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THE EVALUATION OF SPLIT RENAL FUNCTION IN THE EXPERIMENTALLY INDUCED URINARY OBSTRUCTION. T.Takayama,T.Aburano,S.Kawabata N.Watanabe,N.Tonami and K.Hisada. Kanazawa University Hospital, Kanazawa.

The split renal function was measured in order to evaluate the renal functional alteration secondary from the urinary obstruction. Seven microcuries of Tc-99m-DTPA and 3 $\mu$ Ci of I-131-OIH were injected into the bilateral femoral veins of the male rats (B.W.270 $\pm$ 60g) 30 min, 3hr, 6hr, 2days and 1 week after the ligation of left ureter. Blood samples were taken from the tail vein 5,10,15,20 and 30 min. after the radionuclide injection. Immediately after taking blood sample at 30 min., both kidneys and urinary bladder with ureters were taken. The radioactivities of Tc-99m and I-131 of these samples were measured respectively using a well type scintillation counter at the energy ranges of 140 Kev and 360 Kev  $\pm$  25%.

In the control group, 57% of given dose of I-131-OIH and 41% of given dose of Tc-99m-DTPA were excreted into the urinary tract 30 min. after the injection. In the urinary obstruction, the excretions of them into the urinary tract were decreased after the ligation of ureter. And the alteration in Tc-99m-DTPA excretion was more markedly observed than that in I-131-OIH excretion.

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EVALUATION OF RENAL FUNCTION WITH SIMULTANEOUSLY ADMINISTERED Tc-99m-DTPA AND I-131-HIPPURAN. I.Hayashi,T.Ozawa,S.Mizuiiri, T.Ohara,K.Hirata(Department of Nephrology), M. Takano,T.Nakagome(RI center),Toho University,Tokyo.Y.Sasaki(Department of Nuclear medicine)Gunma University,Maebashi.

We tried to evaluate GFR and RPF simultaneously by the dynamic renoscintigraphy using the mixture of Tc-99m-DTPA(3mCi) and I-131-Hippuran(0.1mCi). % total renal uptake was calculated according to the method of Gates with correction of the renal depth measured by ultrasonography. % total renal uptake of Tc-99m-DTPA in 2-3min. and creatinine clearance showed good correlation ( $r=0.844, P<0.001$ ). % total renal uptake of I-131-Hippuran in 1-2 min. correlated well with % total renal uptake of Tc-99m-DTPA in 2-3 min. ( $r=0.933, P<0.001$ ) and creatinine clearance( $r=0.873, P<0.001$ ). Calculated GFR by regression equation ( $y=8.6996x-0.8683, x$ ; % total renal uptake of Tc-99m-DTPA in 2-3min) also showed good correlation with creatinine clearance ( $r=0.809, P<0.001$ ). Thus simultaneous injection method of Tc-99m-DTPA and I-131-Hippuran must be useful to evaluate GFR and RPF as well as the method of single injection of Tc-99m-DTPA ( as Gates reported ) or I-131-Hippuran (as Schlegel reported).

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THE TRIAL EFFICACY OF THE DYNAMIC EACH RENAL FUNCTION OF OCCLUSIVE RENAL DISEASE MODEL USING NMR-CT RENOGRAPHY.H.Ikehira, T.Yamane,S.Torii,N.Fukuda,M.Endo,T.Matamoto, H.Shinotoh,T.Iinuma,Y.Tateno and S.Shibata. National Institute of Radiological Sciences, Chiba.

The renal kinetic study using radioisotopes,such as I-123-hippurate or Tc-99m-DTPA,is very useful for clinical diagnosis and also it is easy to calculate ERPF or GFR values.

But the differentiation of renal pelvis, meddula and cortex is very difficult by the scatter photon and it is more suitable to analyze renal regional dynamic function.

Gd-DTPA was made by ourselves depend on the report of Weinmann et al.The changes of Gd-DTPA concentration on relaxation values ( $1/T1$ ),followed continuously for one to two hours after intravenous injection of Gd-DTPA on calculated  $1/T1$  images.

All images were obtained by the 0.1tesla resistive type NMR CT imaging system(Asahi-Mark-J).The pulse sequence of T1(300,1000) was used and the injected dose of Gd-DTPA was 0.05mmol/kg.

We made not only ureteral occlusion model but renal artery stenosed model.

The NMR-CT resional renographys show tipical pattern of rena; dysfunction models.