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COMPARATIVE STUDY OF REST-EXERCISE RADIONUCLIDE ANGIOCARDIOGRAPHY AND REST-EXERCISE THALLIUM IMAGE IN THE DETECTION OF EXERTIONAL ANGINA. M.Oshima,S.Koseki and Y.Sugishita. Institute of Clinical Medicine The University of Tsukuba,Ibaraki, Japan.

Supine rest-exercise (R-Ex) radionuclide angiocardiology (RNAC) and wall motion (WM) using by Baird Atomic System-77 gamma camera and R-Ex thallium-201 myocardial images (Tl) were performed in 8 patients of exertional angina. Ex RNAC and Ex Tl images were acquired using the bicycle ergometer in a supine position with electrocardiography monitored by oscilloscope. The intensity of the Ex level was 20 to 40 watts/min. The end point of the Ex was appearance of typical anginal pain, depression of ST segment more than 2 mm.

In 7 cases, in which Ex WM revealed asynergy of left ventricle, Tl perfusion defect was also detected during Ex. In 3 of them, WM abnormalities (AB) and of hypoperfusion were completely coincided. In the 2 cases, WM dysfunction were larger than those of hypoperfusion detected by Ex Tl images. In the other cases this relationship was reversed.

We conclude the combination of R-Ex RNAC and R-Ex Tl images is a useful method for myocardial ischemia.

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ASSESSMENTS OF ISCHEMIC HEART DISEASE BY REGIONAL EJECTION FRACTION RADIONUCLIDE-IMAGES. A.Kasahara,S.Natsuzumi,K.Matsumoto,I.Seo*, A.Sakai*, and T.Slota*. Kori Hospital of Kansai Medical University and Kansai Medical University Hospital*. Neyagawa-shi and Morichiguchi-shi*.

Regional ejection fraction images of ischemic hearts(R.E.F.I.=SV image/diastole image, SV image=diastole image - systole image) in 33 old M.I. and 19 angina-pectoris pts were made by System 77(Baird Atomic), performed after Tc-99m first-pass angiocardiology from two projections. In referring the R.E.F.I.s of 33 old M.I.s to left-ventricular regional wall motions by radionuclide perimeter-displays of the M.I.'s hearts, localized hypokinesis or akinesis corresponded to the regions less than 40% or 20% regional ejection fractions respectively. Compared with infarct-sites proved by VCG, detectabilities of wall motion abnormality by the R.E.F.I. increased to 90% in anterior and lateral walls, but decreased in other regions to 60% or less. In 14 inferior M.I. pts diagnosed by ECG, six cases represented right-ventricular inferior wall involvements(akinesis) indicated by the right-ventricular R.E.F.I.s. In 4 cases of 19 angina-pectoris pts after ergometer-exercise tests abnormal small areas less than 3cm² were detectable by the left-ventricular R.E.F.I.s; they had more decreased R.E.F.s than 30% after exercise tests.

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CLINICAL EVALUATION OF SEGMENTAL WALL MOTION BY RADIONUCLIDE CARDIOANGIOGRAPHY IN THE PATIENTS WITH MYOCARDIAL INFARCTION. T.Nishimura, T.Uehara, H.Naito, M.Ota, T.Sugawara, H.Maeda,T.Kozuka,M.Saito, K.Haze, K.Hiramori, H.Sakakibara National Cardiovascular Center, Cardiology and Nuclear Medicine, Osaka

To detect segmental wall motion of left ventricle is useful to identify the size and location of infarcted areas in ischemic heart diseases.

In this study, segmental wall motion by radionuclide carduoangiography were evaluated to compare with contrast left ventriculogram and thallium perfusion scintigram in 50 patients of myocardial infarction.. Segmental wall motion in RAO position by first pass method, in LAO position by multi-gated method were evaluated by following methods. ED,ES images, sequential images,edge display,regional ejection fraction, and moving image systwm. The percent agreement of segmental wall motion were 84 % in 350 segments and segments 4,6,7 were good agreements than other segments. For the wall motion,a,dyskinesis were good agreements in both methods(RI andLVG). On the other hand, the size of infarction, that is, %thallium defects was good correlated with ejection fraction. From these data, wall motion was closely related with EF(ventricular function),therefore, regional ejection fractionwere developed and compared with LVG. Wall motion can be demonstrated quantitatively.

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ASSESSMENT OF RIGHT AND LEFT VENTRICULAR FUNCTION IN THE PATIENTS WITH ISCHEMIC HEART DISEASE BY RI ANGIOCARDIOGRAPHY. H.Adachi,Y.Torii,H.Miyanaga,H.Katsume,H.Ijichi,T.Kamide*,T.Watanabe*,M.Ochiai*,T.Ishizu*,T.Otomo**,H.Kunishige**. Kyoto Prefectural University of Medicine,Rakuto Hospital*and Matsushita Hospital**. Kyoto and Osaka.

Right and left ventricular ejection fraction(RVEF,LVEF),cardiac output(CO) and peak to peak time(PPT)from right and left ventricle were measured in the aged patients by first pass RI angiocardiology, and the analysis of the data stored in mini-computer interfaced from single crystal gamma camera. RVEF and LVEF were calculated from diastolic and systolic counts in time-activity curve. CO was obtained with Hamilton's method. PPT was obtained in the measuring of time difference of RV-LV peaks. The patients with IHD were divided into two groups;OM consisted of 18 patients with old myocardial infarction proved by ECG and TL-201 scintigraphy,IH of 14 patients with marked ST-T wave abnormality in ECG. Nine subjects were compared as controls. RVEF, LVEF and CO estimated by RI were correlated with those measured with cineangiography and dye dilution or Fick's method; RVEF r=0.88, LVEF r=0.79, CO r=0.74. The results were followed.

| | CI | SVI | RVEF | LVEF | R/L | RVEDV | LVEDV | PPT |
|-----|----|-----|------|------|-----|-------|-------|-----|
| IH: | D | D | D | D | N | N | N | I |
| OM: | D | D | N | D* | I | N | I* | I* |

I:Increase,D:Decrease,N:Unchange,*s IH v.OM