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STUDIES OF REGIONAL WALL MOTION AND EJECTION
FRACTION USING CARDIAC TABLE.
K.Okugami, T.Muto, T.Kawamura, S.Nida, T.Morisita
(1st Dept. of Int. Med., Toho Univ.), Y.Yabe (Dept. of
Circulatory Organ, Toho Univ.). Y.Sasaki (Dept. of
Radiology, Toho Univ.)

ECG gated first-pass and equilibrium pulling scan
using 99mTc-HSA was performed at rest and
exercise in 29 subjects consisting of myocardial
infarction 19 cases, angina pectoris 5 cases and
volunteers 5 cases. The regional wall motion of ventricu-
le was observed with regional ejection fraction
(E.F.) from 8 division method. The exercise of
subjects were performed by the cardiac stress test table
which could change motor load stepwise from 25W to
75W. The pulling scan image of left and right ventri-
cle were collected 5 times, rest, 25W, and 5
minutes, 10 minutes after exercise. In the volunteer
cases, E.F of both ventricles were increased as
increasing of motor load, but in the patients with
myocardial infarction, E.F of both ventricles were
decreased by 75W motor load. Between E.F of left
and right ventricles, there was significant differ-
ence in the left and right coronary lesion that E.F
of both ventricle decreased by 75W motor load in
left coronary lesion, but E.F of right ventricle
decreased early by 25W motor load in right coronary
lesion. With observing of regional wall motion,
the movement of poor moved sections of myocardial
wall were still poor and the well moved sections
became poor by 75W motor load.

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MOVING EJECTION FRACTION IMAGE: A NEW SCIN-
TIPHOTOMIC METHOD FOR ASSESSING LEFT
VENTRICAL WALL MOTION. H.Yoshio, T.Iwa-
saka, H.Koito, A.Sakai, M.Inada, S.Matsuura, K.
Matsumoto*, T.Shiralish* and A.Kasahara*.
The 2nd Department of Internal Medicine Ka-
nsai Medical University, Radiology*. Osaka.

The moving ejection fraction image which made 3 dimenssional assessment of regional wall motion possible consists of continous
EF images(0.05sec/F) throughout the cardiac cycle obtained by system77 multicrystal ga-
mma camera. We studied 19 patients with old
myocardial infarction: Group A comprised 4
patients with EF<55%, Group B comprised 7
patients with 31%<EF<55%, Group C comprised 8
patients with EF<30%. Group A showed a
low EF image in late diastole and early systo-
tole but a high EF image in late systole. The patients in Group B had a low EF image
areas in late systole and the diastolic expansion in these area terminated earlier than other areas. Group C showed low EF im-
age throughout the cardiac cycle. In this study we could assess the enhanced image
which was modified according to maximum re-
0gional EF value as base line(100%).

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ECG-GATED EMISSION COMPUTED TOMOGRAPHY OF
THE CARDIAC BLOOD-POOL. K.Tamaki, T.Mukai,
H.Sakahara, N.Hayaishi, T.Fujita, K.Minato,
K.Yamamoto, K.Torizuka. Dept. of Radiology &
Nuclear Medicine, and S.Tamaki, Y.Suzuki, K.
Kadota, H.Kambara, and C.Kawai. Dept. of
Internal Medicine, Kyoto Univ. Medical School,
and Y.Ishii. Fukui Medical School.

Multiple ECG-gated acquisition was em-
ployed with emission computed tomography
(ECT) using a rotating gamma camera to ob-
tain multiple section images of the cardiac
blood-pool. Twenty cases were studied with
this technique. A series of transaxial
tomograms was reconstructed, and thereafter,
short axis, long axis, and "four-chamber-
view" tomograms were reorganized. In gated
blood-pool ECT, each cardiac chamber was
visualized separately. As compared to the
gated planar imaging, the gated ECT showed
regional asynery more precisely in cases
with myocardial infarction, and demonstrated
dilatation of the right atrium as well as
ventricle more accurately in cases with
atrial septal defect. Left ventricular
volume was geometricaly calculated from
the ECT images by summation of left ventricular
area in each "four-chamber-view" plane. The ECT volume correlated well with contrast
angiographic volume (r=0.979).

Gated blood-pool ECT providing any angle
section of the heart allows three-dimension-
al assessment of cardiac chambers in motion
more accurately without mutual superimposi-

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AN ANALYTICAL APPROACH FOR CORRECTION OF
BACKGROUND COUNTS AND ITS CLINICAL APPLI-
CATION. Y. Suzuki, M. Nakamura, M. Sugihara
and H. Tomoda. Tokai University Medical
School, Isehara, Japan.

A new method for calculation of left
ventricular ejection fraction(LVEF) based
on the analytical correction of background
counts by the complex demodulation techni-
que was presented.

First pass radionuclide cardioographies
were done in 25 patients. Six different
regions of interest(ROI) were selected as
following criteria; carefully selected en-
tire LV, laxly selected entire LV, small
central portion of the LV, laterql half of
the LV, septal half of the LV and both left
and right ventricles. The time-activity
curve of each ROI was taken and its LVEF
was calculated by the new method. LVEFs
were compared each other.

The LVEFs obtained from the ROIs covered
entire LV did show good agreement, but
those of obtained from the ROIs covered
only partial LV were different each other.
The conclusion is that our new method of
calculation of LVEF is not dependent on the
size of the ROIs, but whether or not the
ROIs cover entire LV is very critical.