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Ga-67 MYOCARDIAL IMAGING FOR THE DETECTION OF MYOCARDIITIS IN THE ACUTE PHASE OF KAWASAKI DISEASE: THE USEFULNESS OF SPECT. H.Matsuura, T.Saji, R.Hashiguchi, R.Ito, T.Umezawa, N.Matsuo, and M.Takano. Department of Pediatrics and Department of Radiology, Toho University School of Medicine, Tokyo.

Patients with Kawasaki disease in the acute phase quite often have clinical manifestations which are thought to be caused by pancarditis. In order to explore new diagnostic techniques for the clinical detection of myocarditis, we carried out Ga-67 myocardial imaging in 46 consecutive infants and children (31 boys and 15 girls, with a mean age of 1 year and 9 months) with Kawasaki disease in the acute phase. All of them underwent planar imaging (group A) at 6 hours and at 48 or 72 hours after the intravenous administration of Ga-67 citrate ($0.07 \pm 0.02 \text{ mCi/kg}$). Thirty-four patients among them underwent SPECT imaging (group B) soon after planar imaging. The color images at 48 or 72 hours were classified into 4 grades, i.e. negative to positive 3+. The frequency of positive cases was 41% in group A and 64% in group B. Among the patients with "clinically suspected myocarditis", 63% in group A and 80% in group B showed positive images. Through SPECT imaging, we could clarify the localization of the tracer in the myocardium, as differentiated from the localization in the pericardium only, or from the tracer in the heart chambers. The serum value of lactoferrin, which was speculated to be related to the accumulation of Ga-67 into the myocardium, was significantly elevated in patients with Kawasaki disease in the acute phase, comparing to that of healthy infants. We conclude that Ga-67 citrate myocardial imaging, especially when used with SPECT imaging, is useful for the detection of myocarditis in the acute phase of Kawasaki disease.

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THE EVALUATION OF VIABILITY OF MYOCARDIUM IN THE SEVERE CORONARY REGION BY EXERCISE THALLIUM-201 MYOCARDIAL SPECT. T.Ohtake, T.Watanabe, T.Momose, N.Kosaka, J.Nishikawa, T.Mochizuki, T.Serizawa, K.Kawakubo, M.Ohno and M.Iio. University of Tokyo, Tokyo.

We evaluated the viability of myocardium in the coronary region of 99% stenosis or 100% obstruction by exercise Tl-201 myocardial single photon emission CT (SPECT). 76 coronary regions of 65 patients were evaluated. They were classified into A-E groups. A: complete redistribution (CR) in the whole region. B: CR in more than half of the region and incomplete redistribution (IR) or no redistribution (NR) in other region. C: CR in quarter to half of the region and IR or NR in other region. D: IR in almost whole region. E: NR in almost whole region. A group was 26% (20/76), B was 7% (5/76), C was 24% (18/76), D was 26% (20/76), and E was 17% (13/76). There were cases in A-D groups that remarkable improvement was seen in Tl SPECT after Aorto-coronary bypass operation or PTCA. A-C groups was 57% (43/76) in which remarkable improvement was expected, and graftable coronary artery in A-C groups was 73% (31/43). In D group, improvement was expected but graftable coronary artery was 45% (9/20).

In conclusion, exercise Tl myocardial SPECT is very useful for the evaluation of the viability and prognosis of the myocardium in the severe coronary region.

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A STUDY ON THE "REDISTRIBUTION" ON SPECT IMAGE OF MYOCARDIUM WITH Tl-201 AT REST IN PATIENTS WITH MYOCARDIAL INFARCTION. Y.Terashima, K.Gotoh, T.Tsukamoto, H.Takatsu, Y.Yagi, N.Yamamoto, S.Hirakawa. The 2nd Dept. of Int.Med.Gifu Univ.School of Med., Gifu.

This study was designed to investigate the "redistribution" visually as well as quantitatively with circumferential profile curve and washout ratio with Tl-201 at rest in patients with myocardial infarction. The subjects were 35 patients with clinically apparent myocardial infarction and the study was performed at least 2 weeks after attack of infarction. SPECT image was constructed at about 10 min and 2 hrs following injection of 4 mCi Tl-201 at rest. As a result, visual "redistribution" was found surrounding the infarcted area in 7 cases. In these 7 cases, "redistribution" was also found with circumferential profile curve in almost the same area as that where visual "redistribution" was found. In addition, washout ratio, obtained as $((\text{early count}) - (\text{delayed count})) / (\text{early count}) \times 100$, was reduced in some cases and it was negative in other cases, suggesting that there occurred slight improvement of perfusion defect surrounding the infarcted area, thereby resulting in the decrease of the infarcted area. It was suggested from these results that the delayed image obtained at rest was useful for the accurate detection of the infarcted area. As to the mechanisms of the "redistribution", two possibilities were considered, i.e., (1) delayed washout and (2) delayed uptake.

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EVALUATION OF EXERCISE-INDUCED ST-T CHANGES IN PATIENTS WITH MYOCARDIAL INFARCTION BY EXERCISE Tl-201 MYOCARDIAL SCINTIGRAPHY. M.Okano, F.Ohsuzu, S.Maie, Y.Eki, S.Yanagida, H.Yukitake, S.Katsushika, H.Seguchi, N.Aosaki, H.Nakamura, T.Hoshina, T.Shishido, S.Sueoka, H.Takanashi, E.Takenaka. National Defense Medical College, Saitama.

We compared exercise-induced ST-T changes to Tl-201 myocardial scintigraphy, left ventriculography and coronary arteriography in 20 patients (pts) with myocardial infarction, who underwent submaximal exercise testing. The appearance rate of the exercise-induced ST elevation in pts with wall motion abnormality such as dyskinesia (D), akinesia (A) and hypokinesia (H) were 100% (D), 67% (A) and 28% (H), respectively. The exercise-induced ST depression was present in 20% and the normalization of negative T wave was 40% in pts with the jeopardized myocardium (JEP) which was defined angiographically as a segment of myocardium with normal or hypokinetic wall motion supplied by a significantly stenotic major coronary artery. However, redistribution of transient defect in Tl-201 SPECT images were present in 60% of pts with JEP. In addition, all 4 pts with exercise-induced ST depression had JEP. These results suggested that Tl-201 SPECT might be a sensitive method and the exercise-induced ST depression might be a specific way for detection of the jeopardized myocardium.