We concluded that factor analysis was equally valuable in detecting the diastole and systole. So we studied equilibrium radionuclide angiocardiography pattern recognition methods. Therefore, we studied 240 patients. One factor in C but in 50 of 6 LAM patients another factor was observed in the basal portion of the left ventricle. After surgical remove of myxoma, this abnormal factor of the left ventricle was disappeared. Factor analysis and Fourier analysis with phase image were equally valuable in detection of LAM.

We concluded that factor analysis was feasible to find a left atrial myxoma protruding into the left ventricle during the diastole, and factor analysis was useful equally as phase image for detection of LAM.

To evaluate phase analysis quantitatively, the relation between fusion wave in ECG and phase was examined. 3D left cardiac type W-P-W syndrome patients were studied by ECG and gated cardiac pool scintigraphy using in vivo labelled Tc-99m RBC 25-30mCi by PYT acquired from m-LAD35°. Fourier transform of the first harmonic approximation was performed and functional images of phase and amplitude were made. We took ROIs of each ventricle in phase image reffering amplitude image and made phase histograms of each ventricle. Max, Min, Mean value and standard deviation (SD) of each ventricle were calculated from phase histogram. Max-Min) of total ventricle, (right ventricular(RV) Mean - left ventricular(LV) Mean) and (RVM-In-LVM) had significant correlation with QRS interval of ECG. (r=0.75, 0.62, 0.50, respectively).

We concluded that phase distribution reflected fusion beat of W-P-W syndrome quantitatively, and so quantitative phase analysis was a reliable method for evaluating cardiac wall motion.


Factor analysis (FA), primarily used for the detection of regional wall motion abnormality, was applied to evaluate atrioventricular regurgitation by separating atrial factor from vessel and ventricular factors. To separate atrial factor effectively, optimal condition was determined in advance regarding to magnification, camera position on acquisition and pixel size to use. FA (3 factors to extract, using 8x8 compressed matrix size of LAO-MUGA image) was performed under the optimal condition in 20 control subjects (6 normal, 3 hypertension, 7 angina, 4 mitral stenosis). 6 patients with mitral regurgitation (MR) and 4 with tricuspid regurgitation (TR).

In controls, 3 factors due to atrium, vessel and ventricle were highly identified, and the separation rate was 80% for the right atrium (RA) and 85% for the left atrium (LA). However, RA in TR (75%) and LA in MR (89%) were inseparable from vessel factor. On the assumption that inseparation of atrium might be caused by atrioventricular regurgitation, sensitivity and specificity were 89% and 83% in MR, and 75% and 72% in TR, respectively.

In conclusion, FA is useful in the diagnosis of MR and TR from the viewpoint of separation or inseparation of atrial factor.