EVALUATION OF THE MECHANISMS OF EXERCISE INDUCED ST ELEVATION IN OLD ANTERIOR MYOCARDIAL INFARCTION CARDIAC BLOOD POOL SCAN.

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To evaluate the mechanisms of exercise induced ST elevation, we performed 201-TL SPECT and Radionuclide angiography in 22 patients with Old anterior myocardial infarction. Ex-induced ST elevation was observed in 15 patients, not in 7. Redistribution of 201-TL was found significantly between these two groups. In 7 out of 15 patients with ST elevation after ISDN, 8 after Nifedipine, 11 after Propanolol, Ex-induce ST elevation had improved. ISDN had decreased ESV & EDVI and Propanolol had reduced significantly pressure rate products, but no significant changes had been found between before and after Nifedipine. These findings suggest that Ex-induced ST elevation could have changed by these drugs and have a relation to the changes of left ventricular geometry, in addition to Ex-induce ischemia.

RADIONUCLIDE EVALUATION OF EXERCISE TOLERANCE SOON AFTER ACUTE MYOCARDIAL INFARCTION (AMI).

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The aim of this study is to clarify the relationship between the radionuclide (RI) studies in 38 patients (mean 54 years) with AMI and exercise test (EXT) soon after the onset. RI studies include 99mTc-Radionuclide ventriculography for global and regional (MI site and non-MI site) ejection fraction (EF) and 201-Tl Imaging for TIMI performed 1 week after AMI. EXT using Naughton’s protocol was done from 10 days to 4 weeks (mostly 2 weeks) after AMI. End point of EXT was heart rate (120/min), 5 METS, ST depression and elevation (>1mm).

G-EF was 43±12.3%, MI-EF 29±13.9%, non-MI-EF 62±17.0%, TIMI 32±6.1, peak heart rate (PHR) 112±14.6/min DF 14.11±8 (X10³), EA-stage 3.9±1.3. TIMI correlated with not only GEF but also MI-EF (both p<0.01). G-EF and TIMI showed significant relationship with Naughton’s stage (both p<0.05). As to the regional EF, although MI-EF did not correlate with EX parameters, non-MI-EF showed significant relationship with peak HR (p<0.01) and Dr (p<0.05).

Therefore we conclude that in AMI although left ventricular function depends on infarct size, EX tolerance soon after AMI was not ascribed to depressed left ventricular function of the MI site, but with the compensatory function of the non-MI site.

PREDISCHARGE LOW LEVEL EXERCISE RADIONUCLIDE VENTRICULOGRAPHY AFTER ACUTE MYOCARDIAL INFARCTION: VALUE AND LIMITATIONS.

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To assess the value of predischarge low level exercise radionuclide ventriculography (BVO) in patients with AMI, we assessed a mean of 15.7 days after acute myocardial infarction (AMI). RVG were used to measure left ventricular ejection fraction (LVEF), and regional wall motion (RWM) at rest and peak exercise. Twelve lead ECGs were analyzed for segment changes. Exercise was performed safely and its peak workload was 88 watt and mean peak heart rate (HR) was 10±/min, in all 25 patients. Exercise were terminated due to leg fatigue in 13, target HR (120/m) in 9, and ST depression with chest pain in 2 patients. Abnormal ECG changes, abnormal exercise response of LVEF (LVEF<50%), and exercise induced RWM abnormalities were noted in 2 of 16 (15%) patients with single vessel CAD (SVD) and 5 of 9 (55%) patients with multivessel CAD (MVD), 2 of 16 (13%) with SVD and 8 of 9 (89%) with MVD, 1 of 16 (6%) with SVD and 5 of 9 (55%) with MVD, respectively. Although there are limitation of low peak workload level due to leg fatigue, predischarge exercise RVG was safe and quite useful for the evaluation of cardiac function and for the prediction of multivessel CAD patients especially in comparison with the ordinary stress electrocardiographic test.

EXERCISE LEFT VENTRICULAR FUNCTION. THREE MONTHS AFTER ACUTE ANTERIOR VS. INFERIOR MYOCARDIAL INFARCTION.


Left ventricular (LV) size and function were assessed in 27 patients following acute myocardial infarction (MI) by radionuclide ventriculography performed at rest (R) and during peak supine exercise (E). Patients were divided into 3 groups: 9 patients with anterior MI (ANT); 8 with inferior MI and moderate to severe right ventricular hypokinesia by scan (RV), and 10 with inferior MI but without RV abnormalities (INF). Maximal exercise loads were not significantly different among ANT, RV, and INF. Radionuclide volumes were derived using a geometric area/length analysis. Heart rate, systolic blood pressure, left ventricular end-diastolic volume, end systolic volume and ejection fraction are compared among the three groups. In conclusion, left ventricular function is more impaired 3 months after ANT MI than after RV or INF, whereas, there was no difference between RV and INF. The increase in EDV with exercise in INF, but not in ANT MI, that adequate right ventricular contraction contributes to preload compensation of the left ventricle to exercise stress after INF MI.