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Imaging

PREDICTION OF LEFT VENTRICULAR FUNCTION IMPROVEMENT OF ACUTE MYOCARDIAL INFARCTION AFTER PCI BY SPECKLE TRACKING IMAGING

Poster Contributions
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Background: Because of coronary reperfusion by percutaneous coronary intervention (PCI), left ventricular (LV) function of patients with acute myocardial infarction (AMI) was improved, but the improvement was not for all the patients. We found out that some parameters of speckle tracking imaging (STI) were strong predictors for LV function improvement. The clinical value of STI in prediction was discussed.

Methods: 75 AMI patients who had AMI for the first time and had been treated by primary PCI from September 2010 to July 2011 and were examined in the follow-ups from February 2011 to February 2012 in our hospital were enrolled. Dynamic images were acquired before PCI, at 6 months after PCI and analyzed by STI. Dynamic images were analyzed for longitudinal peak systolic strain (LPSS), radial peak systolic strain (RPSS) and circumferential peak systolic strain (CPSS) values by STI. According to the comparison of left ventricular ejection fraction (LVEF) before PCI and 6 months after PCI, patients were divided into left ventricular function improved group (ΔLVEF$\geq$5%) and not-improved group.

Results: Compared to non-improved group, LPSS ($P<0.001$, all), RPSS ($P<0.05$, $P<0.001$) and CPSS ($P<0.001$, all) of improved group were all higher before and 6 months after PCI. LPSS ($r=-0.578$, $P<0.001$) and CPSS ($r=-0.817$, $P<0.001$) before PCI were both closely related to ΔLVEF. In single parameter mode of receiver operator characteristic curve (ROC curve) analysis, the area under the ROC curve (AUC) (0.867), sensitivity (94.7%) and specificity (74.4%) of CPSS were relatively higher than other STI parameters; In multiple parameters united mode of ROC curve analysis, AUC (0.897), sensitivity (94.7%) and specificity (74.4%) of LPSS, RPSS and CPSS united were the highest among all the combinations of all STI parameters.

Conclusions: Left ventricular function improvement of patients with AMI 6 months after PCI was accurately assessed and predicted by STI. CPSS was a strong predictor for left ventricular function improvement 6 months after PCI of AMI patients among all the STI parameters and was an effective indicator for the assessment of left ventricular function improvement of AMI patients.