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EVALUATION OF RIGHT VENTRICULAR PERFORMANCE IN PATIENTS WITH RESPIRATORY DISEASES USING FIRST PASS RADIONUCLIDE ANGIOCARDIOGRAPHY. J.Hirayama, T.Kambayashi, M.Hongo, T.Fujii, S.Kusama, H.Ueda and K.Yano. Shinshu University Hospital, Matsumoto.

In order to evaluate right ventricular (RV) performance in patients (pts) with respiratory diseases, RV ejection fraction (EF), which was obtained by ECG gated first pass method using Tc-99m, was compared with RV visualization (RVV) on Tl-201 images, the grade of respiratory failure (PaO₂<60Torr) and cor pulmonale. RVEF in 56 pts with respiratory diseases (44.7±9.6%) was significantly decreased than that in 8 normal subjects (60.7±7.3%). RVEF in 28 pts with positive RVV (39.0±7.5%) was significantly decreased than that in 25 pts with negative RVV (51.8±6.6%) and that in 11 cases of the former was less than 45%, while that was more than 45% in 20 cases of the latter. RVEF in 11 pts with respiratory failure (37.4±8.4%) was decreased than that in 32 pts without respiratory failure (47.0±9.4%). In 24 cases with RVEF<45% PaO₂ was 61.3±15.1Torr, while 71.9±9.2Torr in 19 cases with RVEF>45%. RVEF in 11 pts with cor pulmonale (34.3±5.1%) was significantly decreased than that in 45 pts without cor pulmonale (48.1±8.7%). As well as Tl-201 myocardial scintigraphy, first pass radionuclide angiocardiology seemed to provide some useful information to estimate the process of respiratory diseases.

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RIGHT VENTRICULAR EJECTION FRACTION IN OLD MYOCARDIAL INFARCTION—EVALUATION BY INTRAVENOUS INFUSION OF Kr-81m— T.Hosoi, F.Sakurai, M.Takahashi, S.Ohshima, S.Imai, H.Kanda, T.Suzuki, K.Murata and *K.Miyaishi. The Second Department of Internal Medicine, *Department of Radiology, Gunma University School of Medicine, Gunma.

In order to evaluate right ventricular performance in old myocardial infarction (MI), right ventricular ejection fraction (RVEF) was determined using Kr-81m in 38 patients, 9 cases of inferior MI with right coronary stenosis in proximal site of right ventricular branch (group I), 11 cases of inferior MI without stenosis in proximal site of right ventricular branch (group II), 18 cases of anterior infarction (group III), and 7 normal volunteers (group IV). RVEF was significantly lower in group I than in group IV (48.4 ± 7.7% to 55 ± 2.1% P 0.05). Furthermore, RVEF was decreased prominently in 3 patients in group I, presented hemodynamic RV dysfunction in acute phase. There were no significant differences among group II (56.6 ± 5.7%), III (55.6 ± 4.5) and IV. Thus, the right ventricular function was significantly impaired in chronic phase of inferior MI with right coronary stenosis in proximal site of right ventricular branch.

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ESTIMATION OF THE EXERCISE RIGHT VENTRICULAR PERFORMANCE IN PATIENTS WITH CHRONIC LUNG DISEASE. G.Sakuma†T.Nakamoto*†K.Matsuda†A.Aoki† A.Hasegawa†A.Masuyama†H.Maezawa† Y.Yoshimura†M.Goto**†K.Ichikawa*†N.Iwasaki** *The 1st Dept. of Int. Med., **RI Diag.Cent., Dokkyo Univ. School of Med., Tochigi.

In order to estimate the exercise right ventricular performance in patients with chronic lung disease, Multi-gated blood pool scintigraphy was employed. The subjects consisted of 14 patients with chronic lung disease (5 patients with hypoxemia and 9 patients without hypoxemia) and 10 normal subjects. Thirty mCi of Tc-99m was injected to the cubital vein. Then, data collection at rest and exercise state with a scinticamera was performed in LAO 45° during 180 seconds. The hemodynamic factors of the subject, in addition, were measured by the right heart catheterization. Based on these data, RVEF values and RVEDVI values were calculated. In normal subjects, exercise RVEF value significantly increased from 52±9% to 58±10% and the RVEDVI value significantly decreased from 113±31ml/m² to 59±15/m². On the contrary, in the patients with hypoxemia, exercise RVEF value significantly decreased from 35±13% to 30±11% and the RVEDVI value significantly increased from 78±14ml/m² to 98±20ml/m². Throughout these results, it was suggested that the patients with hypoxemia may complicate acute right sided heart failure even by slight exercise.

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DIAGNOSIS OF ARRHYTHMOGENIC RIGHT VENTRICULAR DYSPLASIA USING QUANTITATIVE RADIONUCLIDE CARDIOANGIOGRAPHY. T.Misawa, T.Uehara, K.Hayashida, S.Nagata, T.Ohe, K.Shimomura and C.Yutan. National Cardiovascular Center, Osaka

We evaluated right and left ventricular function in 7 cases of arrhythmogenic right ventricular dysplasia (ARVD) by radionuclide cardioangiography. The right and left ventricular ejection fraction (RVEF, LVEF) were calculated. And, phase and amplitude images were also obtained from gated blood pool scan. Mean RVEF was 38±10% in patients with ARVD and 56±5% in control subjects (p<0.001), respectively. In patients with ARVD, the phase image indicated the delay in the inferior wall of right ventricular inflow tract. Average of the standard deviation of the phase histogram was 31 degrees in patients with ARVD and 5 degrees in control subjects (p<0.001). The delayed site in the phase image was correlated to the site, in which was suggested the lesion by two-dimensional echocardiography and right ventriculography and the focus of ventricular tachycardia by electrophysiological examination. In conclusion, radionuclide method provides useful information in the diagnosis of patients with ARVD.