

# ALGORITHMS OF ACTIONS FOR THE PRACTICAL STATION

## PRACTICAL SKILL "ECG ANALYSIS"

№	Elements of the task completing
1.	Student greeted, introduced himself/herself
2.	Determined the voltage and the source of excitation (rhythm driver)
3.	Determined the rhythm regularity and frequency
4.	Determined the heart electrical axis position and electrical systole of QT
5.	Determined the conduction: measured PQ (PR), QRS intervals
6.	Performed the analysis of P-wave (duration and amplitude in II lead, two-phased in V1) and Q-wave (presence in two adjacent leads, duration and amplitude)
7.	Performed the analysis of R- and S-waves: $\Delta$ wave presence, height of R in aVL, R/S ratio in V1 and V6; determine the Sokolow-Lyon voltage index; checked whether there is hypertrophy of the chambers of the heart, and if so, named the signs of hypertrophy
8.	Checked for the signs of the possible heart rhythm or conduction disorders, and in case of positive result – name the signs of the detected arrhythmia or block
9.	Analyzed ST interval (displacement of ST segment from the isoline down or up) and T wave (negative T) in two adjacent leads
10.	Determine if there is ischemia or myocardial infarction or no and if yes - name the signs, localization of the ischemia or myocardial infarction, type (STEMI, with Q-wave) and phase of the myocardial infarction

## PRACTICAL SKILL "ANALYSIS OF ECHOCARDIOGRAM"

№	<b>Elements of methodics performing</b>
1.	Student greeted, introduced himself/herself
2.	Evaluated and interpreted the size of the right and left ventricle
3.	Evaluated the size of the left atrium and the ascending aorta diameter
4.	Evaluated and interpreted the thickness of the interventricular septum and LV back wall in diastole
5.	Evaluated the left ventricular ejection fraction, named the criterion of the systolic dysfunction
6.	Assessed the mitral and tricuspid valves state (insufficiency, stenosis, divergence of valve leaflets, calcification, vegetations)
7.	Assessed the aortic and pulmonary artery valves (insufficiency, stenosis, divergence of valve leaflets, calcification, vegetations)
8.	Evaluated the segmental left ventricular contractility (normokinesia hypo- or akinesia)
9.	Evaluated the presence of pulmonary hypertension (yes, no), presence of fluid in the pericardial cavity
10.	Evaluated the diastolic dysfunction (yes, no)

**PRACTICAL SKILL "COMPLETE BLOOD COUNT AND URINANALYSIS"**

№	Elements of methodics performing
1.	Student greeted, introduced himself/herself
2.	Evaluated the hemoglobin content in blood (norm - 130.0-160.0 g/l - for men, 120.0-140.0 g/l - for women), erythrocytes content in blood (norm - $4.0-5.0 \times 10^{12}/l$ - for men, $3.9-4.7 \times 10^{12}/l$ - for women), reticulocytes (norm 5.0-15.0 ‰), platelet content (norm $180.0-320.0 \times 10^9/l$ ), leukocytes (norm $4.0-9.0 \times 10^9/l$ ).
3.	Evaluated the the mean corpuscular volume of erythrocytes (MCV) (norm 82.0-98.0 fl) and the average content of hemoglobin in erythrocyte (MCH) (norm 27.0-33.0 pg), color index (norm 0.85-1.15), signs of hyper-/hypochromia, micro-/macrocytosis.
4.	Evaluated the leukocyte formula: rodenuclear neutrophils (norm 1.0-5.0%); bands (norm 50.0-72.0%); eosinophils (norm 1.0-5.0%); basophils (norm 0.5-1.0%); lymphocytes (norm 18.0-38.0%); monocytes (norm 2.0-10.0%); myelocytes, metamyelocytes, plasmatic cells, blasts (normally absent).
5.	Evaluated the erythrocyte sedimentation rate (ESR) (norm - 1-10 mm/h - for men, 2-15 mm/h - for women)? the presence of anisocytosis, micro- and macrocytosis, poikillocytosis, J. M. Jolly bodies, R. C. Cabot rings, F. A. Gumprecht shadows, hypersegmentation of neutrophils/
6.	Evaluated and named causes of the urine color changes (normally – light-yellow) and urine density (normally - 1002-1030).
7.	Interpreted the presence of protein in urine (normally - 0.033 g/l, traces), minimal proteinuria - not more than 1.0 g/l; moderate - 1.0-3.0 g l; massive - more than 3.0 g/l; erythrocytes (normally - 0-1 in the field of view), named the causes of massive proteinuria and macrohematuria.
8.	Interpreted the presence of leukocytes in the urine sediment (normally - 0-1 in the field of view) and bacteriuria (if bacteria amount is more than $1 \times 10^5/ml$ ), named the possible causes of these changes.
9.	Interpreted the presence of cylinders, epithelial cells in the urine sediment, ketone bodies.
10.	Made a conclusion on the received results.