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INVESTIGATION OF SPECT ON CASES OF ACUTE MYOCARDIAL INFARCTION.
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In order to discuss a clinical usefulness of Tl-201 myocardial scintigraphy, planar
images and SPECT was compared to the other
clinical data in 27 patients with acute myo-
cardial infarction admitted in CCU of our
hospital. Myocardial scintigraphy was taken
within 3 weeks after onset.
The evaluation of scintigraphy were done vi-
sually by 3 radiologists, and the results
were compared to ECG, coronary angiogram,
left ventriculogram and cardiac pool scinti-
gram.
SPECT had a higher sensitivity than planar
images. The abnormal locations judged by
SPECT generally corresponded to those of ECG
and left ventriculogram. The ejection frac-
tion on cases with anteroseptal or anterolas-
ter defects analyzed by SPECT were signifi-
cantly lower than that of other portions.
Grading score for detecting the localization,
extension and intensity of defects on SPECT
was well correlated with ECG ejection frac-
tion, while relatively poor with Forrester
classification or maximum LDH.
It was concluded that SPECT on acute phase
of myocardial infarction is useful to esti-
mate a location, extent and clinical severi-
ty.

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STRESS THALLIUM-201 DYNAMIC STUDY OF
MYOCARDIAL IMAGING USING A WHOLE-BODY RING-
TYPE SPECT.
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Stress thallium-201 dynamic study of the myocardium was performed using a whole-body
ring-type SPECT (Shimadzu: SET-030W). This
SPECT device has 3 detector rings with 128
NaI detectors in each ring, providing 3
slice sections at 30 mm intervals. High
resolution or high sensitivity modes can be
selected by application of different
collimators. In the high resolution mode,
it has high resolution (14mm in FWHM) and
high sensitivity (6kcps/uc1/ml). This high
sensitivity SPECT permits serial dynamic
study of the stress myocardial imaging to
analyze tracer washin and washout from the
myocardium.
Following intravenous injection of 2mCi
of thallium-201, SPECT images were obtained
every 5 minutes for 30 seconds. Each tomo-
graphic images showed the left ventricular
myocardial count distribution including 300
counts. In normal myocardial segments,
thallium-201 washin and washout were rapid,
whereas, in infarct as well as ischemic
segments, they were rather slower.
We conclude that this whole-body ring-
type SPECT permits serial dynamic study of
myocardial imaging, which may be applied
for various tracer kinetics of the heart.

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QUANTITATIVE ANALYSIS OF MYOCARDIAL ISCHEMIA
BY EXERCISE MYOCARDIAL SCINTIGRAPHY
– COMPARISON OF DIAGNOSTIC ACCURACY BETWEEN
PLANAR AND SPECT IMAGE –
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In order to estimate the diagnostic
accuracy of exercise Tl-201 myocardial
scintigraphy, the coronary artery lesion and Tl-
201 myocardial perfusion were compared.
The detectability of lesion of single vessel
disease was superior to that of multiple
vessel disease, and the cause of underesti-
mation of lesion having more than 50%
stenosis in single vessel disease was almost
the inadequate exercise. As a result, the
SPECT diagnosis was superior to the planar
diagnosis. In order to evaluate the advan-
tage and disadvantage of the SPECT and
planar diagnosis, the discordant cases were
investigated. In SPECT diagnosis, the whole
region of myocardium could be seen, so the
diagonal and left circumferential artery
region, which scarcely could be seen by the
planar image, could be observed by the
SPECT image. The differential diagnosis,
whether the lesion was responsible to only
left anterior descending artery (LAD) or
responsible to both LAD and right coronary
artery, was easy by the SPECT diagnosis. As
concerned with multiple vessel disease, the
quantitative analysis was very useful and
indispensable. The problem of SPECT diagno-
sis was false positive (over-diagnosis) by
the artifacts.

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QUANTITATIVE EVALUATION OF REDISTRIBUTION IN
EXERCISE TL-201 MYOCARDIAL SCAN
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In exercise testing with Tl-201 scan, a
phenomenon of redistribution (RD) is helpful
for detection of ischemia. But RD is visual
indication, so we take a quantitative analy-
sis, %washout ratio, to this phenomenon and
compared %washout method with conventional
method in detection of ischemic segment.
Data were collected from LPO45° to RA045°
by rotating r-camera at 5 and 180 minutes after
exercise. Short axis image was devided
into 40 segments. Circumferential profile(CP
curve) was displayed by sampling from each
segment. %washout was calculated between
initial and delayed count sampled from each
segment and was showed by CP curve. Ischemic
segment was decided by comparing with normal
curve.
In patients with angina pectoris, the
sensitivity(92%) of washout method was supe-
rior to the conventional method(75%) for
detection of ischemia but the specificity
was poor. It was suspected by our study that
lower exercise load caused a false positive
case. In patients with myocardial infarction
, %washout value was variable. But infarct-
area with low washout was indicated ischemic
but viable by CAG,LVG findings and stress
test.
Quantitative evaluation of RD is useful in
detecting myocardial ischemia.