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EVOLUTIONARY CHANGES IN RIGHT VENTRICULAR FUNCTION IN PATIENTS WITH ACUTE INFERIOR MYOCARDIAL INFARCTION.

M. Akanuma, F. Ohsuzu, S. Yanagida, M. Sakurada, H. Seguchi, S. Katushika, N. Aosaki, H. Nakamura, *T. Hoshina, *T. Shishido, *T. Sueoka, R. Takeshita, *H. Takanashi, *E. Takenaka and **H. W. Strauss. Dep. of Medicine and *Radiology, National Defense Medical College. **Mass. General Hospital.

Multigated blood pool imaging (MBPI) has a potential to get valuable informations like right ventriculography noninvasively. In order to evaluate the evolutionary changes in right ventricular function following the onset of acute infarction, we applied MBPI to 21 patients with inferior myocardial infarction in which hypokinesia or akinesia was found in RV free wall. MBPI was performed at the first day (ID), 10 day (10D) and 3 month (3M) following the onset of infarction. Right ventricular ejection fraction (RVEF) significantly increased from 1D to 10D ($31.7 \pm 12.9\%$ and $44.9 \pm 10.2\%$, Mean \pm SD, $p < 0.001$). However, no significant improvement was found in RVEF from 10D to 3M ($45.1 \pm 12.0\%$). These results suggest that right ventricular hypokinesia or akinesia in acute stage might reflect not only infarction, but also reversible ischemia of right ventricle in patients with acute inferior myocardial infarction.

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EVALUATION OF PERFUSION DEFECT BY THALLIUM MYOCARDIAL SCINTIGRAPHY AND WALL MOTION ABNORMALITY BY GATED BLOOD POOL SCINTIGRAPHY IN PATIENTS WITH DILATED CARDIOMYOPATHY.

M. Sawamura, M. Kinoshita, T. Fukuhara, T. Inoue, S. Nishikawa, M. Motomura, S. Kawakita, T. Suzuki, Y. Ikemoto and K. Masuda. Shiga University of Medical Science, Shiga.

We assessed perfusion defect (PD) by Tl myocardial scintigraphy (N=31) and wall motion abnormality (WMA) by gated blood pool scintigraphy (N=19) in patients with dilated cardiomyopathy (DCM) (N=31). LV contrast angiography (N=24) and endomyocardial biopsy (N=23) were also performed. Sixteen of DCM were assessed as PD(+) (apex: N=11, septum: N=6, anterolateral: N=5, inferior: N=4), and 15 as PD(-). EDVI with PD(+) was larger than with PD(-) (123.4 ± 32.9 vs 101.4 ± 24.0 ml, N.S.), and EF with PD(+) was lower than with PD(-) (26.7 ± 10.8 vs $42.4 \pm 13.3\%$, $p < 0.05$). DCM with PD(+) disclosed more frequent intraventricular conduction disturbance and abnormal Q wave on ECG than with PD(-). The biopsies showed that fibrosis existed more in PD(+) than PD(-) region. WMA was classified as dyskinesia (DK), akinesia (AK), hypokinesia (HK) and normokinesia (NK) on septal, apico-inferior and lateral regions. In 14 regions with PD(+), 13 had WMA (DK+AK+HK), and in 30 regions with PD(-), 3 had AK and 13 had NK. In conclusion, there were more incidences of severe cases of DCM with PD(+) than PD(-), and greater WMA in regions with PD(+) than PD(-).

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RADIONUCLIDE ANGIOGRAPHIC EVALUATION OF CARDIAC FUNCTION IN PATIENTS WITH DILATED CARDIOMYOPATHY.

K. Ono, K. Owada, Y. Miyazaki, H. Takahata, M. Takezawa, M. Komatsu, Z. Yamada, S. Suzuki, S. Yanagisawa, H. Yaoita, T. Uchida, S. Kariyone. Fukushima Medical College, Fukushima.

Dilated cardiomyopathy (DCM) usually shows diffuse dysfunction of left ventricle (LV). However, we found that regional dysfunction was seen in some cases of DCM just like in ischemic heart. Relationship between global and regional functions in LV was examined in DCM by multigated method.

In global functions, peak ejection rate, ejection fraction, peak filling rate and filling fraction were very low in almost cases, but time to peak ejection and time to peak filling were not changed.

Standard deviation (\pm SD) of LV phase angles was calculated as a regional function. Range of \pm SD spreaded from 7° to 68° ($28 \pm 13^\circ$). \pm SD were particularly high in dead cases. Cases over 25° of \pm SD had relatively lower LV functions than cases under 25° . In almost cases, \pm SD were inversely proportional to LV functions. However, in three dead cases, high degree of \pm SD were shown in spite of relatively better LV functions.

There were not significant correlations between \pm SD and CTR, CO or frequency of PVCs. But all patients with VT had high \pm SD exceeded 25° .

It was concluded that \pm SD was a good index to estimate the prognosis of patients with DCM.

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ASSESSMENT OF RIGHT AND LEFT VENTRICULAR FUNCTION OF DILATED CARDIOMYOPATHY BY EXERCISE RADIONUCLIDE VENTRICULOGRAPHY.

T. SHOHGASE, K. NAKADA, E. TUKAMOTO, K. ITOH, M. FURUDATE, A. MIYAMOTO*, T. KOBAYASHI*, and H. YASUDA*. Department of Nuclear Medicine and Cardiovascular Medicine*, Hokkaido University, School of Medicine, Sapporo, Japan.

The purpose of this study is to assess the relationship between the right and left ventricular function by the exercise radionuclide ventriculography. We performed exercise using supine bicycle ergometer in 12 normal volunteers as control group and 7 patients with dilated cardiomyopathy (DCM). We analyzed the right ventricular function with the multigated method using Kr-81m continuous infusion and the left ventricular function with the multigated method using Tc-99m RBC.

In the control group, right and left end-diastolic volume were decreased by the exercise. The systolic pressure-volume ratio (SBP/LVESV), RVEF and LVEF were increased. In the DCM group, exercise duration was less than control group. LVEDV were larger than those of control group. SBP/LVESV ratio and LVEF were not increased by the exercise, and they were correlated with the decreased exercise capacity.

In conclusion, these data suggested that DCM revealed not only left ventricular dysfunction but also right ventricular dysfunction.