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INCIDENCE AND MECHANISM OF EARLY REDISTRIBUTION OF STRESS-INDUCED THALLIUM DEFECTS. Y. Ohmori, T. Kajiya, H. Shiotani, Y. Nakashima, K. Fujitani and H. Fukuzaki. Dept. of Int. Med., Div. 1, Kobe Univ. Sch. of Med. Kobe. K. Maeda. Kobe Univ. Sch. of allied Med. Sci.

This study was designed to determine whether stress-induced thallium(Tl) defects can resolve early after Tl injection and to evaluate the incidence and the mechanism of early redistribution(ER). We studied 40 patients(pts) with coronary artery disease undergoing stress Tl scans. The first scan(Ex1) began immediately after exercise and the second(Ex2) began 15 min later in the LAO projection. Significant resolution of Tl defects from Ex1 to Ex2 was judged as positive ER. There were 8 pts(20%) with ER and all of these defects showed further "fill in" on delayed image. Although there was no significant relation between work load, RPP and ER, there was significantly less frequently of history of OMI. All but one of pts with ER showed ischemic ST change on exercise and recovery of ST depression was faster in pts with ER than those without ER. In addition, 7 of 8 pts with ER have been collateralized from non-diseased vessels. In summary, (1) ER of stress-induced Tl defects occurs in 20% of pts. (2) The mechanism of ER is considerably related to restoration of myocardial blood flow in the transient ischemic region from non-jeopardized collateral vessels. (3) To diagnose angina pectoris, Tl imaging immediately after exercise is of great usefulness.

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QUANTITATIVE ESTIMATION OF THE RIGHT VENTRICULAR OVERLOAD ON TL-201 MYOCARDIAL SCINTIGRAPHY IN PATIENTS WITH VARIOUS RESPIRATORY DISEASES. J. Hirayama, T. Fujii, S. Kusama, K. Hirano, K. Yano and M. Takizawa The 1st Dept. of Internal Medicine, Division of Radiology, Shinshu University Hospital. Matsumoto.

For evaluation of the right ventricular (RV) overload, Tl-201 myocardial scintigraphy was performed in 10 patients with various respiratory diseases, and quantitative assessment of it was studied to compare these results with autopsy findings.

On intravenous administration of Tl-201, initial transit of the tracer through the heart and the subsequent static image were recorded in 30 degree left anterior oblique position using a scintillation camera coupling to a small digital computer.

The radioactivity of total injected dosis of Tl-201(T) was calculated from the radio-nuclide angiogram, and that of RV(R) and LV plus ventricular septum(L) was done from the static image, on which the angiogram showing RV was superimposed. By these procedures, RV or LV uptake ratio of Tl-201 was calculated by ratio R or L to T. (Rt, Lt) At the time of autopsy, the weight of RV free wall, LV one and septum was measured by the method of Fulton et al, respectively (Ra, La, Sa) and the thickness of RV and LV free wall was done. (Rw, Lw)

Results 1) Lt/Rt ratio was well correlated with La+Sa/Ra ratio. 2) There was a higher correlation between Rt and Ra than between Rt and Rw.

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EVALUATION OF RVH CRITERIA OF ECG BY ^{201}Tl MYOCARDIAL PERFUSION SCINTIGRAPHY. Y. Araki*, N. Tanaka*, M. Sawada*, K. Sakaguchi*, S. Kudo*, K. Fujita*, T. Kitano**, Y. Fukunaga**. The Third Department of Internal Medicine* and Department of Radiology and Nuclear Medicine**, Osaka Prefectural Habikino Hospital. Habikino.

^{201}Tl myocardial perfusion scintigraphy, which was useful method for evaluation of RVH, has been discussed. From the thallium activity in left ventricle (plus ventricular septum) and right ventricle, we determined the thallium activity ratio of left to right ventricle (TAR). We compared TAR with pulmonary hemodynamics and with left to right ventricular mass ratio measured at autopsy, and obtained the following results. The TAR was correlated significantly pulmonary artery mean pressure, and ventricular mass ratio.

The comparison of validity of several ECG criterias of RVH with TAR in 250 patients with chronic pulmonary disease, the sensitivity of WHO, Sasamoto, Milnor and Roman's ECG criteria of RVH was 61%, 58%, 33% and 50% respectively. These results suggested that these ^{201}Tl scintigraphy were less sensitive than ^{201}Tl scintigraphy for evaluating RVH in patients with chronic pulmonary disease.

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ESTIMATION OF RIGHT VENTRICLE BY EXERCISED ^{201}Tl -MYOCARDIAL SCINTIGRAPHY. A. Momose, M. Sawai, A. Mikuniya, K. Onodera and *K. Nishizawa. 2nd Dept. Hirosaki Univ. School of Medicine, *Rad. Dept. Hirosaki Univ. School of Medicine.

This study was undertaken to detect the clinical significance of exercised ^{201}Tl -myocardial scintigraphy on estimating right ventricular ischemia, collateral circulation, and patency of A-C bypass graph.

Subjects were divided into two groups according to coronary arteriograms. (1) 12 patients who have significant stenose over 50% narrowing in right coronary artery (RCA group), (2) 15 patients without any significant stenosis in right coronary artery (non-RCA group).

Early ^{201}Tl images were obtained 5 minutes after the end of exercise, and delayed images after 4 hours. Evaluation of right ventricular free wall was made by counting number in ROI set on upper right ventricular wall; RV(u), lower right ventricular wall; RV(l), and maximal point in left ventricular wall; LV(p).

In non-RCA group we could not find significant difference of RV(u)/LV(p) or RV(l)/LV(p) between early image and delayed image, although RV(u)/LV(p) and RV(l)/LV(p) decreased in delayed image in RCA group. In patients who have collateral circulation to RCA or A-C bypass operation to RCA, the same tendency as that in non-RCA group was found.

Exercised ^{201}Tl -myocardial scintigraphy was useful to detect ischemic change due to right coronary artery disease.