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TC-99m-DTPA RENOSCIINTPHOTO IN RENO-
VASCULAR DISEASE. S.Ikeda,S.Egawa,K.Lee,
A.Ishibashi and S.Kurosawa. Kitasato
University, Sagamihara.

Tc-99m-DTPA renocintphoto in reno-
vascular diseases was studied.
The subjects were 61 cases consisting of
aneurysm, reno-vascular hypertension etc.
As instrumentation for this study, Nuclear
Chicago LFOV type camera were used, and
5 to 10 mCi of Tc-99m-DTPA was injected
rapidly.
In this study, we investigated the clinical
usefulness of renoscintiphoto for reno-
vascular disease comparing with arterio-
ography. Regarding to the cases of hyper-
tension, the difference of perfusion of
two sides was examined by image itself,
region of interest (ROI) and the value of
first pass, calculating with Hilson's
methods.
Consequently, Tc-99m-DTPA renoscintphoto
is useful to diagnose and to follow up the
cases of aneurysm, especially in the case
ffecting reno-vascular flow.
The value of first pass is also useful like
as ROI and image itself for screening study
of hypertension.

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ESTIMATION OF GLOMERULAR FILTRATION RATE
FROM FRACTIONAL RENAL UPTAKE OF Tc-99m
DTPA. T.Ito.K.Takeda,S.Toyota,H.Xaeda,
T.Kitano and T.Nakagawa. Mie University.
Tsu.

Glomerular filtration rate (GFR) was
estimated from fractional rate uptake
(FRU) of Tc-99m-DTPA using the gamma
camera-digital computer system with
attenuation correction for kidney depth.
Forty-eight patients were studied, in
whom 24 hour creatinine clearance (Ccr)
were concomitantly obtained within a week
of the study.
Attenuation corrected total renal counts
at various time intervals after tracer
injection were obtained by ROI selection
over renal scintigram followed by back-
ground subtraction and depth correction
to compensate for gamma ray attenuation by
the soft tissues. Our formula for determining
kidney depth, obtained by ultrasonic
scanning, is shown as follows.
Right kidney depth = 16.55 + W/H + 0.66
Left kidney depth = 17.05 + W/H + 0.13
Attenuation corrected total renal counts
was divided by injected dose measured by
the gamma camera and thus FRU was calcul-
ated.
FRU at 1-2 min. was best correlated with
Ccr (r=0.925, p<0.001). The formula for
calculation of GFR was derived from the
regression analysis.
GFR = (FRU at 1-2 min.) x 6.26 + 3.10
This method is highly valuable for
estimating GFR rapidly and accurately.

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DYNAMIC REGIONAL RENAL FUNCTION OF NORMAL
DONORS AND POST KIDNEY TRANSPLANT. T.Suzuki,
T.Akuta, H.Furunishi, S.Aoki, K.Masuda,
Y.Ikemoto, T.Yamasaki, S.Fuku, H.Sako and Y.
Nakane. Shiga Medical School. Ohtsu.

We tried to analyze the regional renal
function using Tc-99m DTPA and evaluated the
possibility for the early diagnosis of the
tubular transport disorder in acute tubular
necrosis and rejection of post kidney trans-
plant. The subjects were normal donors and
post kidney transplant patients. Tc-99m DTPA
20 mCi was administrated into the vein by a
bolus, and its activity in the kidney was
measured by the scinti-camera, and stored
by the computer. The mean transit time of
renal perfusion was increased, and the accu-
mulation rate and the clearance rate were
markedly decreased in acute tubular necrosis
and the rejection, and the functional images
of the perfusion mean transit time, the accu-
mulation rate, the clearance rate and time to
peak showed the irregular distributions.
These indexes and the regional functional
images were useful for the diagnosis of the
acute tubular necrosis and the rejection.

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CALCULATION OF FRACTIONAL CORTICAL FLOW TO
THE TOTAL RENAL BLOOD FLOW USING I-123-OIH.
M.Ishibe,K.Murase,M.Kawamura,H.Mogami,S.Na-
gao,S.Inatsuki,A.Ito and K.Hamamoto. Ehime
University School of Medicine. Ehime.

We proposed a non-invasive method for
measuring fractional cortical flow to the
total renal blood flow by using deconvolu-
tion analysis of I-123-OIH data and applied
it to the cases with essential hypertension.
To determine the transfer function, the di-
rect operational method proposed by Yamamo-
to was employed. And for the subtraction
of blood background, we used the single
injection method by Rutland et al. The
mean percent cortical flow in 11 normal sub-
jects was 75.5±7.7%. On the other hand, in
19 cases with essential hypertension, the
values were reduced in proportion to the
severity of the disease. This suggests
there is mainly reduction of cortical blood
flow in hypertensive nephropathy. Conse-
quently, it was thought this method was
useful for analysis of intrarenal flow dis-
tribution.