**EVALUATION OF LEFT VENTRICULAR FUNCTION BY AUTOMATIC ANALYZING METHOD AFTER CORONARY ARTERY BYPASS SURGERY**

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In 25 patients with coronary artery disease who underwent aorto-coronary bypass graft surgery, we measured the left ventricular function with rest radionuclide angiography before and after surgery. A left ventricular function analyzing method has been developed to detect the left ventricular contour from gated blood pool imaging. Left ventricular ejection fraction (LVEF), LV volume and quantitative wall motion were calculated.

1. LVEF decreased in the most of the patients who had incomplete revascularization.
2. Left ventricular end diastolic volume and stroke volume had a tendency to decrease affected by increased heart rate.
3. On the other hand, cardiac output change little or increased.
4. The result that regional wall motion improved after surgery, while LVEF changed little before and after surgery, suggests the evaluation of regional wall motion are important.
5. The automatic analyzing method is available for the intervention study.

**AN APPLICATION OF FACTOR ANALYSIS FOR PRE AND POST OPERATIVE DIAGNOSIS OF THE PATIENTS WITH CHRONIC VALVULAR DISORDER**


In 1974, Sylvestre and Lawton reported about factor analysis technique that, M. Di. Paola and Barber applied factor analysis for dynamic investigation carried out with scintillation camera. With a way based on the technique of factor analysis presented by M. Di. Paola, we analysed the data of the patients. Fourteen patients with cardiac valvular disorder were studied.

Result: After operation, four patients were improved and six patients were not improved in factor analysis and phase analysis. Two patients were improved in factor analysis but were not improved in phases analysis. In another two cases, we had opposite result.

Left ventricular ejection fraction were improved in all patients whose result were good in factor analysis.

We conclude factor analysis is useful for post-operative observation of the patients with cardiac valvular disorder but it is difficult to interpret.

**IMPROVED LEFT VENTRICULAR DIASTOLIC FILLING AND ASYNCHRONY IN PATIENTS WITH ISOLATED DISEASE OF THE LEFT ANTERIOR DESCENDING CORONARY ARTERY AFTER AORTO-CORONARY BYPASS SURGERY: ASSESSMENT WITH RADIONUCLIDE VENTRICULOGRAPHY**


To determine the effects of aorto-coronary (A-C) bypass surgery on impaired left ventricular (LV) diastolic filling and asynchrony, we studied 11 normals (group 1) and 9 patients with isolated disease of the left anterior descending coronary artery by radionuclide ventriculography before (group 2A) and after (group 2B) A-C bypass surgery. The time activity and first derivative curves of the global and regional LV were computed. All had normal global LV systolic function (ejection fraction, peak ejection rate) at rest, but peak filling rate (PFR) in the global LV was decreased in group 2A than in group 1 (p<0.01). After A-C bypass surgery, PFR was increased significantly (p<0.01). Total [t], which was defined as the sum of the absolute values of the time differences from PFR to regional PFR (septal, apical and lateral), was greater in group 2A than group 1 (p<0.01). After A-C bypass surgery, total [t] was decreased significantly (p<0.01). In all subjects, a negative correlation existed between total [t] and global PFR (r=0.55, p<0.01).

These data suggest that impaired global PFR may result from asynchrony, which is a reversible manifestation of subclinical myocardial ischemia due to coronary artery stenosis.