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DIAGNOSIS OF RIGHT VENTRICULAR MYOCARDIAL INFARCTION BY RADIONUCLIDE STUDY. T.Ohtake and A.Furuta. Kanto Rosai Hospital. Tokyo. N.Watanabe,J.Nishikawa,K.Machida,Y.Kuwashima, M.Iio. University of Tokyo. Tokyo.

4 cases of right ventricular(RV) myocardial infarction(MI) were presented. They were diagnosed by operation findings or Swan-Ganz catheter and echocardiogram findings.
All of them had almost complete obstruction of proximal right coronary artery(RCA) and had MI of left ventricular posterior and inferior wall.
In two cases of them, stress Tl-201 myocardial scan was performed and RV was not visualized both at stress and at redistribution, whereas in 9 cases without RCA stenosis RV was visualized at stress and the activity of visualization was decreased at redistribution except for 2 cases. In 8 cases with proximal RCA stenosis, various patterns of RV visualization was observed.
In all 4 cases of RVMI, local abnormal wall motion of RV was observed by phase analysis and cine study of gated cardiac blood pool scan.
Stress Tl-201 myocardial scan and gated blood pool scan will be useful for detecting RVMI. Especially, when local abnormal wall motion of RV is detected by gated cardiac blood pool scan, the diagnosis of RVMI may be reliable. But as to findings of Tl scan, further study will be required for the diagnosis of RVMI.

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LEFT VENTRICULAR DIASTOLIC FUNCTION IN PATIENTS WITH CORONARY ARTERY DISEASE. -CLINICAL ASSESSMENTS WITH EXERCISE FIRST-PASS RADIONUCLIDE ANGIOCARDIOGRAPHY-. T.Kanaya, Y.Watanabe, I.Tonooka, S.Sato, K.Tsuiki, S.Yasui, K.Takahashi and A.Komatani. Yamagata University School of Medicine, Yamagata.

To assess filling fraction(FF) at first third diastole,peak filling rate(PFR),time to peak filling(TPF) at rest and at peak upright bicycle exercise in 7 normal subjects and 45 patients with coronary artery disease(CAD),exercise first-pass radionuclide angiocardiography(Ex-RNA) were performed.
In response to exercise, FF remarkably decreased compared with the resting value in patients with severe coronary stenosis who had abnormal left ventricular ejection fraction at rest. In myocardial infarction(MI) group, the severity of CAD correlated well with PFR at rest. PFR at rest in MI compared with that in normal was decreased significantly.TPF at rest in patients with severe coronary artery stenosis were significantly longer than in normal,and decreased remarkably at peak exercise.
These data suggest that diastolic function can be noninvasively assessed in CAD using Ex-RNA and abnormalities in early left ventricular diastolic performance are often present even at rest in patients with CAD.

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ASYNCHRONOUS LEFT VENTRICULAR DIASTOLIC FILLING IN PATIENTS WITH ANGINA PECTORIS;ASSESSMENT WITH RADIONUCLIDE VENTRICULOGRAPHY. T.Yamagishi,M.Ozaki, T.Ikezono,T.Shimizu,H.Yamaoka,U.Furutani,Y.Matsuda, T.Kumada and R.Kusukawa. Yamaguchi University. Ube.

To study the relation between global(g) and regional(r) filling of LV, we conducted resting ECG-gated pool study in 22 normal subjects(N) and 22 patients with angina pectoris(AP) with stenosis(>75%) of only the main LAD. None had previous myocardial infarction. A computer program subdivided LV into 4 regions. The time-activity curve(30-40 msec/frame) and its first derivative curve of g-LV and r-LV[Septal(SEP), Apical(AX), Lateral(LAT)] were computed. End-systole(ES) of each region occured very close to g-ES in both groups. In g-LV, peak filling rate(PFR) was decreased($p<.001$) and the time to PFR(TPFR), measured from g-ES to PFR, was prolonged($p<.001$) in AP compared with N. In the side perfused by stenosed vessel(SEP and AX), PFR was slightly decreased in AX ($p<.02$), but not in SEP(NS), and TPFR was prolonged in AX($p<.001$) and in SEP($p<.001$) in AP compared with N. In the normally perfused side(LAT), there were no significant differences in PFR and in TPFR between N and AP. Total $|dt|$, which was defined as sum of the time differences from g-PFR to r-PFR(SEP,AX,LAT),was greater in AP than in N(45 ± 17, 85 ± 25 msec,$p<.001$). This indicates the presence of asynchronous diastolic filling in the different intracavital portions of LV in AP. A negative correlation existed between total $|dt|$ and g-PFR($r=-0.63$, $p<.001$). Thus, in AP, asynchronous diastolic filling occurs due to the filling disturbance in the affected side, which impairs the filling of g-LV.

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ASSESSMENT OF CARDIAC FUNCTION IN LEFT VENTRICULAR HYPERTROPHY BY FILLING FRACTION OBTAINED BY GATED RADIONUCLIDE ANGIOCARDIOGRAPHY. H.Adachi,H.Sugihara,H.Nakagawa, H.Katsume,H.Ijichi,T.Ishizu,O.Shimamura and M.Ochiai. Department of Medicine, Kyoto Prefectural University of Medicine and Kyoto Prefectural Rakuto Hospital, Kyoto.

Diastolic function in left ventricular(LV) hypertrophy was studied using filling fraction(FF) obtained by gated radionuclide angiocardiography(GRNA). GRNA was performed in the patients with hypertension and with hypertrophy determined by echocardiography. LV count curve generated from fixed ROI was analysed. Diastolic phase was divided into three time segments; end-systole(ES) to the first one third of diastole(Fl), Fl to the second one third(F2) and F2 to end-diastole (ED). FF was derived from filling counts in each segment divided by stroke counts. FF in the last segment(FF3) was calculated by 1-FF1-FF2.

Ejection fraction(EF) in cardiac hypertrophy was not significantly changed. FF1 decreased and FF2 or FF3 increased with the increase in wall thickness. These changes were emphasized in hypertrophy accompanied with dilatation.

Thus, in cardiac hypertrophy, systolic function indicated by EF remains normal but diastolic function by FF is impaired. Measurement of FF from GRNA is relatively easy as well as of EF, and FF is an useful index of cardiac function in LV hypertrophy.