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COMPARISON OF LEFT VENTRICULAR AND RIGHT VENTRICULAR FUNCTION IN HEART DISEASE.

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We compared with RI angiocardiology (pooling scan at LAO 45°) and cineangiography in stenotic lesion and pressure data of heart. In anteroseptal myocardial infarction, LVEF decreased extremely and RVEF decreased slightly, conversely LVEF decreased slightly and RVEF decreased extremely in inferior infarction. In regional wall motion, anterior portion was hypokinetic in anteroseptal infarction, but didn't change in inferior infarction significantly. We recognized negative correlation between RV systolic pressure and PA mean pressure in cineangiography and RVEF in RI angiocardiology. Measurement of right ventricular function was very useful to determine severity and prognosis of heart failure.

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Realtime Analysis of the Cardiac Function.

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The realtime analysis of the cardiac function is very important to monitor the patient during the examination. Up to date, the cardiac studies in nuclear medicine are done with the use of general purposed computer, which is not convenient for the acquisition and calculation of image data.

We had the opportunity to use the new system, Shimazu Scintipac 70-A, for realtime analysis of the cardiac function. This system has the 2 Megabytes semiconductor memory which makes possible to acquire 64 X 64 images, and image processing unit which can calculate the image data rapidly. Using this system, it is possible to monitor the gated images, ejection fraction, cardiac out-put and R-R intervals, etc. in the realtime.

In clinical study, this system is very convenient and gives the useful informations even in the cases with cardiac arrhythmia.

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THE EVALUATION OF THE DIASTOLIC PHASE USING LV VOLUME CURVE OF THE SECOND HEART SOUND GATING METHOD. Y. Watanabe, A. Sakai, T. Shiota, T. Shiraishi, A. Kobayashi Department of Internal Medicine I and Radiology, Kansai Medical University, Osaka

The gating method using the second heart sound was designed in order to evaluate the diastolic phase in LV volume curve. The equilibrium method using R wave and 2nd heart sound (normal 6, MI 18, HT 2 and AR 2 cases). GCA-401, GAMMA11 PDP11/34 and 2nd heart sound (S2) gating equipment were used. Between R wave and S2 gating, the differences were significant in mean filling rate (mFR), rapid filling fraction (RFF) except ejection fraction (EF). mFR and RFF by S2 gating was not so good correlation with EF. Between normal group and MI gr. the difference was significant statistically in RFF ($p < 0.005$). The RFF was correlated with EF ($r = 0.82, p < 0.001$). RFF of MI who had more than 50% EF was decreased, compared with normal gr. Between normal gr. and MI gr. the difference was significant ($p < 0.005$). Evaluating mean ejection rate (mER) and mFR at the same time was useful in evaluation of OMI who had normal mER. In normal gr. mFR was nearly equal to mER. In MI gr. mFR was smaller than mER. In conclusion, S2 gating was useful in the evaluation of the diastolic phase. RFF and mFR were reliable in the evaluation of OMI who had normal EF and mER.

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A BASIC STUDY ON MYOCARDIAL IMAGING WITH SCINTILLATION CAMERA. H. Shinohara and Y. Koga Department of Radiology, Showa University Fujigaoka Hospital. Yokohama

Limitations of Tl-201 myocardial perfusion scintigram has been evaluated by Muller et al (1). Using ventricular phantom they presented the relationship of phantom scintigram grade visually evaluated to the index of defect for myocardial deficits. However detection limit for defect positioned at various distances from the body surface has not always been clarified. This paper reports the lesion detectability of scintillation camera for defect with a same size but having various object contrast. For this purpose we calculated the object contrast of defect positioned in myocardium, assuming a simple model for cross section of thorax. The defect having these object contrast were made with a phantom simulating myocardium and imaged with scintillation camera, to learn whether or not they could be detected. We conclude that it is difficult to detect a defect with volume of 12 cm³ in the postero-lateral resion or posterior resion if the target to non-target ratio of Tl-201 is equal to or less than 4:1. However it should be pointed out that if the calculated object contrast is higher than the true value the lesion detectability is overestimated while in the inverse case it is underestimated. It is not sufficiently examined in the present work how well the phantom study simulates clinical myocardial images. (1) Circulation 54:640-646, 1976