BRAIN IMAGES OF ARTERIO-VENOUS MALFORMATIONS (AVM) WITH IMP.
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Single photon emission computed tomography (SPECT) with N-isopropyl-p-1-123
idoamphetamine (IMP) was performed for three patients with cerebral AVM and for one
patient with dural AVM associated with the left parietal subcortical hemorrhage. Tomo-
graphic images (three slices at one time) of all patients were obtained immediately after
an intravenous administration of IMP. The collection time of the data was
15 minutes by HEADSANEII with high resolution mode. In three cases of cerebral AVM, the
highest rCBF was observed as the low activity area, while these areas were shown as the high rCBF with Xe-133
inhalation study. In a case of dural AVM, the highest rCBF with Xe-133
inhalation study was observed in the intracranial draining vein. In patients with cerebral AVM, the highest rCBF
was observed in the apex, calculated from conventional lung scans, was greater than that from SPECT in the regional ventilation and perfusion
distribution. In the pulmonary embolism, the results using SPECT for perfusion
showed lower activity of the right upper lung region, (perfusion deficit areas), but conventional perfusion scans showed similar decrease of activity near the apex in both lungs. There was agreement ventilation distribution of the pulmonary embolism and that of the healthy subject in both conventional lung scans and SPECT findings.

COSMPARISON BETWEEN VENTILATION PERFUSION RATIOS USING SPECT AND VENTILATION PERFUSION RATIOS USING CONVENTIONAL LUNG SCANS.
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Ventilation perfusion imaging using SPECT was performed in the supine position on a healthy subject and one patient with pulmo-

APPLICATION OF SINGLE PHOTON EMISSION CT FOR CARDIAC POOL SCINTIGRAPHY IN MYOCARDIAL INFARCTION.
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This study was performed to evaluate the usefulness of Single Photon Emission CT(SPECT) compared with conventional cardiac pool studies. Five normal volunteers and 14 cases of myocardial infarction were studied. The subjects received I.V. injections of RBC labeled with
51C in vivo with Tc-99m, and the SPECT data was obtained after first pass data and equilibrium
data were obtained. The SPECT method was performed using a high resolution parallel hole
colimator, and ECAT gated SPECT data was obtained routinely the camera from LPO 50
to RAO 40 by 30 sec./ frame, sagittal, coronal and 4-chamber view images were reconstructed
and compared with the conventional FP and EQ method in respect to wall motion, amplitude
and phase delay.

All abnormal findings, that could be obtained by conventional method, could be detected by the
SPECT method, and even more detailed abnormal findings that were not obtained by conventional were revealed by the
SPECT method. Especially the sagittal images which were difficult to evaluate accurately by conventional methods could be evaluated more acutely by the SPECT method.

APPLICATION OF SINGLE PHOTON EMISSION COMPUTED TOMOGRAPHY.
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Left ventricular (LV) volume was measured by gated blood pool emission computed tomography (ECT) and was compared with LV volume by biplane LV cineangiography (LVG).

ECT and LVG were performed within 2 weeks in 2 normal, 3 angina and 15 myocardial
infarction. The ECT images were acquired with multigate method (14 frame a beat) in
64x64 matrix using rotating dual head gamma camera after in vivo labelling 25 mCi Tc-99m
-RBCs. Acquisition generally took 10 second every 6 degree. And subsequently sagittal (long axis) images were reconstructed at a slice thickness 5.4mm. The boundary between LV and left atrium was dicided with functional image by Fourier analysis. LV
volume was calculated using the following equation: LV volume = number of matrix in LV
Volume of matrix (5.4mm)

When the edge of LV was dicided at 65% of LV maximum count, LV volume with ECT co-
correlated well with LVG(LV=0.95X+5.3, r=0.98).
A good correlation was observed between end-diastolic volume(EDV) by ECT and EDV by
LVG(LV=0.94X+10.3, r=0.95). ECT underestimated end-systolic volume with LVG in cases
with small volume (Y=0.79X+19.4, r=0.95).

We conclude that ECT is useful method to determine LV volume reasonably.