

157

PHASE ANALYSIS OF VENTRICULAR CONTRACTION AND ELECTRICAL EXCITATION IN CORRECTED TRANSPOSITION
C.Kondoh,M.Hiroe,K.Kusakabe,A.Shigeta,Y.Takahashi,S.Aiba and A.Takao.Tokyo Women's Medical College,Tokyo

Radionuclide phase analysis(RPA) was applied to analyze ventricular contraction pattern in 10 patients(pts) of corrected transposition. 2 pts also associated with single ventricle(SV). Electrical excitation was also evaluated using body surface maps (BSM) in all pts and epicardial maps(EPM) in 4 pts. In 7 pts other than SV cases,initial phase was recognized on the right upper portion of the ventricular septum(VS). Phase progressed to the morphological left ventricular(MLV) apex along the VS and at this time morphological right ventricular (MRV) apical contraction also started. In one pt,initial phase appeared at the anterolateral A-V groove of the MLV,suggesting the presence of accessory conduction pathway. These data corresponded with electrophysiological results. In SV cases, phase appeared on the upper portion of the VS and progressed on LV away from the outlet chamber(OC). Phase of the OC was extremely delayed. On BSM,however,initial electrical vector was directed toward the OC and on EPM Breakthrough appeared on the OC. In conclusion,the above data suggest that spread of the ventricular contraction corresponds with electrical excitation in pts without OC.

158

ANALYSIS OF LEFT VENTRICULAR DIASTOLIC PROPERTIES AND ATRIAL CONTRIBUTION DURING ACUTE INCREASE IN AFTERLOAD IN NORMAL SUBJECTS:ANALYSIS BY BACKWARD ECG GATED RADIONUCLIDE ANGIOGRAPHY.
Y.FURUTANI,M.OZAKI,T.IKEZONO,T.YAMAGISHI,T.SHIMIZU,R.KUSUKAWA.THE SECOND DEPARTMENT OF INTERNAL MEDICINE,YAMAGUCHI UNIVERSITY SCHOOL OF MEDICINE.

To evaluate the response of left ventricular diastolic properties and atrial contribution during acute increase in afterload, systolic blood pressure was elevated about 40 mmHg with angiotensin in 6 normal subjects. Using forward gating method, an increment of left ventricular counts during rapid filling phase divided by stroke counts(%RF),and using backward gating method, an increment of left ventricular counts with atrial contraction divided by stroke counts(%AC) were obtained. After acute increase in afterload, peak filling rate(PFR 3.12 ± 0.59 sec⁻¹ versus 2.36 ± 0.35 sec⁻¹) and %RF($72 \pm 7\%$ versus $69 \pm 7\%$) tended to decrease, and %AC($17 \pm 3\%$ versus $26 \pm 6\%$) increased significantly($p < 0.05$). Significant correlation was present between PFR and %AC($r = -0.80$ $p < 0.01$). These results indicated that in normal subjects the rapid filling was disturbed, and there occurred an compensatory increase in atrial contribution during acute increase in afterload.

159

EVALUATION OF POSTEXTRASYSTOLIC POTENTIATION BY GATED RADIONUCLIDE VENTRICULOGRAPHY. H.Sugihara, H.Adachi, H.Nakagawa, K.Furukawa, J.Asayama, H.Katsume, K.Okamoto*, T.Miyazaki, M.Yamashita and H.Ijichi. 2nd Department of Medicine, *Radiology, Kyoto Prefectural University of Medicine, Kyoto

Postextrasystolic potentiation (PESP) after induction of ventricular premature beats was thought as an excellent predictor of myocardial viability and inotropic reserve of the ventricle. We evaluated PESP by using gated radionuclide angiography, from which we can obtain some cardiac parameters by computer analysis.

The electrode catheter was positioned in the apex of the right ventricle, and ventricular trigeminy was induced by programmed cardiac stimulator. Radionuclide ventriculography was performed in a modified left anterior oblique projection for 12-minutes data acquisition. From these data three separate clusters of cardiac cycles were identified. Compared with the functions derived from the re-formatted postextra beat (PEB) and control beat (CB), increased end-diastolic volume, decreased end-systolic volume, and both ejection fraction and peak ejection rate were increased. Wall motion abnormalities found in some patients with ischemic heart disease were improved.

These results indicate possibility of evaluation of PESP by radionuclide method.

160

EFFECT OF HEART RATE ON CARDIAC INDICES DERIVED FROM RADIONUCLIDE VENTRICULOGRAPHY. H.Adachi, H.Sugihara, H.Nakagawa, H.Katsume H.Ijichi, T.Ishizu, O.Shimamura & M.Ochiai Kyoto Prefectural University of Medicine & Rakuto Hospital, Kyoto.

Since cardiac function assessed with the indices relating to time may be affected by heart rate(HR), we studied the correlation of HR to cardiac indices derived from radionuclide ventriculogram in 27 subjects without evident heart disease (the HRs were ranged between 50 and 90 beats/min).

Following results were obtained:

systolic	r	p	diastolic	r	p
EF	-0.271	ns	FT	-0.938	0.01
1/3EF	-0.291	ns	TPF	-0.389	0.05
PER	0.791	0.01	PFR	0.759	0.01
MNSER	0.251	ns	1/3FF	-0.758	0.01
ET	-0.604	0.01	RFT	-0.736	0.01
TPE	-0.401	0.05	SFT	-0.803	0.01
1/3MNSER	-0.147	ns	AFT	-0.350	ns
			1/3MNDFR	0.353	ns
			RFF	0.138	ns
			SFF	0.030	ns
			AFF	0.070	ns

Thus, when cardiac function is evaluated among patients and in a patient at different hemodynamic state, either cardiac index with little influence on HR or corrected index by HR should be used.