
Cases are often observed that are improved regional thallium uptake after revascularization, indicating the increase of viable muscle. 64 patients of angina who had successful PTC A and undetected stress myocardial scintigraphy before and after PTC A were evaluated to examine this phenomenon. All had single vessel coronary artery disease (53 cases in LAD, 6 in LCX and 5 in RCA). The increase of thallium uptake of delayed image after PTC A relative to before PTC A was significantly higher in cases that had naturally poor regional coronary flow and were complicated with myocardial infarction. Two mechanisms could be considered of this phenomenon, that is, incompletion of redistribution within four hours and what is called stunned myocardium. When we are some cases in which regional thallium uptake was markedly increased after PTC A regardless of no redistribution before PTC A, suggesting the presence of stunned myocardium. This matter should be taken into consideration when deciding the indication of revascularization according to stress myocardial scintigraphy.


The effectiveness of serial exercise thallium scintigraphy (ETS) in the detection of restenosis after successful percutaneous transluminal coronary angioplasty (PTCA) was evaluated. The study was undertaken on 73 patients who received coronary angiography (CAG) after over a 6 month period following successful PTCA or after a recurrence of angina pectoris. ETS was conducted serially before, soon after, at 3 months, and at 6 months after PTCA in order to determine the absence of chest pain (CP) and ST-segment depression (ST) during exercise and of reversible defect (RD) in thallium images. Restenosis rate was 25% for patients followed for over 6 months (46% for those who received CAG), with recurrences of angina early at 2.4±1.9 months (mean±SD). Instances of positive RD were highest the third month after PTCA. As to the detection of restenosis, figures for RD sensitivity and specificity were 96% and 88% respectively, which were superior to those figures for CP and ST. ETS was particularly useful in the identification of the restenotic vessel as well as in the detection of restenosis in patients with multivessel disease or partial anatomic correction of WR and thus prove to be of extreme value in follow-up after PTCA.

EVALUATION OF PERCUTANEOUS TRANSLUMINAL CORONARY ANGIOPLASTY (PTCA) BY TI-201 MYOCARDIAL SCINTIGRAPHY: COMPARISON WITH STRESS ECG AND LEFT VENTRICULOGRAPHY. H. Yamaguchi, S. Arima, M. Kataiaki, Y. Kawazoe, K. Kubota, and H. Tanaka. The First Department of Internal Medicine, Kagoshima University School of Medicine, Kagoshima.

To evaluate the improvement of regional myocardial blood flow before and after PTCA, stress TI-201 scintigraphy was studied in patients with successful PTCA. TI washout rate (WR) and lung uptake (LU) were calculated and were compared with stress ECG by treadmill and LVG (EF, regional wall motions) before and after PTCA. We studied in 62 pts; 32 with angina pectoris (AP) and 30 with old myocardial infarction (OMI). Results: (1) The myocardial ischemia before PTCA could be detected in 52 pts (84%) using by WR, in 48 pts (77%) by visual assessment and in 32 pts (52%) by stress ECG. (2) In most pts with AP, the ischemia could be detected in both TI imaging and stress ECG. But in most pts with OMI, that could be detected only by TI imaging. (3) The improvement of WR, LU and stress ECG was observed after PTCA, compared with before PTCA, especially WR improvement of EF and regional wall motion assessed by left ventriculography was not observed. (4) In pts with organic stenosis ≥75% before PTCA, significant improvement was observed, but in pts with <75% that was not. These results suggest that WR can be used as a valuable index of postinterventional change of regional myocardial blood flow.


The effect of emergency PTCA in pts with AMI was evaluated by stress myocardial perfusion imaging (SMPI). Forty-one pts after successful PTCA (patent group) and 9 pts after unsuccessful PTCA (occluded group) were studied 3 weeks after the onset (early study). Twenty-one pts in patent group were studied 6 months after the onset (follow-up study). In patent group, 13 pts showed no perfusion defects on TI-201 SMPI after 3 weeks after the onset. In occluded group, no pts showed no perfusion defects. Severe perfusion defects were more frequently seen in occluded group (78%) than in patent group (22%). Reverse redistribution was frequently observed in patent group in early study (12 pts: 29% of patent group). This findings were confirmed in semi-quantitative study. TI-201 activity within "infarced zone" in initial image (57.3±5.2% of maximal myocardial TI-201 activity) was significantly higher than in delayed image (46.9±5.6%). In follow-up study, all pts except 2 in patent group showed an improvement on TI-201 SMPI. Two pts without the improvement had restenotic regions at PTCA sites.

CONCLUSION: Emergency PTCA is useful in pts with AMI. RR is frequently seen after successful PTCA.