

**МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
БУКОВИНСЬКИЙ ДЕРЖАВНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ»**



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Ivanchuk P.R.

QUANTITATIVE ASSESSMENT OF ST-SEGMENT CHANGES IN PATIENTS WITH ACUTE Q-MYOCARDIAL INFARCTION DEPENDING ON THE AREA OF INJURY

*Department of Internal medicine, Physical Rehabilitation and Sports Medicine
Bukovinian State Medical University*

Introduction. Electrocardiography (ECG) has not lost its importance among the numerous methods of functional investigation of the cardiovascular system and is increasingly being used. At the same time, ECG at rest is appropriate and highly informative for all patients (level of evidence-based medicine I B). Therefore, the search of new approaches to assess the changes in the ST segment continues to be extremely relevant.

The aim of the study. To determine the parameters of the digital processing of the ECG with the quantitative assessment of changes in the ST segment and the improvement of the informativeness of the diagnosis and prediction of the course of cardiac pathology with its clinical implementation.

Material and methods. 30 patients admitted to the regional cardiology dispensary in Chernivtsi with a diagnosis of acute Q-myocardial infarction were examined. Depending on the localization, the anterior/posterior wall of the left ventricle all patients were divided in two groups (14/16 respectively). A self-created program was used to quantify the ST slope with the determination of ST segment changes at 0.08 s after the J point, the ST segment direction angle β° and the height of the continuation of the ST segment slope direction (ST slope height, mV) after 1 second of registration. Statistical processing of the obtained results when using two dependent samples and a normal distribution of the arrays used the Student's paired t-test, with an abnormal distribution of at least one of the arrays - the Wilcoxon t-test; for two independent samples and a normal distribution of arrays - the 2-sample Student t-test, for non-normal distribution - the Wilcoxon U-test.

Results. An analysis of the ST slope and the height of the continuation of the slope direction after 1 s of registration (mV) and the angle β° of the ST segment direction depending on the localization of MI (anterior/posterior wall) with registration of ST segment changes in I, III, V2, V6 leads. The predominance of the ST segment slope (ST slope) and the height of the continuation of the slope direction after 1 s of registration (mV) for posterior MI with a similar dependence for the angle β° of the ST segment direction depending on the location of the MI was revealed. At the same time, the differences were significant only for the posterior wall, both for the height of the continuation of the ST direction (4.17+1.32 and 8.00+0.58 mV, p=0.013), and the angle β° (5.55+2.11 and 13.50+1.13, p=0.01).

Conclusions. By applying digital processing of ECG, it was possible to optimize the quantitative assessment of changes in the repolarization phase, investigate changes of the ST segment slope with the possibility of quantitative assessment of the relationship between myocardial ischemia and changes in the ST segment, since the fact of determining the initial ST-depression associated with increased risk is known as development of an ischemic event, and therefore is a valuable prognostic factor of myocardial ischemia. Of particular interest is the study of "rapid" ST-segment elevation depression, as it is a fairly frequent finding (20%) in ECG recording in healthy middle-aged men and is associated with a 30% reduction in the risk of death from coronary heart disease compared to individuals with normal ST-segment, while the risk of cardiovascular death is lower in the group of "fast" oblique depression of the ST segment versus normal ST (BP/HR 0.82, 95% CI 0.65-1.04), and the risk for horizontal depression increased 1.45 times (HR/HR 1.45, 95% CI 1.09-1.90).