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CORRELATION BETWEEN VENTRICULAR ARRHYTHMIAS AND REGIONAL WALL MOTION ABNORMALITIES IN PATIENTS WITH OLD MYOCARDIAL INFARCTION. T.Ichikawa, K.Makino, N.Okita, Y.Futagami, T.Konishi, M.Hamada, T.Nakano, H.Takezawa. 1st Dept. of Intern. Med. H.Maeda. Radiology Mie University School of Medicine. Tsu.

Long term prognosis in patients with old myocardial infarction (OMI) is influenced by severity of ventricular arrhythmias. We investigated the relation between the severity of ventricular arrhythmias and regional wall motion abnormalities. Materials and methods: 54 cases documented OMI were studied with 24hrs Holter EKG and gated blood pool scintigraphy (GBPS). Severity of ventricular arrhythmias was graded by Lown's classification. Meanwhile, the degree of wall motion abnormality was not only judged visually, but decided by measuring SD of phase angle in phase image. Results: No significant arrhythmias (less than grade II) were documented in all groups of wall motion abnormality. Grave arrhythmias (more than grade III) had a tendency to appear more frequently in patients with severe wall motion abnormality, especially whose SD of phase angle was more than 20°. We conclude that the quantitative estimation of wall motion abnormality using GBPS would be a useful index to decide the severity of ventricular arrhythmias and the prognosis in patients with OMI.

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EVALUATION OF DILATED CARDIOMYOPATHY AND CORONARY ARTERY DISEASE BY RADIONUCLIDE STUDY. S.Takaoka, H.Tabuchi, T.Ohkubo, H.Kataoka, K.Nakamura and S.Hashimoto. Kagoshima university. Kagoshima

7 cases of Dilated Cardiomyopathy (DCM) and 13 cases of Coronary artery disease (CAD) with marked decreased left ventricular function (LVEF 45%) were evaluated by radionuclide study. Patients were confirmed their diagnosis by coronary angiography and left ventriculography. Four projections of myocardial perfusion images were obtained after intravenous injection of thallium-201 at rest. Myocardial image was evaluated by qualitative method. Data analysis of multi gated radionuclide ventriculography was performed by Fourier function using 2nd harmonics. Detection of regional wall motion abnormality (RWMA) was studied by functional images constructed using parameters, regional ejection fraction (REF) and ejection time (RET). Only one patient of DCM revealed focal defect on the myocardial image. In 2 patients, RWMA was demonstrated on the RET image. Meanwhile all CAD patients had abnormal thallium-201 uptake on the myocardial image. They also showed RWMA at the same lesion on the REF and RET image. We could differ DCM from CAD in most patients with poor left ventricular function by radionuclide study.

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LEFT VENTRICULAR RESPONSE TO EXERCISE IN PATIENTS WITH SEVERE LEFT VENTRICULAR DYSFUNCTION: DILATED CARDIOMYOPATHY VS. CORONARY ARTERY DISEASE Michiaki Hiroe, Fumiko Kawasaki, Takafumi Nishioka, Kiyoko Kusakabe, Hajime Arai, Takashi Kikigawa, Shigeko Shigeta, Morie Sekiguchi, Koshichiro Hirose, Dept. of Radiology and Heart Institute of Japan, Tokyo Women's Medical College, Tokyo.

Ventricular function in 23 patients with clinical class II or III failure were examined at rest and on exercise by equilibrium radionuclide ventriculography. The exercise response was compared in 9 with dilated cardiomyopathy (DCM) with normal coronary arteries and 14 with severe multivessel coronary artery disease (CAD). DCM was limited by dyspnea. Nine with CAD were limited by dyspnea without angina and ST depression (CAD-A) and 5 with CAD were limited by angina and a positive exercise test (CAD+A). Patients in all 3 groups achieved a similar percentage of their predicted workload (DCM $53 \pm 16\%$, CAD-A $55 \pm 15\%$, CAD+A $55 \pm 15\%$). Patients with severe left ventricular dysfunction without ischemia (DCM and CAD-A) can increase or maintain their ejection fraction on exercise. In contrast when ischemia occurs end-systolic volume increase disproportionately compared to end-diastolic volume and ejection fraction falls. This study suggests that DCM and CAD have a different response of the left ventricle to exercise but that the two can be only separated when there is a fall in ejection fraction indicating exercise-induced myocardial ischemia.

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LONG FOLLOW-UP STUDY BY RADIONUCLIDE METHOD IN PATIENTS WITH PRIOR MYOCARDITIS Michiaki Hiroe, Yukioko Kawasaki, Takafumi Nishioka, Kiyoko Kusakabe, Hajime Arai, Takashi Kikigawa, Tokiko Shigeta, Machiki Take, Morie Sekiguchi, Dept. of Radiology, The Heart Institute of Japan, Tokyo Women's Medical College, Tokyo.

Myocardial lesion by exercise myocardial thallium-201 imaging and left ventricular response to stress by gated ventriculography was evaluated in patients with prior myocarditis and sex- and age-matched control. Exercise capacity on a supine bicycle ergometer was limited in the myocarditis. Constant perfusion abnormality as non-homogeneous and transmural perfusion defect was demonstrated in the myocarditis. The mean resting ejection (LVEF) in the myocarditis was almost similar to that of the control: 57 ± 12 and $57 \pm 8\%$ respectively. On exercise, LVEF of the myocarditis showed flat response with increment of end-diastolic (EDV) and end-systolic (ESV) volume, while in the control LVEF significantly increased with reduction of ESV.

This study indicates that in patients with prior myocarditis left ventricular dysfunction on exercise is clear, concomitant with myocardial pathology, and suggests that radionuclide cardiology will be more sensitive and useful for long follow-up study.