


ОҢТҮСТІК ҚАЗАҚСТАН MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ		SOUTH KAZAKHSTAN MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия»
Department: «Propedeutics internal diseases»		044 – 47/11 ()
Methodical instruction		1 p. from 6

**Methodological recommendation for teaching clinical skills at
the Practical Skills Center (ECG)**

(using the execution algorithm)

Specialty: 6B10101 – "General medicine"

Discipline: "Propaedeutics of internal diseases"

Course: 3

Department: "Propaedeutics of internal diseases"

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OÑTÛSTIK QAZAQSTAN

MEDISINA
AKADEMIASY

«OñtÛstik Qazaqstan medicina akademiasy» AQ



SOUTH KAZAKHSTAN

MEDICAL
ACADEMY

AO «Южно-Казакстанская медицинская академия»

Department: «Propedeutics internal diseases»

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044 – 47/11 ()

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Considered at the meeting of the department

Protocol № 4A, " 13 " 12. 2022y.

Head of the Department, MD, Professor Бекмурзаева - Bekmurzayeva E.K.

- 1. Clinical skill name:** Taking an electrocardiogram
- 2. Learning objectives:** Teaching the technique of taking an electrocardiogram using the Eduard simulator and ECG (R 2500).
- 3. Time to show skill in manual and mannequin:** 10 min.
- 4. Time for mastering the test:** 15-20 min.
- 5. Required theoretical knowledge of the skill:**
 1. General understanding of myocardial functions;
 2. Indications for ECG removal;
 3. Rules for ECG removal;
 4. ECG removal technique
 5. Correct application of the main and reinforced electrodes
 6. Correct application of thoracic electrodes and grounding
 7. Correct calculation of heart rate
 8. Correct analysis of the heart rhythm and the electrical axis of the heart
 9. Substantiation of pathology in the ECG image
 10. Conclusion based on ECG data
- 6. Simulator, dummy, list of models:** simulator "Edward" and EKG (R 2500).
- 7. List of medical devices and equipment:** masks, wipes, sterile gloves, 70% ethyl alcohol, hypertonic solution.
- 8. Algorithm of execution:**

№	Steps	Execution		
		Yes	No	Note
1	He greeted the patient, introduced himself. I asked the patient to lie on his back. Explained the need for the manipulation.			
2	Correctly treated the skin of the chest with 70% ethyl alcohol in the places of application of the electrodes, as well as on the inner surface of the legs and forearms in their lower third, wiped it with a napkin dipped in a hypertonic solution.			
3	Correctly applied 4 electrode forceps: a red electrode on the right arm, a yellow electrode on the left arm, a green electrode on the left leg, and a black electrode on the right leg.			
4	Correctly installed on the chest using a rubber suction cup lead V1 - the active electrode was installed in the fourth intercostal space along the right edge of the sternum.			
5	Correctly installed lead V2 - the active electrode was installed in the fourth intercostal space along the left edge of the sternum.			
6	Correctly positioned lead V3 - the active electrode was placed between the second and fourth positions.			
7	Correctly placed lead V4 - the active electrode was installed in the fifth intercostal space along the left mid-clavicular line.			
8	Correctly set lead V5 - the active electrode was positioned at			



	the same horizontal level as V4 along the left anterior axillary line.			
9	Correctly installed lead V6 - the active electrode was installed along the left middle axillary line in the fifth intercostal space.			
10	I pressed the "start" button on the electrocardiograph apparatus, the tape came out.			

9. Task:

- Preparation of the patient for the removal of the ECG.
- ECG removal technique.

10. Materials for assessment for classes:

Security questions:

- Preparation of the patient for the removal of the ECG.
- ECG removal technique.

Test tasks

1. The physiologist who proposed the ECG device:

- A. Einthoven
- B. G.A. Zakharin
- C. R.Laennek
- D. Kussmaul
- E. L. Auenbrugger

2. Sharp shortness of breath, suffocation, cough, hemoptysis, ECG signs of overload of the right parts of the heart in a patient with stenosis of the left venous opening are:

- A. thromboembolism of the branches of the pulmonary artery
- B. manifestations of respiratory insufficiency associated with bronchial asthma
- C. signs of acute left ventricular insufficiency (pulmonary edema)
- D. manifestations of symptomatic arterial hypertension in pheochromocytoma
- E. signs of renal eclampsia

3. During ECG examination It is not possible to determine:


- A. violation of automatism
- B. myocardial contractility
- C. conduction disorder
- D. localization of myocardial infarction
- E. violation of excitability

4. The first standard ECG lead is performed by applying electrodes to:

- A. left arm and left leg
- B. right arm and left leg
- C. left arm and right leg
- D. both forearms
- E. right arm and right leg

5. The second standard ECG lead is performed by applying electrodes to:

- A. right arm and left leg
- B. both forearms
- C. left arm and right leg
- D. left arm and left leg
- E. right arm and right leg

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6. The third standard ECG lead is performed by applying electrodes to:

- A. the left arm and left leg
- B. both forearms
- C. the right arm and left leg
- D. the left arm and right leg
- E. the right arm and right leg

7. Standard ECG leads register the potential difference:

- A. in the sagittal plane
- B. in the frontal plane
- C. in the horizontal plane
- D. in all three planes
- E. in none of the listed planes

8. The most reliable ECG criteria for myocardial infarction are:

- A. elevation of the ST segment
- B. depression of the ST segment
- C. the appearance of Q teeth with a width of more than 30 ms and a depth of more than 2 mm in two leads and more
- D. the appearance of a rise or depression of the ST segment of more than 1 mm after 20 ms from point J in two adjacent leads;
- E. ST segment depression

9. ECG criterion of a positive test with physical activity:

- A. horizontal depression of the ST segment greater than 0.5 mm
- B. kosovodyaschaya depression of the ST segment
- C. oblique depression of the ST segment
- D. horizontal depression of the ST segment greater than 1 mm and lasting more than 80 ms
- E. horizontal depression of the ST segment less than 0.5 mm

10. In a patient suffering from COPD for many years, during the next hospitalization, the following was found on an ECG: the presence in leads II, III, aVF, V1 of high-amplitude, with a pointed tip of the P teeth, the duration of the P wave does not exceed 0.1 s. The amplitude of R in V1 = 8 mm, RV1+ SV5,6 = 12mm, the electrical axis is shifted to the right (angle $\alpha+100$).

Interpret the ECG data.

- A. Right ventricular hypertrophy
- B. Right atrial hypertrophy
- C. Blockage of the right leg of the Gis bundle
- D. Atrial blockage
- E. Hypertrophy of the right atrium and ventricle


11. Criteria for evaluating effectiveness:

Completed: A student with practical skills took 10 steps. Correctly assessed the level of blood pressure and the state of the pulse. Correctly performed the technique of measuring blood pressure and pulse.

Partially completed: the student who received practical skills was able to take 5-6 steps of 10 steps. He did not fully assess the level of blood pressure and the state of the pulse. Partially performed the technique of measuring blood pressure and pulse.

Failed: A student with practical skills failed to take 10 steps. He was unable to assess the level of blood pressure and the state of the pulse. Incorrectly performed the technique for measuring blood pressure and pulse.

12. Literature:

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Main literature:

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4. Vasilenko V.Kh: Vasilenko V.V. Propedeutics of internal diseases Оқулық.3v.-Evero, 2015
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Additional literature:

1. Comprehensive clinical examination of internal diseases: educational and methodological assistance = Objective structured clinical examination in internal medicine: educational methodological manual of the West Kazakhstan State Medical University named after Ospanova; Compose. K. J. Akhmetov [and others]. - M.: "Litterra", 2016. - 368 p. with.
2. Dividends: educational and methodical assistance / G.A. M. Esenzhanova [J. B]. Ministry of Health and Social Development of the Republic of Kazakhstan. - 2nd place complete. and edit. - Karaganda: Private Enterprise "Aknur", 2015. - 80 p.
3. Propedeutics of internal diseases: textbook: textbook / B: Abdakhina M. GEOTAR-Media, 2015
4. Akhmetov K. Clinical lectures on propaedeutics of internal diseases, textbook. -Evero, 2014

13. Standard of responses:

1. A
2. B
3. B
4. D
5. A
6. A
7. B
8. C
9. D
10. E