EVALUATION OF LEFT VENTRICULAR WALL MOTION WITH FUNCTIONAL IMAGES. K. Nakajima, H. Bunko, T. Maeda, M. Yamada and K. Hisada. Department of Nuclear Medicine and Division of Central Radiological Service, Kanazawa University Hospital, Kanazawa.

Functional images of left ventricular wall motion, stroke volume (SV) image, ejection fraction (EF) image and paradoxic image were generated in fifty patients and compared with contrast left ventriculography in twenty patients. Biplane contrast angiograms were assessed based on the reporting system of American Heart Association grading committee. Left ventriculogram was divided into seven segments and severity of asynergy was classified into four grades. Multi-gated blood pool data were acquired using a scintillation camera and a minicomputer system in a modified left anterior oblique projection. Processing of functional images were: SV image = ED image - ES image, EF image = SV image / ED image, paradoxic image = ES image - ED image (end-diastolic, ES; end-systolic). Detectability of EF image was better than SV image, and paradoxic image was useful for the detection of dyskinesia. As to location and severity of asynergy, EF image and Segmental wall motion of left ventriculography were compared and had good correlations. The mean value of ejection fraction image of left ventricle well correlated with ejection fraction determined from left ventriculography (n=50, r=0.94).


Supine rest-exercise (R-Ex) first-pass radionuclide angiogram (RNAc) using by Baird-Atomic System 77 gamma camera and R-Ex thallium-201 myocardial images (201-Tl) were performed in 18 patients (pts) of exertional angina and no pts had a history of old infarction. Ex RNAc and Ex 201-Tl images were acquired using the bicycle ergometer in a supine position. All pts had an appearance of typical anginal pain and horizontal depression of ST segment during Ex. Pts were divided into 2 groups (gp). Twelve (67%) Gp I pts demonstrated abnormal (abnl) Ex LVEF (a fall or within ±5% of resting value) and 6 (33%) Gp II pts had normal (nl) Ex LVEF (increase LVEF by ±5%). In Gp I, all (12/12) pts had abnl regional WM and 9 (9/12) pts had abnl 201-Tl defects. In Gp II, 4 (4/6) pts had abnl regional WM and 5 (5/6) pts had abnl 201-Tl defects. Both studies were abnl in 10 (10/12) Gp I pts, in 4 (4/6) Gp II pts and were nl in 1 (1/18) pt. More than 2 segmental abnormalities were detected in 9 (9/18) pts by Ex WM, while in 6 (6/18) pts by Ex 201-Tl. In conclusion regional WM and 201-Tl during Ex were closely related to myocardial perfusion and the combination of both studies is an useful method for the detection of exertional angina.