

Contrast-Enhanced Magnetic Resonance Imaging at True End-Diastole to Quantify Reproducible Transmural Extent of Myocardial Hyperenhancement**최병욱¹, 최규욱¹, 김영진¹, 정남식², 임세중²**¹연세대학교 의과대학 진단방사선과, 방사선의과학연구소, ²연세대학교 의과대학 심장내과

목적 : To determine feasibility of contrast-enhanced MRI (ce-MRI) at true end-diastole (ED) free from limitation of time for inversion-recovery and trigger window for quantifying transmural extent of infarction.

대상 및 방법 : MRI was performed in 18 patients with myocardial infarction. Cine imaging and ce-MRI with same registered slices in short axis were performed. To allow true ED ce-MRI, ECG synchronization should use two RR-intervals for one acquisition of a segment of k-space by setting the heart rate to half that of the true heart rate. Trigger delay time was adjusted to the RR-interval for imaging at ED and to the sum of RR-interval plus the time between R-wave and the end-systole (ES) determined in cine images for imaging at ES.

결과 : Wall thicknesses of the ED and the ES ce-MRI were greater than those of the ED and the ES cine images (7.51.3 mm>6.21.4 mm, 9.41.8 mm>8.61.8 mm respectively). Subendocardial hyperenhancement was detected in 13 patients. Among them, systolic wall thickening was observed with cine imaging in 8 patients and the transmural extent of hyperenhancement measured on ED ce-MRI decreased by 5-30% on ES ce-MRI proportional to the degree of systolic thickening of the epicardially nonenhanced myocardium. Transmural hyperenhancement in 4 patients showed no difference in thickness between end-diastole and end-systole.

결론 : Ce-MRI at ED is constantly possible by using two RR-interval per acquisition of a segment of k-space and useful to avoid the variation in infarct sizing with irreproducible cardiac phase other than end-systole in case of subendocardial infarction.