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CHARACTERISTICS OF PULMONARY PERFUSION IN DILATED CARDIOMYOPATHY

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To study utility of Tc99m-MAA computerized pulmonary perfusion images (digital perfusion images:DPI) for estimating state of the patients with dilated cardiomyopathy (DCM) DPI were underwent in 24 patients with DCM. DPI were evaluated by the counts at 70% high to the counts at 30% high ratio (distribution index:DI). Various types of DPI were obtained and DPI were classified to 6 grades according to patterns of hyperperfusion area in anterior DPI. Well correlation between DI and mPw (mean pulmonary artery wedge pressure) were obtained, i.e. $mPw=12.7+7.6DI$ ($r=0.66, n=24$). Specificity and predictive value of $DI \geq 1$ for mPw ≥ 20 mmHg were 100% (7/7 and 13/13 respectively). In 13 patients with $DI \geq 1$ mPw exceeded 20 mmHg, 10 of 13 patients belonged to functional class NYHA 3° & 4° and 9 patients died within 2 years. $DI=1$ was thought to be critical value for patients with DCM. It was concluded that asymptomatic outpatients with $DI \geq 1$ must be treated under cautious medical attention.

Noninvasive DPI were expected as a useful images for establishing prognosis and selection of therapy in patients with DCM.

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THE EFFECT OF NITROGLYCERIN ON GLOBAL AND REGIONAL LV FUNCTION AT REST AND DURING EXERCISE.--ASSESSMENT BY FIRST PASS RADIO-NUCLIDE ANGIOCARDIOGRAPHY--.

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To evaluate the effect of nitroglycerin (N) on LV function at rest and during exercise, we assessed LVEF, LV volumes, systolic pressure/end systolic volume (SP/ESV) and regional EF (REF) by radionuclide angiocardiology (RNA). RNA was performed at rest, during exercise (E), after N drip infusion at rest (NR) and after N drip infusion during exercise (NE). The study group consisted of 10 patients with angina pectoris (G-A) and 14 patients with myocardial infarction (G-M). All patients had more than 75 percent stenosis of at least one coronary artery. In G-A, LVEF, LV volumes and REF remained unchanged at rest by N. LVEF and REF decreased significantly, EDV and ESV increased significantly on E and NE. However, these abnormalities were mitigated by N. In G-M, global and regional LV function were less than those of G-A at rest, but LVEF was improved significantly by N. LVEF, SP/ESV and REF decreased, EDV and ESV increased significantly on E and NE as well as G-A. However, these abnormalities were mitigated by N as well as G-A. We concluded that N improved global LV function at rest in G-M and N mitigated global and regional LV functional abnormalities during exercise in G-A and G-M.

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LEFT VENTRICULAR RESPONSE TO EXERCISE IN PATIENTS WITH HYPERTROPHIC CARDIOMYOPATHY (HCM): CORRELATIVE STUDY OF CLINICAL FINDINGS. K. Otsubo, M. Hiroe, K. Kusakabe, A. Shigeta, T. Horie, M. Sekiguchi, K. Hirokawa. Tokyo Women's Medical College, Tokyo.

In 31 patients with HCM, left ventricular function was measured at rest and during exercise by gated cardiac blood pool imaging. The patients were divided with the two groups according to the characteristics of the ejection fraction response to exercise; group A with increase of ejection fraction more 5% in absolute and group B with decrease or no change of ejection fraction.

Clinical findings and Tl-201 myocardial tomography (SPECT) were compared in both groups. The perfusion defect was observed in 63% of patients belonging to group B, the abnormal reaction group. The ventricular premature beat were also observed in group B. The reduction of cardiac function and malignant arrhythmias in patients with HCM might be result from severe myocardial pathology.

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EXERCISE VERSUS DOBUTAMINE INFUSION STRESS RADIONUCLIDE VENTRICULOGRAPHY (RNV) IN PATIENTS WITH CORONARY DISEASE. M. Yamamuro, T. Yada, Y. Futagami, T. Konishi, T. Nakano, H. Takezawa. 1st Department of Internal Medicine, Mie University, Tsu, Mie.

An alternate method of increasing myocardial oxygen consumption, incremental infusion of dobutamine (5-15 μ g/kg/m.) was compared to supine bicycle exercise in 20 patients with coronary artery disease (CAD) and 7 normals. RNV was performed during both forms of stress. Results: Rate pressure products was 15000 during infusion of dobutamine versus 15500 during exercise. LVEF was unchanged during exercise, but significantly improved during infusion of dobutamine in patients with CAD. Of normal patients, LVEF was significantly improved both during exercise and dobutamine infusion. New wall motion abnormalities were detected in 53% of the CAD patients during exercise, and 10% during dobutamine infusion. LV matrix was unchanged during both exercise and dobutamine infusion in normal control. But in patients with CAD, LV matrix was increased during exercise and decreased during dobutamine infusion. Conclusion: 1) Dobutamine RNV did not provide a sensitive method to detect CAD in patients who cannot exercise. 2) Dobutamine is a safe and effective drug in CAD patients.