PRESENTATION OF CORONARY LESION BY TI-201 MYOCARDIAL IMAGING USING SPECT (SINGLE PHOTON EMission COMPUTED TOMOGRAPHY)
National Cardiovascular Center, Osaka .

Presumtion of coronary lesion is clini-cally very important . Value and limitation of the presumption by myocardial SPECT image is evaluated by ROC analysis comparing to planar image . And the occupying area of each coronary artery is assessed by the investigation of single vessel disease . The result is as follows : (1) For the accuracy of the presumption of the coronary lesion, the myocardial SPECT imaging is superior to the planar imaging . (2) As for single vessel disease, the SPECT and planar diagnosis is equal in the detection of LAD lesion . The SPECT diagnosis is superior to the planar diagnosis in the detection of diagonal lesion, RCA and LCX lesion . (3) As for double vessel disease, the SPECT diagnosis of RCA-LAD coronary lesion is superior to the planar diagnosis . (4) Assessment of the occupying lesion of each coronary artery shows the difficulty to distinguish RCA lesion from LCX lesion, and LCX lesion from diagonal lesion . But it's easy to differentiate LAD lesion from RCA lesion, and LAD lesion from LCX lesion .

SIGNIFICANCE OF REDISTRIBUTION ON DIPYRIDAMOLE LOADING THALLIUM SPECT IN PATIENTS WITH OLD MYOCARDIAL INFARCTION
---COMPARISON WITH REGIONAL CORONARY FLOW RESPONSE AND LACTATE PRODUCTION .
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To evaluate the significance of TI-201 redistribution on infarct area, we compared dipyridamole loading TI-201 myocardial image using SPECT with regional coronary flow response and lactate uptake ratio measured by Websther catheter in 12 patients with old myocardial infarction . Eight regions in 11 regions with TI-201 redistribution after dipyridamole administration had decreased regional coronary flow response, but only 4 regions in the same 11 regions had lactate production . Among 9 patients with TI-201 redistribution, left ventricular enddiastolic pressure (LVEDP) elevated in 5 patients with lactate production, on the other hand LVEDP didn't elevate in 4 patients without lactate production . Moreover, only 4 patients had chest pain after dipyridamole administration and only 5 patients showed ischemic changes on ECG . In conclusion, these data suggest TI-201 redistribution on infarct area after dipyridamole administration reveals not only overt ischemia but also decreased coronary flow response without regional lactate production or left ventricular dysfunction .

MYOCARDIAL PROTECTION OF CORONARY RECANALIZATION IN ACUTE MYOCARDIAL INFARCTION: AN ASSESSMENT BY EXERCISE TI-201 ECT.
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To assess the ability of recanalization to salvage the myocardium involved, 46 patients with AMI were examined by the exercise TI-201 ECT in the chronic stage . All were divided into the occlusion (OC, n=15), the thrombolysis (LY, n=11), the emergency PTCA (CA, n=12) and the spontaneous recanalization (SR, n=8) groups . The TI uptake in each zone of the proximal and distal short- axial slice was calculated both for the initial (I) and the delayed (D) imagings . In the infarcted zone, TI uptake of each group was as follows:

<table>
<thead>
<tr>
<th>Group</th>
<th>OC</th>
<th>LY</th>
<th>CA</th>
<th>SR</th>
</tr>
</thead>
<tbody>
<tr>
<td>I uptake</td>
<td>55±8%</td>
<td>67±13%*</td>
<td>91±7%*</td>
<td>85±7%*</td>
</tr>
<tr>
<td>D uptake</td>
<td>58±8%</td>
<td>78±14%*</td>
<td>70±18</td>
<td>91±7%*</td>
</tr>
</tbody>
</table>

*p<0.01 as compared with the OC group , +p<0.01 as compared with the I uptake . In the cases with anterior MI, there also was no difference in I uptake in each zone involved between LY (n=8) and CA (n=9) . The filling-in occurred more frequently in LY than in CA . Thus, the emergency coronary angioplasty in acute myocardial infarction is less likely to lead to ischemia than the thrombolysis alone but has little additional effect of myocardial preservation .

ASSESSMENT OF CORONARY RESERVE OF HYPERTROPHIC CARDIOMYOPATHY USING THALLIUM UPTAKE RATIO BY DIPYRIDAMOLE LOADING COMPARED WITH EXERCISE STRESS MYOCARDIAL SCINTIGRAPHY .
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Using exercise stress myocardial scintigraphy, we had experienced some patients of hypertrophic cardiomyopathy (HCM) who showed redistribution . To evaluate the significance of the redistribution in HCM, we examined coronary reserve using TI uptake ratio calculated by TI uptake counts before and after dipyridamole loading . TI uptake ratios of six patients who showed redistribution (group A) were compared with those of five patients who showed no hypoperfusion area (group B) and four control patients . One patient in group A had hyperfusion but no redistribution . We injected 2 mCi of TI-201 two times before and after dipyridamole loading (0.56 mg/kg) . Ten minutes after injection, we collected TI uptake counts for five minutes on left ventricular short-axis view and another view . Mean TI uptake ratio of all HCM patients was smaller than controls (p<0.001) . Mean TI uptake ratio of group A was significantly smaller than that of group B (p<0.001) . But in group A patients, TI uptake ratio of redistribution areas was not smaller than no redistribution areas . We concluded that coronary reserve of HCM was lower than control, and coronary reserve of group A was lower than that of group B . Redistribution seems to be related to the coronary reserve and other local factors .

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