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EXERCISE RADIONUCLIDE VENTRICULOGRAPHY IN ASSESSING RIGHT VENTRICULAR FUNCTION. T.Nishioka, M.Hiroe, Y.Kawasaki, K.Kusakabe, T.Kikegawa, H.Arai, A.Shigeta, T.Honda, M.Sekiguchi, K.Hirosawa and M.Endo. Tokyo Womens Medical College. Tokyo.

To evaluate response of right ventricular ejection fraction (RVEF) to exercise before and after aortocoronary bypass graft (ACBG) surgery, stress Tc-99m ventriculography were performed on 18 patients (pts) with ischemic heart disease (angina pectoris and angina pectoris & old myocardial infarction). They were assigned to 3 groups (Gp.): Gp.1 consisted of 7 pts with two bypass grafts to left coronary artery (LCA) and right coronary artery (RCA); Gp.2 of 4 pts with a bypass graft to LCA, although they had significant stenosis of RCA; Gp.3 of 7 pts with a bypass graft to LCA and without significant stenosis of RCA. Before ACBG, left ventricular ejection fraction (LVEF) and RVEF in all groups decreased during exercise because of stress induced myocardial ischemia of the LV. After ACBG, both LVEF and RVEF increased during exercise.

This study indicates that response of RVEF to exercise mainly depends upon the change of LVEF, while depending upon the lesion of RCA.

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EVALUATION OF RIGHT VENTRICULAR FUNCTION WITH VALVULAR HEART DISEASE BY RADIONUCLIDE VENTRICULOGRAPHY (FIRST PASS METHOD). T.Uehara, T.Nishimura, K.Hayashida, and T.Kozuka. National Cardiovascular Center, Suita.

To evaluate right ventricular function in valvular heart disease, radionuclide ventriculography (first pass method) were performed in this study. There were 39 cases of mitral valve disease, 19 cases of aortic valve disease and 10 cases of combined valvular heart disease. All patients had cardiac catheterization within 2 weeks before and after first pass method. In mitral valve disease, mean PA pressure showed good correlation with RVEF ( $r=-0.75$ ), whereas in aortic valve disease, there was no correlation between RVEF and mean PA pressure. However, in aortic valve disease, RVEF showed slightly decrease in relation to the increase of left ventricular volume ( $r=-0.85$ ). Then in cases of aortic valve disease, RVEF increased nearly 10 point after operation (valve replacement) in relation to the decrease of left ventricular volume.

In conclusion, RVEF was influenced by mechanical factor such as addition to the pressure and/or ventricular loading of right ventricle.

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EVALUATION OF VENTRICULAR FUNCTION IN ACUTE MYOCARDIAL INFARCTION BY COMBINATION OF Tc-99m-PYP AND FIRST PASS METHOD. K.Hayashida, T.Nishimura, T.Uehara, T.Kozuka, T.Sumiyoshi\*, and M.Saito\*. Dept. of Radiology and Internal Medicine\*, National Cardiovascular Center, Suita.

For evaluating left and right ventricular function, LVEF and RVEF were obtained from first pass method of Tc-99m-PYP scan in 40 cases of suspected acute myocardial infarction. After grading size from +0 to +4 and uptake rate from +0 to +4 (Parkey's classification), PYP score was obtained by the ratio of size x uptake rate. LVEF showed weak correlation with PYP score ( $n=23$ ,  $R=-0.404$ ). In 12 cases, to evaluate resumption of ventricular function, the values of LVEF and RVEF were obtained by first pass method which was done at more than 10th (up to 60th) hospital day. The values of LVEF were improved by more than 10% in 7 cases, by 1 to 9% in 3 cases and by less than 0% in 2 cases, whereas those of RVEF were improved by more than 10% in 2 cases, by 1 to 9% in 6 cases and by less than 0% in 4 cases. Comparing myocardial imaging by TlCl-201 with that by Tc-99m-PYP, infarct area by Tc-99m-PYP scan was larger than that of TlCl-201 scan. Furthermore, 3 of 16 cases of uptake (Parkey +3--+4) showed normal perfusion by TlCl-201 scan. Evaluation of ventricular function at acute phase was very important to prognose severity of myocardial infarction.

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ANALYSIS OF LEFT VENTRICULAR VOLUME WITH COUNT METHOD. K.Hayashida, T.Nishimura, T.Uehara, and T.Kozuka. Dept. of Radiology, National Cardiovascular Center, Suita.

Analysis of left ventricular volume was attempted by left ventricular count method to apply for the routine work. Left ventricular count standardized by equilibrium blood sampling (Blood Sampling Method) was well correlated with left ventricular volume from dye dilution method ( $R=0.962$ ). However, it is difficult to obtain blood samplings in daily examination. Right and left average count (RVC and LVC) was measured by equilibrium image for 1 min as same as MUGA position. RVC ( $R=0.946$ ) had better correlation than LVC ( $R=0.854$ ). After correction of ventricular alignment by ratio of RVC/LVC (Normal value=0.982) left ventricular count was standardized by RVC (RVC method) without blood samplings. With comparison of left ventricular volume from cineangiography, analysis of left ventricular volume from RVC method ( $R=0.87$ ) had almost same accuracy with that of left ventricular volume from blood sampling method. As left ventricular volume determination is easy to get with RVC method, clinical usage of this method will be utilized.