Abstract:

BACKGROUND: Little is known about the relation between the extent of microvascular damage and infarct size in patients after successful mechanical reperfusion of acute myocardial infarction. OBJECTIVE: To compare the spatial extent of reduced myocardial signal between real time myocardial contrast echocardiography (MCE) and single photon emission computed tomography (SPECT) after successful mechanical reperfusion of acute myocardial infarction and to test the hypothesis that MCE can be used for clinical infarct size assessment. METHODS: 10 days after successful mechanical reperfusion of acute myocardial infarction, 117 patients underwent MCE (power pulse inversion technique, slow contrast bolus injection) and SPECT (technetium-99m sestamibi). Location and number of segments with normal myocardial signal intensity and with mild and severe reduction were registered and the concordance between the techniques was calculated. RESULTS: Segmental concordance between MCE and SPECT was 83% (kappa = 0.64). On average, the difference in the number of segments with reduced myocardial signal intensity between MCE and SPECT did not exceed one segment (p< 0.001). Sensitivity and specificity of MCE for the detection of an abnormal segment on SPECT were 87% and 91%, respectively.
Intraobserver and interobserver agreement were 94% (kappa = 0.84) and 92% (kappa = 0.83), respectively. CONCLUSIONS: Real time MCE is a promising technique for infarct size assessment after successful mechanical reperfusion of acute myocardial infarction.