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RE-EVALUATION OF ROI-RCG.

K.Matsumura,T.Mori,A.Hasegawa,T.Haiyama.
Kyoto Minami Hospital.

To estimate correlations between ROI-RCG and 2LIS-RCG, we studied about F/V ( cardiac output/total blood volume, cardiac pump efficiency ) in the variable ROI ( RV, main PA, lung, LV, RV+LV ). F/V of RV-ROI were calculated higher than 2LIS-RCG.(y= 2.08x-0.77, r=0.68). We apprised many parameters in RV-ROI RCG. ( *:p < 0.01 )

| | (F/V) | (CI) | (SI) |
|---|---|---|---|
| Normal(30) | 1.55±0.31 | 3.59±0.76 | 55±13 |
| Hypertension(77) | 1.61±0.29 | 3.78±0.79 | 57±14 |
| A.P.(39) | 1.42±0.31 | 3.32±0.72 | 48±11 |
| OMI (36) | 1.21±0.26* | 2.85±0.25* | 41±9* |

F/V, Cardiac Index, Stroke Volume Index, Pulmonary Circulation Time, Re-circulation Time and Total vascular Resistance were statistically different in Old Myocardial Infarction.( *:p<0.001,**:p<0.01,***:p<0.02)

| | (PCT) | (RCT) | TVR |
|---|---|---|---|
| Normal(30) | 7.5±0.9 | 22.3±2.7 | 1460±410 |
| Hypertension(77) | 7.6±1.8 | 23.0±3.8 | 1460±380 |
| A.P.(39) | 7.8±2.0 | 22.6±4.5 | 1600±410 |
| OMI(36) | 10.5±2.7** | 28.1±5.8* | 1860±530** |

Total blood volume ( by Fujita-Ogawa ) were lower estimated than RISA used method ( y=0.91x + 0.1, r=0.81 ) The best ROI was RV plus LV.(r=0.52) Cardiac Output were overestimated on the RV-ROI RCG.

Corrected F/V = 0.75×(RV-ROI F/V)

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CARDIOFUNCTIONL ESTIMATION BY DYNAMIC RI HEART ANGIOGRPHY.

M.IDE, T.MURAMATSU,M.KANEKO, S.KIOSHITA
Y.DOHI, K.SUZUKI, M.MASHIMO, K.NISHIMURA and
T.MIYAMAE. Saitama Medical School. Saitama

The relation between radionuclide angiografic visualizing time of LV and LVEF was investigated in 159 patients with ischemic heart disease and hypertension.
Radionuclide angiography( Tc-99m, 15mCi )was performed and LV visualizing time was calcutated from the dynamic images.
Gated LVEF had been calculated by SHIMAZU scintipac 1200 for early 126 patients and scintipac 2400 for later 33 patients
The correlation between visualizing time and LVEF was significant ( r= -0.771, p<0.001 ).
Better correlatation ratio was obtained used scintipac 2400 than used scintipac 1200, because that had been able to establish background ROI from used scintipac 2400.
In case of that visualizing time should prolonged compaired with LVEF, intracardiac regurgitation should be concerned in patients without pulmonary disease.
RI angiographic visualizing time of LV imageis easy and useful method for LV function.

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COMPARISONS BETWEEN CARDIAC POOL, MYOCARDIAL PERFUSION STUDIES AND DIGITAL SUBTRACTION ANGIOGRAPHY.

H.MAEDA,K.MIWA,N.ASADA,T.MATUSITA,K.YAMASITA,K.HAYAKAWA,D.HAMANAKA,T.ODORI AND
Y.ISHII. Fukui Medical School

Seven patients were studied with Tc-99m invivo labelling blood pool scintigraphies, Tl-201 myocardial scintigraphies and intravenous digital subtraction angiographies. Two were normal, three had the coronary heart disease and other two had valvular disease and hypertrophic cardio-myopathy. Data collections of both the blood pool and the myocardial perfusion images were synchronized with the R wave of ECG. One cardiac cycle was devided into 20 frames. The end diastole and the end systole images of the Tl-201 scintigraphies were analyzed by visual inspections in conjunction with a circumpherential profile program. With the help of this program the sensitivity was thought to be improved by approximately 4%. The blood pool images were analyzed by a phase analysis program, with the phase and amplitude distributions displayed on a CRT. The images of intravenous DSA were analyzed with a minicomputer by an automated edge detection program. The abnormal wall motions detected by DSA method had a good correlation with that of Tl-201 myocardial imagings. However, owing to the high spatial and time resolution of the DSA, the abnormal motion were detected easier in DSA than the other two methods in our present study.

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EFFECTS OF SPONTANEOUS RESPIRATION ON CARDIAC FUNCTION: ASSESSMENT BY RESPIRATORY AND ECG GATED RADIONUCLIDE VENTRICULOGRAPHY.

BH.Kim, Y.Ishida, Y.Tsuneoka, N.Matsubara, T.Hiraoka, Y.Hamanaka, M.Inoue, T.Kamada, K.Kimura, Y.Kusumi, H.Omori, Y.Nakamura.
Osaka University Medical School, Osaka.

To investigate the effects of spontaneous respiration on RV and LV function, we developed a new radionuclide ventriculographic method with respiratory and electrocardiographic gating technique. In this method, scintigraphic data were acquired in a list mode with ECG R wave and respiratory volume curve derived from respiratory flow meter. Then, two types of multi-gated images were produced and analyzed, using the pairs of data from cardiac cycles occurring during late phases of inspiration and expiration. When 11 patients with normal LV ejection fraction were studied, RV end-diastolic, end-systolic and stroke volumes were increased during inspiration by 17%, 10% and 25%, respectively. LV stroke volume was invariably decreased from 73 to 61 ml during inspiration. LV end-diastolic volume was also decreased from 111 to 91 ml but LV end-systolic volume was unchanged during inspiration.

These results indicate that inspiratory reduction of LV stroke volume resulted from a decrease in LV end-diastolic volume (preload), and this reduction of LV preload may be due in part to an increase in RV end-diastolic volume during inspiration.