

Summary

Clinical Usefulness of Delayed Exercise Images on ^{99m}Tc -Tetrofosmin Myocardial SPECT in the Diagnosis of Vasospastic Angina Pectoris

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This study was designed to evaluate the clinical usefulness of delayed exercise images in ^{99m}Tc -tetrofosmin (TF) myocardial SPECT in the diagnosis of vasospastic angina pectoris. We studied 30 patients with vasospastic angina, 10 of 30 patients (group A) had both effort and rest angina, 20 of 30 patients (group B) had rest angina. A 370 MBq of TF was intravenously injected at peak exercise, and initial (EX-I) and delayed exercise (EX-D) images were obtained at 30 min and 180 min after the injection. An additional 740 MBq of TF was intravenously reinjected after EX-D image acquisition, and rest images were obtained 30 min after the reinjection. The left ventricular wall was divided into 9 segments. Regional myocardial uptakes of TF were scored by 4-point defect score (0 = normal, 1 = mildly reduced, 2 = moderately reduced, and 3 = severely reduced). Total defect score (TDS) was calculated from the sum of defect scores in 9 segments. Reverse redistribution (RR) was defined as increase of more than 2 in TDS on EX-D

images. In group A, 4 of 10 cases (40%) showed decreased uptake on EX-I images, 6 of 10 cases (60%) revealed RR on EX-D images, and none of the patients showed decreased uptake on rest images. In group B, no one showed decreased uptake on EX-I and rest images, 11 of 20 cases (55%) revealed RR on EX-D images. The mean \pm SD of TDS were 2.9 ± 3.4 , 5.1 ± 4.5 , 0.5 ± 0.5 on EX-I, EX-D, rest images in group A, and serially 0.4 ± 0.5 , 3.3 ± 3.6 , 0.4 ± 0.5 in group B. Regional wall motion abnormality was reduced in regions with RR. RR on EX-D images may reflect ischemic damaged but viable myocardium in vasospastic angina. The clinical usefulness of exercise-rest TF imaging in detection of organic coronary artery disease has been well established. Therefore, exercise-rest TF imaging with additional delayed exercise image could evaluate not only organic coronary artery disease but also coronary artery vasospasm.

Key words: ^{99m}Tc -tetrofosmin, Reverse redistribution, Vasospastic angina, SPECT, Myocardium.