Poster ME-1

Contrast-Enhanced Cine Magnetic Resonance Imaging in Myocardial Infarction

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목적 : Viable myocardium can be distinguished from the infarcted myocardium by contrast-enhanced magnetic resonance imaging (ceMRI). In this study, contrast-enhancement with cine magnetic resonance imaging (cecineMRI) was performed for direct correlation of transmural extent of hyperenhancement and that of contractility.

대상 및 방법 : MRI wasperformed in 10 patients (31-73 years) with acute myocardial infarction about 1 to 2 month afterrevascularization with 1.5 T. Cine MRI was performed 5 minutes after administration of Gadodiamide (Omniscan, Nycomed, Cork, Ireland) with a dose of 0.2 mmol/kg body weight. Retrospectively ECG-gatedbreath-hold cine imaging was performed in the short axis of the left ventricle by using segmented balanced turbo-field-echo (BTFE) pulse sequence. Typically eight to ten slices were obtained from the mitral valve to the apex. The typical parameters included voxel size=$1.37 \times 1.37 \times 10mm$, 25 phases per cycle, and repetition time = 3.0 ms, echo time = 1.56 ms respectively. Image acquisitiontypically required 8 to 16 cardiac cycles with or without half-Fourier transformation or sensitivity encoding technique. The cine imaging could be performed within 5 minutes. CeMRI with the same registered slices as cine imaging was performed with a multi-shot, turbo field echo, breath-hold sequence and a non-selective,inversion prepulse with around 280 msec of inversion delay time about 10 minutes after contrast-agent administration.

결과 : All patients show hyperenhancement with ceMRI, transmural; 3, subendocardial; 7. In 9 patients, the hyperenhanced regions of the ceMRI were exactly same as the enhanced regions of the cecineMRI by visual assessment of the location and shape of the enhanced regions. The size of the enhanced area between ceMRI and cecineMRI was similar but difficult to compare because ceMRI could not be constantly acquired during true end-diastolic phase. The transmurally enhanced segments in 3 patients showed no evidenceof systolic thickening in cecineMRI. However, epicardially nonenhanced regions in 6 patients showed more systolic thickening than the subendocardially hyperenhanced regions. Unusually, an enhanced region in cecineMRI in a patient showed vigorous systolic thickening. Only one patient with subendocardial hyperenhancement in ceMRI showed almost transmural enhancement and contractility with cecineMRI.

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