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IMPROVEMENT IN LEFT VENTRICULAR ASYNCHRONY AFTER PTCA IN PATIENTS WITH EFFORT ANGINA PECTORIS: ASSESSMENT WITH RADIONUCLIDE ANGIOGRAPHY

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In order to study the effect of PTCA on left ventricular function, we studied 14 patients with isolated disease of the left anterior descending branch using radionuclide angiography before and after PTCA. The time activity curves and its first derivative curves of the LV were analysed globally and regionally. Exercise Tl-201 myocardial scintigraphy was also carried out before and after PTCA.

After PTCA, eleven of 14 patients showed improvement in Tl defects which had been shown before PTCA. In these 11 patients, systolic function did not change, but PFR increased significantly ($p < 0.02$) after PTCA. Δ TES, which was defined as the sum of the time differences between global and regional minimum volume (septum, apex, lateral) and was a quantification of the end-systolic asynchrony, decreased significantly ($p < 0.02$) after PTCA. A close positive correlation was found between Δ TES and the degree of ischemia, which was computed by exercise Tl myocardial image ($r = 0.56$, $p < 0.01$). Thus, LV asynchrony, which is a manifestation of myocardial ischemia, is reversible after PTCA.

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EVALUATION OF RIGHT VENTRICULAR FUNCTION BY THE XE-133 INTRAVENOUS INJECTION METHOD. Y. Kawamura, K. Okamoto, M. Wakakura, T. Muto, I. Okuzumi, J. Yamazaki, T. Morishita (The 1st department of internal medicine Toho University school of medicine, Tokyo)

To measure the right ventricular ejection fraction (RVEF) in patients with right ventricular overloading diseases is available in assessing the hemodynamics. We evaluate the RVEF by Xe-133 (20m Ci) intravenous injection method using low energy all purpose collimator at RAO 30° projection. Correlation of RVEF between Tc-99m HSA, Kr-81m with Xe-133 was good in patients with 20 myocardial infarction and 10 chronic obstructive lung diseases and 10 normal cases. Reproducibility of Xe-133 RVEF was correlated well. Furthermore, we studied fundamental evaluation effected on RVEF changing dilution volume and injection speed. This method should be available for assessing the right ventricular intervention study.

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EVALUATION OF RIGHT VENTRICULAR SYSTOLIC AND DIASTOLIC FUNCTION BY USING CONTINUOUS INFUSION OF KR-81m

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Right ventricular (RV) systolic and diastolic function was assessed in normal subjects (N) and patients with anteroseptal myocardial infarction (AS-MI), with inferior myocardial infarction (I-MI), with hypertensive heart disease (HHD), with hypertrophic cardiomyopathy (HCM) and with dilated cardiomyopathy (DCM). Gated right ventriculography was performed using continuous infusion of Kr-81m in right anterior oblique position. Ejection Fraction, Peak Filling Rate as systolic indices, and Peak Filling Rate, Time to Peak Filling and 1/3 Mean Filling Rate were calculated from right ventricular time activity curve and its derivative curve. Systolic indices in DCM were smaller than in N, but there was no difference among N, AS-MI, I-MI, HT and HCM, whereas diastolic indices were lower in AS-MI having severe septal necrosis, I-MI, HT, HCM and DCM than in N.

Thus, in AS-MI having severe septal necrosis, I-MI, HT, HCM and DCM, RV diastolic function was impaired. Gated right ventriculography using continuous infusion of Kr-81m was useful for evaluation of not only systolic function, but also diastolic function in right ventricle.

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NONINVASIVE ASSESSMENT OF ISCHEMIC RIGHT VENTRICULAR DYSFUNCTION DURING ACUTE MYOCARDIAL INFARCT WITH GATED KR-81m BLOOD POOL SCANS. K. Minamiji, T. Kida, A. Takarada, M. Takeuchi, M. Fujino, H. Kurogane and Y. Yoshida. Himeji Cardiovascular Center, Himeji.

Gated Kr-81m blood pool imaging was performed to assess the global and regional right ventricular (RV) performance in 72 patients with acute myocardial infarct and 21 normal subjects. Kr-81m was continuously eluted from Rb-81 generator at a speed of 6 ml/min and infused through the right external jugular vein. A total of 3 to 4 million counts was collected and for calculation of RV ejection fraction (EF), regions of interest (ROI) were defined manually over RV in both end-diastolic and end-systolic frames without background correction. There was good correlation between Kr-81m RVEF and those calculated by Simpson's method ($r = 0.94$, $s_y \cdot x = 4.7$).

Kr-81m RVEF was $54.3 \pm 3.5\%$ for normal group, $54.7 \pm 5.0\%$ for LAD disease group ($n = 28$), $56.3 \pm 4.4\%$ for LCx disease group ($n = 15$) and $48.6 \pm 7.9\%$ for RCA disease group ($n = 29$), respectively. There was no significant difference in RVEF among the 4 groups. Of 28 with RCA disease, 9 (31%) had more depressed RVEF than mean-2SD of normal group value and 22 (76%) showed abnormal wall motion of RV, including akinesis in 11 (38%), severe hypokinesis in 7 (24%) and hypokinesis in 4 (14%). Kr-81m imaging is useful for the assessment of ischemic RV dysfunction.