Sample answer:
"Drug denervation of the heart" is performed through the administration of obsidan and atropine sulfate. The maximum sinus rhythm after atropine administration is considered true sinus node rhythm (TSR). The proper frequency of IRSAU is determined
==118.1 – (0.57 x patient's age). The IRSAU obtained during the study is considered normal if it varies within DIRSAU + 14% in patients under the age of 45 years and within DIRSAU + 18% in patients over 45 years of age. A normal IRSAU makes it possible to assume that the patient suffers from VDSAU (a functional decrease in the activity of the SAU or vegetative dystonia), and vice versa, if the IRSAU is less than expected, an organic lesion of the SAU (SSAD) is diagnosed.

Task 71.
Define coronary angiography and list the main objectives of the study.
Sample answer:
Coronary angiography is an invasive diagnostic study performed in a cath lab by injecting a contrast agent into the ostia of the coronary arteries under x-ray guidance. Goals of CAG: assessment of the coronary bed; determining treatment tactics and prognosis in patients with symptoms of coronary heart disease (CHD); studying the dynamics of coronary atherosclerosis.

Task 72.
List the indications for routine coronary angiography. Sample
answer:
The following need to conduct a planned coronary angiography:
- Patients who have had a myocardial infarction
-Patients with suspected ischemic heart disease, whose work is related to the safety of others (airplane pilot, electric locomotive driver, etc.).
- Patients after successful cardiopulmonary resuscitation when there is reason to suspect CAD.
- Men, candidates for surgical treatment of heart valves or surgical (including endovascular) treatment for cardiac arrhythmias aged over 40 years.
- Women, candidates for surgical treatment of heart valves or surgical (including endovascular) treatment for cardiac arrhythmias aged over 45 years.
- Patients diagnosed with angina pectoris
- Patients with atherosclerotiClesions of the brachycephalic arteries according to ultrasonography.

Task 73.
List the advantages and risks of transradial access when performing coronary angiography.
Sample answer:
Advantages: less incidence of bleeding from the access site; the possibility of more aggressive anticoagulant therapy; early activation and discharge; patient comfort. Risks: longer procedure; larger volume of contrast agent; longer R-scopy time; more time the door is a balloon with STEMI.

Task 74.
List the indications for cardiac MRI:
Sample answer:
Indications for cardiac MRI are:
-1) Clarification of Echo-CG data (quantitative assessment of myocardial mass, ventricular volumes and contractile function);

2) Diseases of the aorta and pulmonary artery;
3) Heart tumors;
4) Assessment of myocardial viability and perfusion;
5) Congenital heart defects;
6) Diagnosis of congenital anomalies of the coronary arteries;
7) Diagnosis of inflammatory changes in the myocardium.

Task 75.
List the main advantages of CT coronary angiography. Sample answer:
The advantages of CT coronary angiography include:
- minimal invasiveness;
- no need for hospitalization of the patient;
- minimal risk of complications;
- the ability to diagnose pathologies in the early stages of development;
- determination of the type of atherosclerotic plaques
- the ability to evaluate the effectiveness of bypass surgery.
- identification of features or malformations of blood vessels.

CRITERIA for assessing competencies and rating scales

Grade "unsatisfactory" (not passed) or lack of competence	**Grade "satisfactorily"(passed) or satisfactory (threshold) level of competence development**	**Grade"good" (passed) or a sufficient level of mastery of competence**	**"Excellent" (passed) or high level of competency development**
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	**the ability to explain (represent) the essence of phenomena, processes, do conclusi ons**	**logic and consistency of the 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 response sequence	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 or two inaccuracies are allowed 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. Allowedseveral errors in content answer	satisfactory ability to give reasoned answers and give examples; satisfactorily developed skills in analyzing phenomena and processes. There may be some errors in the content. answer	satisfactory logic and consistency of the answer
unsatisfactory	poor knowledge of the subject area being studied, shallow disclosure Topics; poor knowledge	inability to give reasoned answers	lack of logic and consistency answer

	basic questions of theory, weak skills in analyzing phenomena and processes. Serious errors in response content		

Criteria for assessing situational tasks:

Mark	**Descriptors**			
	understanding Problems	**analysis of the situation**	**solution skills situations**	**professional thinking**
Great	complete understanding Problems. All requirements, required for task, completed	high ability analyze situation, draw conclusions	high ability choose method solutions Problems, confident solution skills situations	high level professional thinking
Fine	complete understanding Problems. All requirements, required for task, completed	ability analyze situation, draw conclusions	ability choose method solutions Problems confident solution skills situations	enough level professional thinking. One or two are allowed inaccuracies in the answer
satisfactory really	partial understanding Problems. Majority requirements, required for task, completed	satisfactory ability analyze situation, draw conclusions	satisfactory skills solutions situations, difficulties with choice of method problem solving	enough level professional thinking. More than two inaccuracies in answer or error in sequences solutions
will not satisfy really	misunderstanding Problems. Many requirements, required for task, not completed. No answer. Did not have attempts to solve task	low ability analyze situation	insufficient solution skills situations	absent