일반 연제(Ⅰ)-8

DETECTION OF OCCLUSIVE AND REPERFUSED MYOCARDIAL INFARCTION BY USING A MR IMAGING WITH GD DTPA-POLYLYSINE ENHANCEMENT

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Gd DTPA-polylysine enhanced MR imaging was performed on 18 cats to assess the capability of this technique in depicting the normal and ischemic myocardium during the period of occlusion and reperfusion of the left anterior descending artery(LAD).

A series of the contrast enhanced MR imagings was followed with 15- to 30-minute intervals during the 90 minutes each of occlusion and reperfusion periods. The change in signal intensity(SI) was compared among 3 regions: (1) normal myocardium, (2) central ischemic zone, (3) peripheral ischemic zone. The results of the MR imaging study was compared to those of the 2,3,5-triphenyl tetrazolium chloride(TTC) staining of the specimen.

During the occlusion period, the ischemic zone lacked in signal enhancement and could be differentiated from the normal myocardium that revealed gradual signal enhancement. During the reperfusion period, the ischemic zone demonstrated a strong and persistent signal enhancement. The maximal SI of 3.06±0.26 and 3.04±0.25 was obtained respectively from the central and peripheral ischemic zones at reperfusion 60 minutes. On TTC staining, large infarction was noted in 6 cats, focal infarction in 7 and no infarction in 5. In the 6 cats with large myocardial infaction, the central ischemic zone could be diffrerentiated from the peripheral ischemic zone by its intermediate SI (1.95± 0.26), whereas in those with focal and no infarction, the entire ischemic zone showed high SI.

In conclusion, occlusive and reperfused myocardial infarction could be detected on Gd-DTPA-polylysine enhanced MR imaging by differential signal changes obtained from normal myocardium and central and peripheral ischemic zones.