QUANTITATIVE EVALUATION OF PHASE IMAGE

ECC gated cardiac studies with phase analysis were performed in 58 patients with various heart diseases, including 30 patients with myocardial infarction (MI). To estimate a distribution of the left ventricular pixel phase values quantitatively, we used a parameter such as one standard deviation (1SD). We studied relation between phase distribution (1SD) and left ventricular ejection fraction (LVEF). The results were follows: 1) A significant difference was found between phase distribution (1SD) of 30 patients with MI and that of 28 patients with non MI. (85.0±13.6 degree versus 8.5±3.0 degree, p<0.005) 2) A significant relation was found between LVEF and phase distribution (1SD). (r=-0.75) 3) In 30 patients with MI, a significant relation was not found between LVEF and phase distribution (1SD). (r=-0.54) Concerning LVEF, there was no significant difference between antero-septal MI and infero-posterior MI, while the phase distribution of the former was larger than that of the latter. 5) In patients with MI, a significant relation was found between mean value of region with abnormal wall motion and the regional ejection fraction. (r=-0.76)

A METHOD OF QUANTITATIVE PHASE ANALYSIS FOR CARDIAC CONTRACTION.

The right ventricular (RV) emptying performance in patients with various congenital heart diseases was investigated by temporal Fourier analysis. K. Takada, H. Maeda, N. Yamaguchi, T. Nakagawa, M. Taguchi and S. Matsu University School of Medicine and Toshiba Corporation. Tsu, Mie and Nasu, Tochigi

The right ventricular (RV) emptying performance in patients with various congenital heart diseases was investigated by temporal Fourier analysis of multigated cardiac blood-pool studies on a pixel-by-pixel basis. In 15 normal subjects, the mean values of phase angle of the left ventricle (LV) and RV were -55.4±17.4, -58.9±18.2 degree respectively, and no significant difference between them (-3.5±11.5 degree) was shown. In patients with either ventricular septal defect (VSD) without pulmonary hypertension or RV pressure overload with intact ventricular septum (eg. small VSD, pulmonary stenosis or primary pulmonary hypertension et al.), phase and amplitude of both ventricles ranged within normal limits. By contrast, in patients with VSD associated with severe RV pressure overload, phases of RV were delayed and their differences between RV and LV became significant. This tendency of RV phase lag seems to be more intensified by the presence of RV outflow obstructive lesion (eg. Tetralogy of Fallot).