Abstract: P742

Comparison of systolic and diastolic global left ventricular function recovery after myocardial infarction evaluated by two-dimensional speckle tracking echocardiography

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Topic(s):
Tissue Doppler, Speckle Tracking and Strain Imaging

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Background: The aim of the study was to investigate recovery of global systolic and diastolic left ventricular function in patients with acute myocardial infarction (AMI) within the six months after successful reperfusion.

Methods: 97 consecutive patients admitted with AMI were treated with successful percutaneous coronary intervention and included in this study. The inclusion criteria were: first acute coronary syndrome, single vessel coronary artery disease and successful reperfusion (TIMI 3). On admission and following days: 2., 3., 7., 30. and 180 - patients underwent transthoracic echocardiography with subsequent measurement of global systolic longitudinal strain (GSLS), global systolic longitudinal strain rate (GSRS) and global early diastolic strain rate (GSRE) in left ventricular segments by speckle-tracking technique.

Results: The largest increase in global systolic longitudinal strain (GSLS) was observed between day 1 and 2 (-14.32±3.6% to -17.65±1.7%, p<0.0001). The similar changes were observed with global systolic longitudinal strain rate (GSRS) (-1.07±0.24 s⁻¹ to -1.31±0.31 s⁻¹, p<0.0001 - between day 1 and 2). On days 3, 7, 30 and 180 further improvement was noticeable, but the changes were less significant.

The most significant improvement in global longitudinal early diastolic strain rate (GSRE) was evenly distributed between days 1, 2, 3 and 7 (1.2±0.19, 1.34±0.7, 1.45±0.65 and 1.56±0.25, respectively with p<0.0001 for all differences). The increase observed on days 30 and 180 was less significant.

Conclusion: The most of global changes in systolic function recovery in patients after AMI treated with successful coronary intervention occurs within the first 2 days. However, the recovery of global diastolic function takes longer – the most significant part of improvement occurs within the first 7 days. These observations may have clinical implications for diagnosis and treatment of patients with stunned myocardium.
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