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IMPROVEMENT OF REGIONAL MYOCARDIAL PERFUSION AFTER PTCA ON STRESS MYOCARDIAL SCINTIGRAPHY. A.Koizumi, M.Saito, T.Sumiyoshi, K.Kimura, N.Omura, H.Itagane, K.Fukami, K.Haze, K.Hiramori, K.Hayashida, T.Uehara, T.Nishimura and M.Takamiya. National Cardiovascular Center, Osaka.

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 PTCA and underwent stress myocardial scintigraphy before and after PTCA 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 PTCA relative to before PTCA 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, incompleteness of redistribution within four hours and what is called stunned myocardium. There are some cases in which regional % thallium uptake was markedly increased after PTCA regardless of no redistribution before PTCA, suggesting the presence of stunned myocardium. This matter should be taken into consideration when deciding the indication of revascularization according to stress myocardial scintigraphy.

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DETECTION OF RESTENOSIS AFTER SUCCESSFUL PERCUTANEOUS TRANSLUMINAL CORONARY ANGIOPLASTY BY EXERCISE THALLIUM SCINTIGRAPHY. T.Sumiyoshi, M.Saito, N.Omura, H.Itagane, A.Koizumi, K.Kimura, K.Fukami, T.Nishimura, K.Haze, T.Uehara, K.Hayashida and K.Hiramori. National Cardiovascular Center, Osaka.

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 presence 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 $\pm$ SD). Instances of positive ETS were highest in 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, and thus has proven to be of extreme value in follow-up after PTCA.

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EVALUATION OF PERCUTANEOUS TRANSLUMINAL CORONARY ANGIOPLASTY (PTCA) BY TL-201 MYOCARDIAL SCINTIGRAPHY: COMPARISON WITH STRESS ECG AND LEFT VENTRICULOGRAPHY. H.Yamaguchi, S.Arima, M.Kawataki, 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 Tl-201 scintigraphy was studied in patients (pts) who had successful PTCA. Tl 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 Tl imaging and stress ECG. But in most pts with OMI, that could be detected only by Tl imaging. (3) The improvement of WR, LU and stress ECG was observed after PTCA, compared with before PTCA, especially WR improved much. The improvement of EF and regional wall motion assessed by left ventriculography was not observed. (4) In pts with organic stenosis $\geq 75\%$ before PTCA, significant improvement of WR 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.

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TL-201 MYOCARDIAL PERFUSION IMAGE AFTER SUCCESSFUL EMERGENCY PTCA IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION. H.ARAI, S.KUBORI, H.NAKAJIMA, S.SAITO, O.TOJO, K.OTANI. KANSAI ROSAI HOSPITAL, AMAGASAKI.

The effect of emergency PTCA in pts with AMI was evaluated by Tl-201 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 Tl-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. Tl-201 activity within "infarcted zone" in initial image ($57.3 \pm 5.2\%$ of maximal myocardial Tl-201 activity) was significantly higher than in delayed image ($46.9 \pm 5.6\%$).

In follow-up study, all pts except 2 in patent group showed an improvement in Tl-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.