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Influence of hypertension on QT dispersion and systolic left ventricular function in patients with angina pectoris

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Introduction: QT dispersion (QTd) is a measure of inhomogeneous repolarization of myocardium and is used as an indicator of arrhythmogenicity. According to the values of QTd can identify coronary patients who are at high risk of cardiac death and sudden cardiac death.

Purpose: The aim of this study was to investigate the influence of hypertension on QT dispersion and systolic left ventricular function in patients with angina pectoris.

Methods: The study included 161 patients with angina pectoris (average age 56.8 years), of which 109 were with hypertension, and 52 were without arterial hypertension. There were no significant differences in age and gender between the two groups of patients. In all subjects echocardiographic examination were performed and from standard ECG corrected QT dispersion (QTdc) was calculated.

Results: Patients with angina pectoris and hypertension had significantly higher values of QTdc (58.7 ± 19.6 vs 44.9 ± 17.8 ms; p <0.001) compared to those without arterial hypertension. Also, patients with angina pectoris and hypertension had significantly lower values of left ventricular ejection fraction (58.6 ± 11.5 vs 63.2 ± 12.2%; p<0.025) and significantly higher values of the thickness of the interventricular septum (12.8 ± 1.9 vs 10.7 ± 1.6 mm; p<0.001), left ventricle posterior wall thickness (11.4 ± 1.6 vs 9.3 ± 1.4 mm; p<0.001), left ventricular end-systolic diameter (38.9 ± 6.4 vs 36.1 ± 7.1 mm; p<0.02) and left atrium diameter (41.3 ± 4.7 vs 37.8 ± 5.3 mm; p<0.005) compared to those without hypertension. Patients with angina pectoris and arterial hypertension had higher values of the left ventricular end-diastolic diameter (54.5 ± 5.5 vs 53.8 ± 6.9 mm; p-NS) compared to those without hypertension, but the differences were not statistically significant.

Conclusion: The study demonstrated that patients with angina pectoris and hypertension had significantly higher values of corrected QT dispersion and significantly reduced systolic left ventricular function compared to those without hypertension.