164

THE EVALUATION OF MYOCARDIAL ISCHEMIA BY HANDGRIP EXERCISE AND NITROGLYCERIN ADMINISTRATION.

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Ejection fraction (EF), end-diastolic count and stroke count were assessed in normal subjects and in patients with coro-

nary artery disease (CAD) by a gated equili-
brium method of RI angiography in LAO pro-
duction using Tc-99m labeled RBC. Handgrip exercise test (HG), administration of nitro-
glycerin (NTG) and repeated handgrip exer-
cise test after NTG administration were per-
formed. EF fell significantly in pa-
tients with CAD (change of %=-4.3±3.5% p<0.05 ),
while EF rose significantly in normal
subjects (change of %=-4.0±3.5% p<0.01).

Therefore, handgrip test was a sensitive and
useful procedure as a screening test for
significant CAD. EF reduced by HG were im-
proved by NTG administration in patients
with CAD. In patients with CAD stroke count
was not affected by administration of NTG,
but end-diastolic count during HG was sig-
nificantly decreased (%change=-3.5±1.32
p<0.01). The favorable effect of NTG to HG
was more prominent in patients with myocar-
dial infarction, particularly in patients
with lower left ventricular end-diastolic
pressure, than in normal subjects.

165

INTERVENTION RADIONUCLIDE VENTRICULOGRAPHY (EXERCISE DRUG) FOR DETECTION OF CORONARY ARTERY DISEASE AND LV FUNCTIONAL RESERVE.

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Intervention ventriculography during
exercise and administration of nitroglycerin
were developed to evaluate the detection
of CAD and LV functional reserve by multi-gated
cardiography. 48 cases of CAD and 10 cases of normal function were studied by the
combination methods of intervention
ventriculography and coronary arteriography.
In CAD cases, the value of LVEF from rest to
exercise were failed to increase 5 percent
in many cases, while in normal cases, LVEF
increased 10 percent in all cases.

For the detection of CAD, sensitivity and
specificity by intervention radionuclide
study were 81.2%, 100%, while by stress ECG
study, 73%, 60%, respectively.

For the LV functional reserve, in
significant decreased EF cases, non-
invarted area of CAD showed reduced LV
motion in the case of multi vessel diseases,
and compensatory hyperkinetic LV motion in
the case of non-diseases vessels, while in
significant increased EF cases, 75% stenosis
of single vessel disease showed normal LV
motion.

In conclusion, intervention radionuclide
ventriculography is very useful to evaluate
the detection of CAD and LV function reserve
noninvasively.

166

EVALUATION OF LEFT VENTRICULAR FUNCTION IN PATIENTS WITH ISCHEMIC HEART DISEASE BY EXERCISE STRESS RADIONUCLIDE ANGIOCARDIO-

GRAPHY.

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To evaluate the effects of exercise on
the left ventricular function, first-pass
radionuclide angiocardiograms were perform-
ed both at rest (Rest) and immediately after
supine-position bicycle ergometer exercise
(Ex) in 18 patients with effort angina, 14
with old myocardial infarction and 8 normal
men. In normal subjects left ventricular
ejection fraction significantly increased from
0.60±(0.04) to 0.82±(0.05) (p<0.001),
end-diastolic volume slightly decreased (Ex:
EDV/Rest EDV=0.93±0.07), and cardiac out-
put significantly increased (Ex/Rest=3.27±
0.63). In patients with effort angina, EF
significantly decreased from 0.62±(0.07) to
0.51±(0.11) (p<0.001), EDV increased (Ex/
Rest=1.37±0.26), and CO did not so increased (Ex/
Rest=1.82±0.54). In patients with old myo-
cardial infarction EF remained unchanged
(0.49±0.15 vs 0.48±0.16), EDV slightly in-
creased (Ex/Rest=1.37±0.13), and CO did not
so increased (Ex/Rest=1.97±0.53). In 14 pa-
tients with angina pectoris new development of abnormal LV wall motion was shown in the
area supplied by a significantly stenosed
coronary artery. This technique seems to be
useful for evaluating LV function in pati-
ents with ischemic heart disease.

167

EVALUATION OF RI ANGIOCARDIOGRAPHICAL CHA-

NGES IN ESSENTIAL HYPERTENSION AND THYROID DISORDER.

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In this report, we evaluated the changes
of left ventricular functions in cases of essen-
tial hypertension, hyperthyroidism, and
hypothyroidism, according to the adminis-
tration of methimazole synchronized with ECG.
In propranolol (60mg/day) and pindolol (15mg/day) groups, heart rate and blood pressure decreased gradua-

ly, because β-blocker effected to the cardiac
function directly. In hydralazine group (150
mg/day), blood pressure more decreased to
the normal level significantly, but it was
secondary action vasodilator. In hyperthy-
roidism cases, left ventricular cardiac func-
tions normalized 4 to 6 weeks after the
time of hormonal normalized levels, ac-
cording to the administration of methimazole.
In hypothyroidism cases administered 1-thy-
roxine, cardiac functions changed the same
way. In this study, we confirmed that RI
angiography is useful clinically to determine the hemodynamics and the evalua-
tion of the effect of therapy.