

I. Cardiovascular

1101

EVALUATION OF DEGREE OF TRICUSPID REGURGITATION BY RADIONUCLIDE ANGIO-CARDIOGRAPHY. T. Uehara, T. Nishimura, K. Hayashida, H. Ohmine, T. Kozuka, K. Miyatake*, M. Okamoto*, H. Sakakibara*
Department of Radiology, Cardiology, National Cardiovascular Center, Osaka

The degree of the tricuspid regurgitation (T.R.) was evaluated with first pass radionuclide angiocardiology. The pertinent indexes extracted from this were as follows; 1) the degree of enlargement of the right atrium(RA), 2) the opacification of the inferior vena cava(IVC) or the zigzag pattern of the time-activity curve of the superior vena cava(SVC), 3) the valve of $Tl/2(RA) / Tl/2(SVC)$ calculated from the time-activity curve, 4) the increase of counts in decreasing time-activity curve of the RA divided by counts of the right ventricular stroke volume in the same phase, so called R.F.(regurgitant fraction). $TR_{4/4}$ has severely enlarged RA, opacification of IVC or zigzag pattern of SVC, severely prolonged $Tl/2(RA) / Tl/2(SVC)$ and large valve of R.F. $TR_{2/4-3/4}$ has moderately enlarged RA, characteristic large initial wave of RA, moderately prolonged $Tl/2(RA) / Tl/2(SVC)$ and moderate valve of R.F. The evaluation of the degree of the TR by radionuclide angiography has good relation to that by doppler echogram. In conclusion these analysis were thought to be useful for estimation of TR in addition to the conventional method.

1102

QUANTITATIVE EVALUATION OF TRICUSPID REGURGITATION BY DIGITAL SIMULATION METHOD.

Monique HUNAULT, Nagara TAMAKI, Kotaro MINATO, Takao MUKAI, Kazutaka YAMAMOTO, Yasushi ISHII, Kanji TORIZUKA and Yutaka KONISHI (Dept. of Radiol.&Nucl. Med.& 2nd Dept. of Surgery, Kyoto Univ.)

To evaluate quantitatively the tricuspid regurgitation flow, a fitting curve method by computer has been performed: the transport in the right side of the heart of 5mCi of $^{99m}TcMAA$ intravenously administered, is recorded in anterior view by gamma camera system. A series of time activity curves is selected for superior vena cava, right atrium and right ventricle. Interpreted by compartmental analysis, these curves are simulated by parametric differential equations. At the end of iterative process of comparison between original and simulated curves, rate of regurgitation can be determined. Intra and inter observers variations of results show a significant correlation.

1103

PHARMACOLOGIC INTERVENTION IN RADIONUCLIDE ANGIOCARDIOGRAPHY : ALTERATION OF AFTERLOAD WITH ANGIOTENSIN AND NITRATE IN THE ASSESSMENT OF LEFT VENTRICULAR FUNCTION. H. Adachi, H. Sugihara, H. Miyanaga, H. Katsume, H. Ijichi, Y. Torii, T. Ishizu, O. Shimamura, M. Ochiai Department of Medicine, Kyoto Prefectural University of Medicine and Kyoto Prefectural Rakuto Hospital. Kyoto

Exercise is an useful intervention to evaluate cardiac function but not always ideal for radionuclide angiocardiology (RNA) because of the longer data acquisition time and of mobile positional relation. We studied pharmacologic intervention by alteration of afterload (AoA) to left ventricle (LV) for RNA. LV ejection fraction (EF), end-diastolic and end-systolic volume (EDV, ESV) were measured in different pharmacologic loading conditions by equilibrium RNA. EF decreased correlatively with increasing LV afterload by intravenous angiotensin and was increased by nitrate. EDV inversely changed with EF by AoA. And the magnitude of the changes in EF and EDV was related to EF in control state and separated good LV function group from the impaired. E_{max} , the ratio of systolic brachial pressure to ESV obtained in different loading conditions, was correlated exponentially to EF and hyperbolically to EDV.

Thus, pharmacologic intervention in RNA was an useful technique for non-invasive assessment of LV function.

1104

RADIONUCLIDE CARDIAC FUNCTION EVALUATION IN ISCHEMIC HEART DISEASE, CARDIOMYOPATHY AND KAWASAKI'S DISEASE. Y. Tokuyasu, S. Kawasaki, K. Kusakabe, E. Tazaki, M. Sekiguchi, M. Hiroe and K. Hirose Dept. of Radiology and Heart Institute of Japan, Tokyo Women's Medical College. Tokyo

Left ventricular ejection fraction (EF: multigate), cardiac index (CI: Stewart-Hamilton) and LV end-diastolic volume (EDV: LV and Peripheral blood counting method) were measured in 116 confirmed cases (myocardial infarction (MI) 42, angina pectoris 23, Kawasaki's disease (MCLS) 6, hypertrophic cardiomyopathy (HCM) 24, dilated cardiomyopathy (DCM) 21) and 7 normal controls. The above 3 parameters were well correlated with those obtained by the invasive method using the thermodilution method and/or left ventriculography. The EF or CI was low in DCM, MI and MCLS, and the EDV was high in DCM and MCLS at rest. The EF during exercise increased in controls but was unchanged in other groups. The EF during exercise decreased significantly in HCM cases with exercised-induced ST depression.

In conclusion, our radionuclide study was useful in evaluating cardiac pump function and ventricular volume.