

177

EXERCISE Tl SCINTIGRAPHY IN THE EVALUATION OF AORTO-CORONARY BYPASS SURGERY. K.Kanno, T.Sumiyoshi, M.Saito, J.Koda, K.Fukami, K.Haze, K.Hiramori, T.Nishimura*, K.Kozuka*. Division of Cardiology, Dep of Int Med and Radiology*. National Cardiovascular Center. Osaka.

The effect of Aorto-Coronary Bypass (A-C Bypass) surgery was studied by exercise Tl scintigraphy (ETS). Twenty seven patients (17 with old myocardial infarction (OMI), 10 with no OMI) were studied with pre- and post operative ETS. Exercise was performed using bicycle ergometer and Tl was injected at exercise endpoint. Transient myocardial ischemia was quantitatively evaluated by sequential Tl activity ratio (STAR, a ratio of Tl activity in a ROI of redistribution image to that of exercise image. STAR was positively correlated with the severity of coronary stenosis and was greater in patients with positive ST changes ($p < 0.05$). Δ STAR (postoperative change in STAR) was correlated with preoperative STAR ($r = 0.63$, $p < 0.01$). When patients were grouped into A ($n = 14$) and B ($n = 13$) by postoperative Δ STAR in bypassed area (A: Δ STAR $\geq 10\%$, B: Δ STAR $< 10\%$), incidence of patients with postoperative improvement in exertional chest pain, exercise capacity, and exercise ST changes were significantly higher in group A ($p < 0.05$ in all parameters). These findings indicated that Δ STAR could be an index of clinical improvement of transient myocardial ischemia after A-C Bypass surgery.

178

ESTIMATION OF AORTO-CORONARY BYPASS BY RI STUDY. T.Ohtake, J.Nishikawa, K.Machida and M.Iio. University of Tokyo Faculty of Medicine. Tokyo.

We evaluated coronary bypass surgery in 25 bypasses of 12 cases with the radio-isotope (RI) studies. Tl-201 myocardium scan and Tc-99m in vivo labeled RBC multigated heart pool scan were performed before & after operation. Left ventricular global ejection fraction (EF), quantitative regional EF (amplitude image of phase analysis) and cine wall motion were obtained with multigated heart pool scan. In 20 coronary bypasses to the ischemic lesions, Tl-201 perfusion at rest improved and regional EF slightly improved especially in case of more than 60ml/min bypass flow, although cine wall motion did not improve remarkably. In 11 coronary bypasses to the lesion of infarction, Tl-201 perfusion at rest, regional EF and cine wall motion didn't change. In all cases, left ventricular global EF didn't improve significantly. As to estimation of aorto-coronary bypass, RI study won't be able to excel coronary angiography and CT scan in the judgement of patency of coronary bypass, but it has the advantage of estimating the improvement of cardiac function (myocardial blood flow, ventricular wall motion, etc). In conclusion, Tl-201 myocardium scan and amplitude image of phase analysis of multigated scan may be useful methods in estimating aorto-coronary bypass.

179

RIGHT AND LEFT VENTRICULAR FUNCTIONS BY RADIONUCLIDE VENTRICULOGRAPHY IN HEMODIALYSIS

T.Muto, K.Okuzumi, M.Kasai, Y.Kawamura, T.Uchi, R.Aoki, S.Iida, S.Hasegawa and T.Morishita. (1st Dept. of Int. Med., Toho Univ.), Y.Sasaki. (Dept. of Radiology, Toho Univ. Tokyo)

Right and left ventricular function were measured by radionuclide ventriculography before and immediately after hemodialysis in 18 patients with hemodialysis therapy. Body weight decreased 1.4 Kg after dialysis. CO and CI were higher than normal. LVEF was not significantly increased by dialysis ($60.5 \pm 6.85\%$ before vs. $64.2 \pm 8.91\%$ after) (mean $\pm$ S.D.), but RVEF was significantly increased ($41.2 \pm 8.00\%$ before vs. $50.0 \pm 11.76\%$ after) ($P < 0.01$). LVEF/LVET was not significantly increased by dialysis ($23.7 \pm 4.82\%$ msec before vs. $25.4 \pm 2.11\%$ msec after), but RVEF/RVET was significantly increased ($16.7 \pm 2.28\%$ msec before vs. $20.9 \pm 5.91\%$ msec after) ($P < 0.05$). LVPEP/LVET was not significantly decreased by dialysis ($23.7 \pm 4.82\%$ before vs. $20.4 \pm 2.11\%$ after), but RVPEP/RVET was significantly decreased ($26.2 \pm 7.04\%$ before vs. $20.7 \pm 4.55\%$ after) ($P < 0.01$). These suggested that right ventricular contractility was improved by reduction of volume overload.

180

CORRELATION BETWEEN A LOCATION OF MYOCARDIAL INFARCTION AND BIVENTRICULAR FUNCTION.

— SO-CALLED "CROSS-TALK" PHENOMENON. T.Nishimura, K.Hayashida, T.Uehara, H.Ohmine, M.Kimura, T.Kozuka. Department of Radiology, National cardiovascular center. Osaka.

From review of cardiac blood pool scans performed in our institute for these two years, we assured that standard values of left ventricular ejection fraction (LVEF), right ventricular ejection fraction (RVEF), left ventricular enddiastolic volume (LVEDV) and right ventricular enddiastolic volume (RVEDV) were 60%, 54%, 103ml and 115ml, respectively. While we elucidated an influence of a location of myocardial infarction to biventricular function. In group of anterior wall infarction, they had a low LVEF (36%), a large LVEDV (163ml) and delayed LV contraction evaluated from a phase analysis method but not impaired RV function (RVEF=53%, RVEDV=119ml). Group of inferior wall infarction had subnormal LV function (LVEF=50%, LVEDV=132ml) but also dilated right ventricle (RVEF=50%, RVEDV=133ml). And it was characteristic that a group of RV infarction had apparent biventricular dysfunction, that is, LVEF=48%, RVEF=37%, LVEDV=156ml, RVEDV=208ml. So we concluded that "cross-talk" phenomenon between right and left ventricle in patients of myocardial infarction might be expected only those of right ventricular infarction.