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FOLLOW-UP STUDY OF ISCHEMIC HEART DISEASE BY RADIOCARDIOGRAPHY. K.Matsumura, T.Mori and T.Haiyama. Kyoto Minami Hospital. Kyoto.

Radiocardiography(RCG) was recorded 4262 cases from July '76 to March '84. We studied about 40 cases of ischemic disease and 28 cases of hypertension who had sequentially more than four times of RCG.

	CI( $\ell/\text{min}/\text{m}^2$ )	TBV( $\ell/\text{m}^2$ )	TVR(dynes. $\text{cm}^{-5}.\text{sec}$ )
Normal	3.61 $\pm$ 0.56	2.51 $\pm$ 0.23	1150 $\pm$ 300
IHD	2.88 $\pm$ 0.51	2.57 $\pm$ 0.30	1670 $\pm$ 370
Hypertension	3.32 $\pm$ 0.57	2.54 $\pm$ 0.26	1620 $\pm$ 310

Cardiac index was significantly decreased in IHD and still more decreased in digitalized IHD. Cardiac index and total vascular resistance were correlated to the group of NYHA-functional classification. In the follow-up study for 3.7 years(mean), classification of cardiac function was divided four groups (improved 6 cases, worsen 14, stable 11, unstable 9).

	CI( $\ell/\text{min}/\text{m}^2$ )	TBV( $\ell/\text{m}^2$ )	TVR(dynes. $\text{cm}^{-5}.\text{sec}$ )
improved	2.70 $\pm$ 0.44	2.50 $\pm$ 0.31	1500 $\pm$ 190
cases	3.75 $\pm$ 0.66	2.65 $\pm$ 0.11	1100 $\pm$ 250
worsen	3.24 $\pm$ 0.40	2.58 $\pm$ 0.32	1440 $\pm$ 340
cases	2.17 $\pm$ 0.24	2.68 $\pm$ 0.49	2180 $\pm$ 550

RCG was beneficial to assess the therapeutic responses in short term follow-up(mean 3.6 months). Finally, we studied about the correlation between cardiac output, stroke volume and left ventricular ejection fraction by means of gamma-camera-computer analysis (HARP).

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EVALUATION OF LEFT VENTRICULAR FUNCTION BY SINGLE CARDIAC PROBE SYSTEM(OMNISCOPE). M.Ide, N.Kanemoto, Y.Goto and Y.Suzuki. Tokai University, Isehara.

With the purpose to evaluate the clinical usefulness of the OMNISCOPE, RI-angiography was performed on 54 patients with ischemic heart disease(IHD). Eight patients without heart disease were used as controls.

Method: Left ventricular function at rest and during hand-grip exercise test was assessed. Left ventricular function was include ejection fraction(EF), ejection rate(ER), relative cardiac output(RCO), peak ejection rate(PER) and peak filling rate(PFR). Results: The HRS, SBPs, DBPs and Double products(DP) were all significantly increased during exercise both in control group and in IHD group( $p < 0.01$ ). In control group, the EFs, ERs, RCOs and PERs were increased during exercise significantly ( $p < 0.01$ ). But in IHD group, the EFs, ERs and PERs were decreased significantly during exercise( $p < 0.01$ ) without changes in the RCOs and PFRs. In low EF group(EF $< 50\%$  in IHD group), the ERs, RCOs, PERs and PFRs were significantly smaller than those of control group and high EF group(EF $> 50\%$  in IHD group)( $p < 0.01$ ).

Conclusion: OMNISCOPE is very useful for evaluating the left ventricular-function both at rest and during exercise.

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POSTOPERATIVE EVALUATION OF EXTRA ANATOMICAL BYPASS SURGERY BY RADIONUCLIDE ANGIOGRAPHY (RNA). K.Hayashida, T.Nishimura, T.Uehara, and T.Kozuka. National Cardiovascular Center, Suita, Osaka.

Extra anatomical bypass (EAB) is one of surgical method for repairing aortic aneurysma. EAB was applied for thoracic aortic aneurysma (7 cases) and dissecting aortic aneurysma (4 cases). (Mean age. 61 $\pm$ 8 yrs.)

Postoperative assessment was done by CT, DSA and RNA. Diagnostic accuracy of these three methods was as follows: 100%, 100% and 100% on bypass patency; 82%, 100% and 100% on clamp leakage; 100%, 0% and 82% on thrombus formation; 18%, 64% and 82% on retrograde blood from bypass graft.

Postoperative cardiac function was also evaluated by gated cardiac scan. To evaluate left ventricular systolic and diastolic function of EAB cases, LVEF, 1/3FF and 1/3FRm was calculated and compared with those from 10 cases of normal cases. Results were as follows: LVEF was 61.7  $\pm$  5.8% and 59.2  $\pm$  6.8%, 1/3FF was 22.4  $\pm$  4.6% and 33.9  $\pm$  6.2%, 1/3FRm was 1.0  $\pm$  0.2 sec $^{-1}$  and 1.5 $\pm$ 0.2 sec $^{-1}$ . As a result, diastolic compliance (1/3FF and 1/3FRm) of EAB cases was significantly low comparing with that of normal cases.

Radionuclide angiography is noninvasive method to evaluate not only bypass patency, but also cardiac function of postoperative state.

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EVALUATION OF LEFT VENTRICULAR FUNCTION OF OLD MYOCARDIAL INFARCTION PATIENTS USING NUCLEAR STETHOSCOPE IN EXERCISE STRESS TESTING.COMPARISON OF ELECTROCARDIOGRAPHIC AND LEFT VENTRICULAR EJECTION FRACTION RESPONSE TO EXERCISE STRESS TEST. M.Shimizu, T.Sekiya, Y.Yamazaki, Y.Furukawa, K.Yamamoto, F.Hatogai, M.Tonooka, A.Nakayama, T.Saito and Y.Inagaki. The 3rd Dept. of Int. Med. Chiba Univ. School of Med. K.Akezuma. Dept. of Radiol. Chiba Univ. Hosp. N.Arimizu. Dept. of Radiol. Chiba Univ. School of Med.

We assessed the left ventricular ejection fraction(EF) of old myocardial infarction (OMI) patients during multistage exercise test. Fourteen of 39 OMI patients showed no ST changes during exercise(group A), and in remaining 25 patients, the ischemic ST depression occurred(group B). EF during exercise was measured by Nuclear Stethoscope(BIOS) using Tc-99m labelled red blood cell in equilibrium state. In normal healthy group, EF increased as exercise load increase and reached plateau. While, in group A, though a little increase of EF was found out in early stage of exercise, soon it decreased lower than before. And in group B, EF decrease was seen in early stage of exercise. It was suggested that continuous monitoring of EF during exercise stress test will be usefull method for evaluating cardiac reserve of OMI patients.