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EFFECTS OF DRUGS THERAPY (NILUDIPINE, NIFEDIPINE) ON EXTENT OF MYOCARDIAL INFARCTION BY Tc-99m-PYP MYOCARDIAL SCINTIGRAM. H.Minami, Y.Kaneko, Y.nagai, I.Yamasawa, S.Konno, S.Kiyomi, N.Yaoita, K.Tubouchi, H.Takahashi, H.amari, K.Kimura, M.Takanashi, S.Abe, N.Akaba, Y.Kobayashi, Y.Nohara, H.Murayama. The 2nd Dept.of Intern. Med. and the Dept.of Radiology Tokyo Medical College, Tokyo, Japan

Recently, Ca-antagonist has been shown to prevent cell damage, especially in the ischemic myocardium. The purpose of this study is to observe the effects of Ca-antagonist on reducing myocardial infarction in dogs. Thirty-six mongrel dogs weighing about 12kg were used. Coronary occlusion only was performed in 10 dogs, and the remaining 26 had coronary occlusion plus daily I.V injection of drugs such as Nifedipine (0.05mg/day) Niludipine A (0.05mg/day) or Niludipine B (0.1mg/day). All dogs were sacrificed after 7 days. Infarct size was measured with Tc-99m-PYP scintigram. The size of myocardial infarction in the Niludipine A group was significantly smaller than that of the ligation group. However, the infarct size in both the Niludipine B group and the Nifedipine group showed no significant difference in comparison with the ligation group.

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THE USEFULNESS OF AMPLITUDE IMAGE AND PHASE IMAGE BY FOURIER ANALYSIS. Y.Tkuno, C.Tanaka, K.Takeuchi, H.Oku, T.Yoshimura, K.Kotsumi, H.Minamikawa, E.Inoue, H.Komatsu, K.Shiota, H.Ochi, Y.Onoyama, M.Omura, K.Hamada and M.Hara. Osaka City University and Marubun Corporation. Osaka and Tokyo.

We reported the usefulness of the amplitude image and the phase image obtained from ECG gated blood pool data by Fourier analysis. The principles of this method have been described by Bitter et al and Deconinck et al on the basis of the heart motion periodicity resemblance to a part of the sine curve. Namely, by the first harmonic in the Fourier series, we were able to recognize the heart motion as the amplitude and phase of time activity curve in each matrix. The distribution of the amplitudes and phases was displayed in color scale, and then the amplitude image and phase image were acquired. Fifteen patients were studied with this method. Ten of them were myocardial infarction (anterior 8, inferior 1, posterior 1) and the remaining five were conduction disturbance (C-LBBB 2, RV pacing 3). In the patients with conduction disturbance the phase image visualized the inhomogeneity of the contraction process, delayed contraction of left ventricle. On the other hand, in the patients with myocardial infarction those images allowed us visualization of ischemic area even if the scar was in regions parallel to the detector. Moreover, we were able to differentiate between hypokinetic region and dyskinetic region.

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QUANTITATION OF INTRACARDIAC SHUNT BY FOUR-COMPARTMENT MODEL: COMPARISON BETWEEN ADULT AND INFANT. K.Nishimura, T.Miyamae, Y.Dohi, K.Nakazawa and K.Ishii. Saitama Medical School and Kitasato University. Moroyama, Saitama and Kanagawa.

The 4-compartment model analysis is applied for a comparison between RI dilution characteristics for adult and infant patients with intracardiac shunt. We can get from this analysis the shunt rate as well as the staying times at right heart, left heart and lungs. The shunt rate obtained from this model is well correlated with that obtained by oximetry regardless of age. The distributions of staying times at the right heart and lung are rather narrow for adult patients without shunt. The distributions for infants with shunt are narrower and the mean values are shorter. Those for adult patient with shunt are very broad and the mean values are longer. The result suggests that: 1) Growth rate of a right ventricular volume is larger than that of cardiac output even in normal patient. 2) Adult patient with septal defect tends to have dilated right heart caused by pulmonary hypertension. 3) Long time suffering from septal defect tend to have functional valvular disorder. 4) The inner wall of adult patient's heart may have larger adhesion with RI than infants. The situations 1) and 2) are included in 4-compartment model but 3) and 4) are not taken into account. The result explains why there are few adult patients whose dilution curves can be analyzed by gamma variate or exponential fitting method.

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MEASUREMENT OF THE LEFT VENTRICULAR VOLUME BY CARDIAC POOL TOMOGRAPHY USING A SEVEN PINHOLE COLLIMATOR. H.murata, H.Toyama, M.Iio, S.Takaoka, S.Kawaguchi, M.Noguchi, E.Ohtake, K.Chiba, H.Yamada, J.Fujii, T.Aizawa, S.Ono and A.Ohta. Tokyo Metropolitan Geriatric Hospital and The Cardiovascular Institute, Tokyo.

A new method for the measurement of the left ventricular volume was developed and evaluated. Cardiac pool tomography was performed with a 7 pinhole collimator and the multigate method after the two injections of cold pyrophosphate and Tc-99m pertechnetate. Left ventricular transaxial tomographic slices in one cm thickness were reconstructed at ED and ES respectively and the volume of each slice was calculated by a computer. Previous to calculate the LV volume, axial distance from the apex to the base of LV was measured from LV pool image at ED and ES obtained by first pass method in RAO projection. Then LV volume was calculated by means of summation of volumes of corresponding slices to LV axial distance. LV volumes measured by the tomographic method were compared with those determined with contrast ventriculography in 13 cases with ischemic heart disease. LV volume obtained by the tomography correlated well at ED ($r=0.87$) and at ES ($r=0.93$) with those assessed from contrast ventriculography. The tomographic method was thought to be useful for clinical evaluation of left ventricular volume.