

Cardiac Enzyme and Morphological Change of Myocardium on Cardiac Magnetic Resonance Imaging in Patients with ST-segment-elevation Acute Myocardial Infarction

[Purpose] Cardiac magnetic resonance imaging (CMRI) can be used to identify myocardial morphological changes such as infarct size, microvascular obstruction (MVO), and myocardial hemorrhage (MH), as well as functional measure after acute myocardial infarction (AMI). We therefore investigated the correlation of infarct-related clinical finding after ST-segment-elevation AMI. [Methods] Seventy-six patients with ST-elevation AMI treated with primary percutaneous coronary intervention (PCI) were analyzed. After successful procedure, CMRI was studied within the first week. T2-weighted CMRI was used to identify MH, whereas MVO and infarct size were determined on contrast-delayed image, and left ventricular function obtained using cine image. [Results] Twenty-one (28%) and 18 patients (24%) presented with MH and MVO. The infarct size was associated with peak creatinine-kinase (CK)-MB level ($\beta=0.51$, $p=0.002$), TIMI flow grade before PCI ($\beta=-0.29$, $p=0.002$), and degree of ST-segment-elevation resolution ($\beta=-0.22$, $p=0.02$). MVO was associated with age (odds ratio=0.88, $p=0.005$), peak CK-MB level (odds ratio=1.01, $p=0.003$) and peak troponin-T level (odds ratio=1.20, $p=0.005$). Peak CK-MB level was only clinical parameter as predictor for MH (odds ratio=1.01, $p=0.001$). [Conclusion] peak CK-MB level can significantly be correlated with morphological change of myocardium on CMRI in the infarct-related clinical parameters after ST-segment-elevation AMI.