

217

EXERCISE LEFT VENTRICULAR PERFORMANCE IN PATIENTS WITH ISCHEMIC APPEARING ELECTROCARDIOGRAMS AND ANGIOGRAPHICALLY NORMAL CORONARY ARTERIES -COMPARED WITH NORMAL SUBJECTS AND ANGINA PECTORIS-.
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We have reported reliability and utility of Nuclear-Stethoscope. And now, left ventricular performance was evaluated using Nuclear-Stethoscope in 13 patients with an exercise induced ST-segment depression, and angiographically normal coronary arteries (Group X), in 44 normal healthy, and in 19 patients with angina pectoris at rest and during multi-stage exercise testing with bicycle ergometer in supine position. Resting left ventricular performance was normal in group X. Ejection fraction response to exercise was nearly normal in group X without one patient. Left ventricular end-diastolic volume increased slightly in group X during exercise. These findings suggest that exercise left ventricular performance is nearly normal even with exercise induced ST-segment depression in most of group X.

219

CLINICAL ASSESSMENT OF LEFT VENTRICULAR FUNCTION IN PATIENTS WITH CORONARY ARTERY DISEASE USING FIRST PASS RADIONUCLIDE VENTRICULOGRAPHY AFTER DIPYRIDAMOLE INFUSION.
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To detect coronary artery disease (CAD) noninvasively, dipyridamole (D) stress radionuclide ventriculography (RNV) was performed on 3 normal subjects and 28 patients (pts) with CAD. D was administered intravenously (0.56mg/kg, for 4 min.) Left ventricular ejection fraction (LVEF) was calculated from the time activity curve. And then we devised a new index (maximal phase delay:MPD) of regional wall motion abnormality by using Fourier phase analysis. Body surface 87 ECGs (MAP) were recorded after D-stress.

In normal subjects and pts with one vessel disease, LVEF increased after D-stress. However, in pts with multivessel and/or collateral circulation, LVEF decreased after D-stress. MPD correlated closely with total coronary score representing the severity of CAD ($r=0.56, p<0.01$). There was a close correlation between the ST depression area on MAPs and the decrease in LVEF after D-stress ($r=-0.65, p<0.001$).

We concluded that pharmacologic coronary vasodilatation is a convenient method to discriminate multivessel disease and one vessel disease.

218

HEMODYNAMICS DURING HEMODIALYSIS MEASURED BY A NUCLEAR STETHOSCOPE. T. Goto, Y. Naito, T. Watanabe, N. Ikebe, N. Akaba, Y. Kobayashi, S. Abe, Y. Goto, H. Minami, Y. Nagai, I. Yamasawa, C. Ibukiyama, Y. Murayama. Tokyo Medical college, Tokyo.

Cardiac function in 10 patients with chronic renal failure receiving Hemodialysis (HD) were measured before HD and during HD. The left ventricular ejection fraction (EF) was measured by a nuclear stethoscope. The cardiac output (CO), total blood volume (TBV), total peripheral resistance (TPR), mean blood pressure (MBP) and heart rate (HR) were measured simultaneously. In 15 patients including 5 controls, the EF measured by the nuclear stethoscope correlated well with the EF measured by the gamma camera ($r=0.89, p=0.005$). In this study, we divided patient into the EF>50% (7 patients) and the EF<50% (3 patients). In the EF<50% patients, no measurement during HD differed significantly. In the EF>50% patients, EF, CO, MBP during HD were decreased significantly in comparison with the preHD value. In a previous study, we reported the cardiac function measured by the invasive method in 50 patients receiving HD. In this study, the cardiac function measured by the nuclear stethoscope was the same results in comparison with the previous method. In EF>50% patients, we think that the decreasing EF does not mean the heart damage. Studies are required. The nuclear stethoscope is useful in chronological bedside monitoring of cardiac function.

220

EVALUATION OF THE ACUTE EFFECT ON THE LEFT VENTRICULAR FUNCTION OF ISDN ESTIMATED BY THE OMNISCOPE
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Left ventricular ejection fraction (EF) was measured in 34 cases (8 normal and 25 ischemic heart disease). We compared EF at rest (REF), during handgrip (Ex-EF), post ISDN administration at rest (NREF) and post ISDN administration during Ex (NExEF). RESULTS: In normals, REF was significantly decreased than Ex-REF ($p<0.01$). However, in the group with ischemic heart disease (IHD), Ex-EF was significantly decreased than REF. In IHD group, SBP at rest was lowered significantly than that of post ISDN ($p<0.01$) without changes in HR and DP. In IHD group, REF was significantly increased than NREF ($p<0.01$). In IHD group, NREF was increased than NExEF ($p<0.01$). But NExEF was almost same REF.

CONCLUSION: 1) In ischemic heart disease, ISDN made lower the SBP at rest, without changes in HR and DP. 2) As, ISDN increased EF both at rest and during exercise, the EF during exercise post ISDN administration reached almost equal to the EF at rest pre ISDN administration.