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MULTIDIRECTIONAL MODIFIED LAO ACQUISITION ON SHORT AXIS OF LEFT VENTRICLE IN CYCLIC GATED BLOOD POOL SCINTIGRAPHY.

T.Shimokata, K.Sakakura, J.Sakurai and Y.Futamura. Cardiovascular Division Meitetsu Hospital, Nagoya.

The analysis of left ventricular performance is commonly undergone using the modified left anterior oblique(MLAO) of cyclic gated blood pool images with parallel hole collimator. Nevertheless, it is occasionally difficult to determine the extension and the location of abnormal wall motion of left ventricle, because the anterior wall overlappes usually with the posterior wall.

The purpose of this study is to separate the overlapped wall motion and to get the accurate determination of the dyskinetic region.

The slant hole collimator was positioned to cranio-caudal MLAO and the long axial views were acquisited. In the same way, short axial views were obtained by the slant hole collimator positioned caudo-cranial MLAO.

By using a phase analysis combined with multidirectional MLAO acquisition, the accurate analysis of the dyskinesis was obtained in the case of the anterior overlapping of left ventricular wall motion.

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EVALUATION OF CORRECTION FOR CONCENTRATION OF RI TRACER BY FIRST PASS METHOD.

K.Iwata,H.Yoshimura,K.Ide,S.Tsutsui, K.Tanaka,H.Shibatsuji,S.Hamada,H.Ohishi and H.Uchida.Nara Medical University,Nara.

As the purpose of precise estimation of left ventricular ejection fraction(LVEF) by first pass method,we presented evaluation of correction of concentration using gamma variate function(GA method),in the 23d this meeting,1983. In this time,we'll report new technique averaging two kinds of LVEF on systlic phase and diastlic phase(S-D method) On 20 patients with approximately equal R-R wave interval,we studied the correlation between MUGA method and beat to beat method (B-B method),GA method and S-D method,respectively. In clinical cases,the correlation for B-B method with MUGA method was r=0.86, for GA method r=0.90,and for S-D method r= 0.91. In phantom study,both relative errors of GA method and S-D method were significantly smaller than that of B-B method,therefore determination of EF using GA method or S-D method was useful.
In considered of calculation easiness,we concluded that S-D method was more useful than other methods.

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FACTOR ANALYSIS OF TC-99M GATED BLOOD POOL IMAGES.

H. Inagaki, M. Ukai, M. Furui, S. Kamihara. Toyota Hospital, Toyoda. M. Koide, K. Yamauti, M. Yokota, I. Sotobata. Nagoya Univercity of Medcine, Nagoya.

Various methods, such as phase analysis, calculation of ejection fractions and processing of contur images, have been utilized in analysing Tc-99m gated blood pool images. Factor analysis, which is a new data processing method of dynamic scintigraphic images, was introduce in this study.
To assess the usefullness of factor analysis, we compaired both phase images and factor images to the radio-opaque left ventriculograms in 20 patients with cornary heart disease.
In the factor images, ventricles and atria were separated by the different contribution of the 1st and 2nd factor. And the abnormal wall motion was distinguished from the normal one by the greater contribution of the pathological factor.
This new method was also available for obtaining the abnormality of diastolic properties in patents with regurgitant valvular heart disease.

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USEFULNESS OF FACTOR ANALYSIS IN CARDIAC STUDIES.

K.Hirota, H.Kajino, Y.Ikuno, K.Takeuchi, T.Takeda, H.Ochi*, K.Hamada*, H.Ikeda*, M.Ohmura*, Y.Shimonishi*, Y.Onoyama*, T.Nakai**, C.Hidaka**, S.Matsumoto**, M.Hayashi***, I.Sano***. 1st Dept. of Internal Medicine and Radiology*, Osaka City Univ. Medical School, Radiology** and Internal Medicine***, Nissei Hospital,Osaka.

To evaluate the usefulness of factor analysis, 10 normals and 67 patients (15 RBBB, 10 LBBB, 10 pacemaker, 32 myocardial infarction) were studied by the cardiac blood-pool scintigraphy. In the normal cases, 2 factors were found in 6 cases, 3 factors in 4 cases. The first and the second factor of normals were thought to be ventricular and atrial factor, respectively. The third factor of normals was considered to represent extracardiac region in most cases. In the cases with conduction disturbance, an asynchrony between right and left ventricles could be detected both by factor analysis and by Fourier analysis in a similar fashion. In the cases with myocardial infarction, factor analysis could more sensitively detect regional wall motion abnormalities than Fourier analysis. The asynergy detected by factor analysis was compatible with the result of the contrast left ventriculography. Factor analysis was found to be a useful technique for cardiac scintigraphic studies.