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EVALUATION OF ISCHEMIC HEART DISEASE BY DOUBLE DOSE THALLIUM-201 MYOCARDIAL SCINTIGRAPHY—CORRELATION BETWEEN MYOCARDIAL BLOOD FLOW DISTRIBUTION AND CORONARY ANGIOGRAPHIC FINDINGS—H. Sugihara, H. Adachi, H. Nakagawa, H. Katsume, N. Tabata, K. Okamoto, M. Murata, H. Kotera, K. Miyao and H. Iijichi. 2nd Dep. of Med. Kyoto Prefectural University of Medicine, Int. Med. Kyoto 2nd Red Cross Hospital, Kyoto

Using double dose Thallium(Tl)-201 myocardial scintigraphy (DIMS), we reported previously that the increase of blood flow distribution(BFD) in exercise to whole myocardium was less in the patients with ischemic heart disease(IHD) than in control subjects. This time, we studied BFD in exercise not only to whole but to regional myocardium, and compared with the findings in coronary angiography. In the patients with more than 75 % coronary stenosis, scintigraphy and computer analysis was performed with administration of two Tl doses each at the submaximal peak of exercise and control state. The rate of change in BFD was calculated from the ratios of Tl dosage and of the radioactivity in myocardium. The increase of BFD to whole myocardium was less in multi vessel disease than in single vessel disease, and regionally this increase was less in the perfused by stenotic artery than in normal area. And the change in regional BFD was well visualized in the subtraction image. No significant correlation was shown between the rate of change in regional BFD and the number of stenotic vessels. Thus, coronary blood flow reserve is smaller in multi vessel disease, and regionally in the area perfused by stenotic coronary artery.

We concluded that the severity of IHD can be evaluated quantitatively from the rate of change in BFD to whole and regional myocardium, and besides the regional change can be visualized in the subtraction image.

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CLINICAL STUDIES ON THALLIUM-201 MYOCARDIAL SCINTIGRAPHY IN PATIENTS WITH DILATED CARDIOMYOPATHY. S. Suzuki, K. Owada, Y. Tsukahara, K. Ono, M. Takezawa, N. Awano, M. Kijima, Y. Miyazaki, T. Uchida and S. Kariyone. The First Department of Internal Medicine, Fukushima Medical College. Fukushima.

Thallium-201 myocardial scintigraphy was performed in 17 patients with dilated cardiomyopathy (DCM). LV area (LVA) was number of LV image. LV uptake index (LVUI) was percentage of radioactivity on LV myocardial area to total injected activity. Wall uptake ratio (WUR) was radioactivity ratio on IVS and LV free wall to total injected activity. DCM was classified by morphological findings on scintigram. The three groups were classified in D group (only dilated LV wall), RV group (visualization of RV wall) and PD group (perfusion defect on LV wall). LVA and LVUI were greater than those in valvular disease with volume overloading, and WUR was not greater than that. LVUI and WUR in RV and PD groups also showed lower than those in D group. ECG, CTR, LVEF and Cardiac Index for estimation of cardiac function in DCM were examined. These parameters in RV and PD groups showed more abnormality than those in D group. Therefore, we estimated that cardiac function in RV and PD groups was lower than that in D group. We concluded that LVA, LVUI and WUR as quantitative indices of the Thallium-201 scintigram were valuable for the evaluation of DCM.

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MYOCARDIAL IMAGING USING DIPYRIDAMOLE IN PATIENTS WITH KAWASAKI DISEASE. Y. Ono, T. Mitomori, T. Kamiya, M. Hayashi, T. Nishimura, T. Kozuka. National Cardiovascular Center. Suita.

The degree of myocardial ischemia due to Kawasaki disease was evaluated by Tl-201 myocardial scintigraphy at rest and with administration of dipyridamole.

The material included 131 patients with a history of Kawasaki disease whose coronary arterial lesions had been confirmed by selective coronary arteriography (CAG) and was divided into three groups on the findings of CAG; 40 cases with obstruction, 29 cases with localized stenosis and 62 cases with aneurysm. All of them had resting myocardial imaging and 40 patients were studied with intravenous dipyridamole.

Perfusion defects were detected in 14 cases in the coronary obstructive group at rest (35%). Five of them were studied with dipyridamole load and demonstrated clearer and larger perfusion defects than at rest. 35 patients with normal images at rest were studied with dipyridamole load. In 17 cases newly appeared perfusion defects were noted and sensitivity in coronary obstructive group was 81%.

Tl-201 myocardial imaging using dipyridamole was found to be an useful method to evaluate the myocardial ischemic lesions associated with Kawasaki disease.

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CLINICAL USEFULNESS OF Tl-201 MYOCARDIAL SCINTIGRAPHY IN THE ACUTE PHASE OF MYOCARDIAL INFARCTION. K. Setsuta, Y. Tomita, M. Takayama, K. Munakata, H. Hayakawa, K. Tanaka, T. Takano, A. Okuyama, F. Hikita and Y. Yamagishi. Nippon Medical School, Tokyo

To determine the clinical usefulness of Tl myocardial scintigraphy (Tl-MCS) in the acute phase of myocardial infarction (MI), we compared Tl-MCS with electrocardiographic site of MI, Killip classification, Forrester hemodynamic subset (FHS), maxCPK,  $\Sigma$ CPK, maxLDH,  $\Sigma$ LDH, maxGOT and left ventriculogram (LVG). Method: Tl-MCS was performed within 72 hours after onset of MI (26.4 $\pm$ 16.1 hours). Tl-MCS were obtained in 6 projections. Each image was divided into 5 segments. Tl-201 activity was visually assessed for each segment by a four-point system; 4=normal, 3=slightly decreased, 2=definitely decreased, 1=severely decreased. Tl-MCS score was calculated by summing up of each segment point. Results: Tl-MCS score of the patients with one site of MI was significantly higher than that of the patient with more than two sites of MI. There were significant correlations between Tl-MCS score and maxCPK,  $\Sigma$ CPK, maxLDH,  $\Sigma$ LDH and maxGOT. Tl-MCS score of the patients with FHS II or IV was significantly lower than that of the patients with FHS I or III. Tl-MCS score of the patients with aneurysm or dyskinesis on LVG was significantly lower than that of the patients with akinesis, hypokinesis or normal wall motion. Conclusion: Tl-MCS findings in the acute phase of MI might reflect infarct size and cardiac function.