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DEPRESSED RIGHT VENTRICULAR FUNCTION DURING EXERCISE IN HYPERTROPHIC CARDIOMYOPATHY. M.Ogata, K.Kihara, R.Yamaguchi, Y.Koga and H.Toshima, Kurume University School of Medicine, Kurume. H.Yuguchi, M.Hirashima, K.Kawakami, M.Takagi and Y.Shimokawa, Yame Public Hospital, Yame.

To assess right ventricular performance during exercise in patients with hypertrophic cardiomyopathy (HCM), gated radionuclide angiography was performed during supine bicycle exercise in 19 patients with HCM and 7 patients with chest pain syndrome (CP). Pulmonary artery (PA) pressure was simultaneously determined during exercise in all patients. Right ventricular ejection fraction (RVEF) at peak exercise increased from 46 to 56% in CP, but decreased from 54 to 48% in HCM. Left ventricular ejection fraction (LVEF) also decreased during exercise from 63 to 56% in HCM, but remained unchanged in CP (from 58 to 61%). In addition the change in mean PA pressure during exercise in HCM correlated with RVEF ($r = -0.57, p < 0.05$) and with LVEF ($r = -0.48, p < 0.05$). However the correlation between RVEF and LVEF was not significant.

These observations suggest that exercise depresses not only LVEF but RVEF in patients with HCM. The elevation of PA pressure (increased afterload), resulted from deterioration of LVEF, may be a mechanism for the decrease in RVEF during exercise in HCM, in addition to cardiomyopathic involvement of the RV muscle.

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ANALYSIS OF RIGHT VENTRICULAR FUNCTION USING FIRST PASS AND EQUILIBRIUM RADIONUCLIDE VENTRICULOGRAPHY IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION. A.Yamashina, N.Hayashida, M.Igarashi, M.Yamada, St.Luke's International Hospital

To assess the right ventricular (RV) function and its evolutionary changes in early phase of acute myocardial infarction (AMI), first pass (FP) and equilibrium (EQ) radionuclide ventriculography (RVG) were performed in 44 patients with AMI; 19 of them with RCA lesion and 25 of them with non-RCA lesion. Studies were done twice in each patient, first at acute (within 3 days) and second at subacute (2 to 3 weeks after the onset) phase of AMI. RVEF is calculated from FP RVG by manual ROI and regional wall motion (RWM) is evaluated from cine mode display of FP and LAO EQ RVG. At acute phase, RVEF were significantly lower in RCA group than non-RCA group (43.4 ± 12.4 vs $58.4 \pm 6.6\%$, $p < 0.01$). Incidence of RV RWM abnormalities were significantly higher in RCA group than non-RCA group (79 vs 8%). In RCA group, reduced RVEF and RWM abnormalities are frequently seen in patients with proximal lesion. However; second study showed marked improvement of RV contractility in cases with RV involvement regardless to the angiographical patency of RCA and there was no significant difference in RVEF (53.0 ± 8.7 vs $56.0 \pm 6.0\%$) in two groups. Thus, it is concluded that RV is frequently involved with AMI due to RCA lesion but its dysfunction is almost transient.

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EVALUATION OF RIGHT VENTRICULAR FUNCTION IN PATIENTS WITH DILATED CARDIOMYOPATHY AND OLD MYOCARDIAL INFARCTION BY FIRST-PASS RADIONUCLIDE VENTRICULOGAM. H. Hoshi, I. Tonooka, S. Sato, M. Meguro, Y. Yamaguchi, I. Masakane, K. Tsuiki, S. Yasui, *A. Komatani, *K. Takahashi. The 1st Department of Internal Medicine, *The Department of Radiology, Yamagata University School of Medicine

To estimate the right ventricular function, first-pass radionuclide ventriculogram (RVN) was performed in 12 patients with Dilated Cardiomyopathy (DCM), 13 patients with antero-septal myocardial infarction (OMI) and 11 normal subjects. The left ventricular ejection fraction (LVEF) in DCM group or OMI group was significantly lower than in normals. The right ventricular ejection fraction (RVEF) in DCM group was significantly lower than that of normals, but RVEF in OMI group was not different from that in normals. Right ventricular end-diastolic pressure was quite similar between DCM group and OMI group. Pulmonary arterial mean pressure (PAPm) had tendency to be higher in DCM group than in OMI group. According to the PAPm, DCM group was classified two subgroups. DCM-L-group; PAPm ≤ 18 mmHg. DCM-H-group; PAPm > 18 mmHg. PAPm was not different between DCM-L-group and OMI group, but RVEF was significantly lower in DCM-L-group than in OMI group. The right ventricular dysfunction in patients with DCM may reflect the right ventricular myocardial degeneration.

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ANALYSIS OF RIGHT VENTRICULAR FUNCTION IN CHRONIC PULMONARY DISEASE BY MULTIGATED FORWARD AND BACKWARD DATA COLLECTION. K.Inouye, K.Maeda and H.Fukuzaki, Akashi National Hospital and Kobe University School of Medicine.

To analyze right ventricular function, multigated forward and backward data collection were performed in 30 cases with chronic pulmonary disease. It is the unavoidable problem on the evaluation of right ventricular function by using multigated blood pool scintigrams that right ventricle often overlaps right atrium. To solve this problem, cine mode, stroke volume image and paradoxical image were made in advance of drawing up ROI of right ventricle. The data was acquired in a list mode with R wave time marker and multigated images were reformatted forward and backward from the time marker. The systolic indices: RVEF and PER, and diastolic indices: PFR and FF were calculated from the forward formatting right ventricular volume curve. The right atrial systolic indices: AC/SV and PFR-AC were obtained from the backward right ventricular curve. RVEF calculated by this method was closely correlated with one by First Pass method. ($P < 0.81$) RVEF, PER, PFR and FF were significantly lower in patients with Cor Pulmonale, whereas only PFR and FF decreased significantly without Cor Pulmonale. AC/SV and PFR-AC increased significantly with and without Cor Pulmonale.

These findings suggested that RV diastolic dysfunction was the early indicator of latent Cor Pulmonale.