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THE REVERSIBILITY OF THALIUM DEFECT OF STRESS SCINTIGRAPHY AFTER CORONARY REVASCULARIZATION.

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The reversibility of thalium defects in revascularized areas was examined using pre- and post- coronary revascularization stress scintigraphies in angina pectoris (AP) patients with isolated desease of left anterior descending artery. Twenty eight cases who had undergone successful percutaneous transluminal coronary angioplasty or coronary artery bypass surgery were divided into two groups: twenty of AP without previous myocardial infarction(MI) [AP group] and eight of post MI angina [MI group]. Although defect thalium activity (%defect) was lower in the MI group, preoperative redistribution was found comparable to that of the AP group, and postoperative % defect improved as well. The % defect of the post-operative exercise image in the MI group showed a further improvement over that of the pre-operative delayed image. This means that the reversible defects in the infarcted area comprises "stunned myocardium" that recover after successful revascularization, in addition to the transient ischemia indicated by redistribution.

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Evaluation of A-C BYPASS OPERATION BY Tl-201 MYOCARDIAL SPECT USING WASHOUT RATE.

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Redistribution in exercise Tl-201 myocardial scintigraphy is important to assess the indication of A-C bypass operation. We performed Tl-201 myocardial SPECT and calculated the washout rate(WR) of the ischemic area using circumferential profile analysis in 11 patients with ischemic heart disease who were performed bypass operation (19 grafts). WR was 8±11% in 12 subjects that was both improved in Tl-201 myocardial scintigraphy and patent in bypass-graphy, and WR was 28±9% in subjects that was not so. Upper limit of the WR in improved subjects was 19%, and lower limit of the WR in unimproved subjects was also 19%. Mean WR calculated from 20 normal cases was 39%, and lower limit of normal range was 22%. This indicates that A-C bypass operation was more preferable in the area whose WR was lower than normal range, especially lower than 19%.

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EVALUATION OF MYOCARDIAL TL-201 WASHOUT BEFORE AND AFTER AORTO-CORONARY BYPASS SURGERY USING SPECT.

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Myocardial Tl-201 washout before and after aorto-coronary bypass surgery (ACB) in 26 patients with ischemic heart disease (13 with angina pectoris (AP) and 13 with old myocardial infarction (OMI)). Multistep exercise stress was performed before and after ACB, and SPECT was obtained 10 min. and 3hrs. after i.v. injection of Tl-201 at peak exercise. Transverse, vertical long axis and short axis images were reconstructed. Early score (E-R) and washout score (W-R) were computed in each coronary area. In 19 out of 26 patients improvement of regional myocardial perfusion was observed visually. In the quantitative assessment, W-R of bypassed myocardial area was improved significantly, especially in the case of multiple vessel disease, suggesting improvement of myocardial perfusion. In AP, improvement of W-R at normal coronary area was recognized after ACB, probably due to increased perfusion by improvement of the cardiac function. Finding of relative low perfusion (so called reverse redistribution) was occasionally noted after ACB. In such case, quantitative as well as visual assessment was necessary for diagnosis.

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DETECTION BY STRESS SCINTIGRAPHY(S-SG) OF THE PROGRESSION OF ISCHEMIC HEART DISEASE SUCH AS OCCURRENCE OF MYOCARDIAL INFARCTION(MI), WORSENING OF ANGINA PECTORIS(AP) AND AORTOCORONARY BYPASS(ACBG) OCCLUSION WAS STUDIED.

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Of the 2500 consequtive cases studied, 38 patients underwent S-SG both before and after the occurrence of MI(7cases), worsening of AP(4), occurrence of MI after ACBG (8), or worsening of AP after ACBG(19). S-SG was analysed using visual, ROI, and Circumferential profile methods, with reference to patient history, ECG, coronary angiography, and leftventriculography. In terms of increases in the intensity or extent of thalium defects, delayed images demonstrated higher sensitivity to occurrence of MI(80%sensitivity) than did exercise images(53%). The worsening of AP as evidenced by the progression of coronary stenosis or occlusion of ACBG tended to be detected by the ROI method more reliably, in terms of increases in redistribution and decreases in washout rate, than by the visual method.