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DIFFERENTIATION OF TRANSIENT ISCHEMIC FROM INFARCTED MYOCARDIUM BY Tl-201 STRESS SCINTIGRAPHY. M. Saito, K. Haze, T. Honda, K. Hiramori, T. Nishimura, T. Kozuka. Internal Medicine and Radioisotope Division of the National Cardiovascular Center, Suita, Osaka

In order to differentiate transient ischemic from infarcted myocardium, Tl-201 stress scintigraphy was performed on 29 pts with angina pectoris (AP) s myocardial infarction (MI), 7 pts with transmural MI and no AP, 10 pts with AP who successfully underwent SVG bypass surgery and 10 normal subjects. Myocardial scintigram was also taken 2 hrs after exercise and at rest on the other day. Relative Tl activity, % Tl activity of the defect to the normal myocardium, was calculated. Transient ischemic myocardium was characterized by low perfusion area (RTA=80%) which partially redistributed 2 hrs after exercise and RTA at rest was 96%. On the other hand, infarcted myocardium had lower RTA (60%) compared to the transient ischemic area and had no redistribution after exercise. In the case of transient ischemia complicated with MI, RTA of the infarcted area decreased after exercise, which was in accord with "paradoxical redistribution" phenomenon. This was clearly demonstrated in pts with MI and AP which disappeared after successful surgery. Quantitative methods enables us to differentiate transient ischemic from infarcted myocardium.

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CLINICAL USEFULNESS OF SEVEN PINHOLE TOMOGRAPHIC IMAGING IN ESTIMATING THE EXTENT OF MYOCARDIAL ISCHEMIA. Y. Ishida, K. Kimura, M. Inoue, M. Fukushima, K. Sato, and H. Abe. 1st Dept. of Med. Osaka University Medical School. Osaka.

Twelve patients (pts) with prior myocardial infarction (MI) and 6 pts without MI had imaging at rest with Tl-201. Ten pts with effort angina and 2 pts with variant angina had imaging during myocardial ischemia induced by symptom-limited maximal exercise and ergonovine (0.1-0.4mg) injection respectively, and 3 hours after relief of ischemic chest pain. Each pts had seven pinhole (7P) tomographic imaging with a large field of view gamma camera (SHIMAZU) and ADAC's reconstruction algorithm, and conventional planar imaging.

In detecting MI, the sensitivity and specificity were 91.7% (11/12) and 67% (4/6) for 7P images vs 75% (9/12) and 100% (6/6) for planar images. 7P imaging had higher sensitivity but lower specificity than planar imaging. The locations of abnormal areas detected in 7P images were corresponded with those of aknetic areas in biplane left ventriculography. In the studies of pts with effort angina and with variant angina, all of them showed typical defects at anginal attack induced in both imagings.

These results suggested that 7P imaging provided more precise information about the presence and the extent of myocardial ischemia than conventional planar imaging.

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CLINICAL EVALUATION OF DIAGNOSIS OF INFERIOR AND POSTERIOR WALL MYOCARDIAL INFARCTION BY Tl-201 MYOCARDIAL SCINTIGRAPHY USING SLANT-HOLE COLLIMATOR—COMPARISON WITH ECHOCARDIOGRAM AND ELECTROCARDIOGRAM. T. Uehara, T. Nishimura, H. Naito, K. Hayashida, T. Kozuka, E. Boku* and H. Sakakibara*. National Cardiovascular Center, Department of Radiology and Internal Medicine* Osaka.

Clear myocardial image of RAO view could be obtained by Tl-201 myocardial perfusion imaging using slant-hole collimator. As the result, antero-lateral and postero-septal myocardial wall otherwise blind could be revealed and additionally as RAO was long-axis view, it had a great benefit for estimation of inferior, posterior and apical region. The boundary between apical and inferior wall could be decided on a third point from apex, the base portion of papillary muscle. The comparison of aknesis by echo-cardiogram and contrast left ventriculography and perfusion defect by myocardial perfusion imaging in 67 cases of myocardial infarction showed that in single vessel disease above variables had good agreement but in triple vessel disease less agreement, above all LVG was most sensitive to ischemic portion.

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POST-OPERATIVE STUDY OF HEART DISEASES WITH RCG. K. Ishii, K. Nakazawa, T. Kobayashi, S. Yamada, S. Horiike, S. Kusano, T. Watanabe, K. Yoda, T. Matsubayashi, H. Asari, A. Ishihara. Kitasato University School of Medicine. Sagami-hara.

RI angiocardiology is very useful to examine post-operative heart diseases, because it has few risks for the patients, is simple to perform, and can be repeated any number of times.

We performed RCG on 53 cases suffered from heart diseases with shunt and 14 cases suffered from valvular heart diseases. We recognized residual shunt on RCG in 9 cases out of 30 with ventricular septal defects, and no residual shunt in 14 cases with atrial septal defects. For only one patient who had ASD we performed cardiac catheterization. We compared the ejection fraction at rest to those during exercise on the patients with mitral valve diseases. The ejection fraction during exercise increased in the patients performed commissulectomy, but decreased or did not change in the patients performed mitral valve replacement.