

333

RENOGRAM AND PLASMA CLEARANCE WITH I-123-OIH. M.Yamashita, T.Miyazaki, A.Watanabe, Y.Imahori, M.Nakayama, Y.Ohmori and T.Oka. Kyoto Pref. University of Medicine. Kyoto.

With a single injection of I-123-OIH we can obtain dynamic renal images, renograms and a plasma clearance value simultaneously. It is necessary to take many plasma samples for a long time after injection for a better determination of the plasma clearance value, but we think several samples for 2 to 3 hours are enough for a routine clinical determination with practical reliability. There is a correlation between clearance values and the so called secretory angle at about two minutes on renograms which are derived from computer images (ROI on renal parenchyma). With the same method using Tc-99m-DTPA (Y) on the same patients (n=20), there is an equation as follows compared to the values obtained with I-123-OIH (X). $Y = 3.29 + 0.21X$ (a coefficient of correlation $r = 0.95$). With image data for 20 minutes we can estimate higher clearance values calculated from time activity curves of regions of interest; heart, liver, spleen and abdominal aorta, where good correlations were found between these and the plasma clearance value. Although good correlations are obtained, the image data is insufficient for good reliability at the present. The examination period (20min.) is not long enough to provide sufficient data.

334

REGIONAL RENOGRAM AND FUNCTIONAL IMAGE WITH I-123-HIPPURAN IN OBSTRUCTIVE UROPATHY. H. Itoh, J.Kawamura, O.Yoshida, N.Tamaki, H.Sakahara, T.Fujita, Y.Ishii and K.Torizuka. Kyoto University Hospital. Kyoto.

Renal scintigraphy and regional renography using I-123-ortho-hippurate were performed in 40 cases with obstructive uropathy. After I-123-hippuran were given, serial renal scintigrams were obtained until 25 minutes and regional renogram curves derived from the whole kidney, the cortical and pelvic areas. At the same time, renal functional images with T_{max} as a peak arrival time were processed. T_{max} was 2-3 minutes in the cortex and 4-5 minutes in the pelvis, while there was some delay in T_{max} in the obstructive uropathy. In the case of acute ureteral obstruction by stone, most of regional renograms in the cortex and pelvis improved soon after removing the obstruction. On the contrary, in the case of chronic obstructive uropathy such as congenital UPJ stenosis, delayed recovery of obstructive patterns on renogram curves was usually observed postoperatively. However, in some cases, functional images in cortical and/or pelvic areas showed marked recovery before improvement of findings on renograms or IVP. I-123-hippuran renoscintigraphy is a useful adjunct for assessing pre- and post-operative renal function in obstructive uropathy. Particularly, analysis of regional renogram can predict postoperative recovery and functional image can give a clue early detection of functional recovery of the hydronephrotic kidney.

335

RADIONUCLIDE ASSESSMENT OF RENAL FUNCTION IN PATIENTS WITH TRANSPLANTED KIDNEY. Y.KAWASAKI, M.MAKI, S.NARA, M.HIROE, K.KUSAKABE, AND T.YAMASAKI. TOKYO WOMENS MEDICAL COLLEGE AND NATIONAL INSTITUTE RADIOLOGICAL SCIENCE. TOKYO AND CHIBA.

The ability of radionuclide renal function to detect acute or chronic rejection and to discriminate the prognosis was evaluated in 27 patients after transplantation of kidney. Effective renal plasma flow (ERPF), excretion index (EI) and perfusion index (PI) in the transplanted kidney were examined using I-123 OIH and Tc-99m DTPA. Numbers of the study in various stages were as follows; good function of 56, acute rejection 30 and chronic rejection 12. Significant reduction in ERPF and EI and increase of PI were observed among the three stages during the acute rejection. In the chronic rejection, however, only ERPF ($p < 0.01$) was lower than the good function. The patients were divided into two groups from the prognostic point of view; good group 17 and poor group 10 in whom hemodialysis or nephrectomy was done. In the good group, ERPF ($p < 0.05$) at the fifth week after operation and EI ($p < 0.05$) at the fourth was remarkably higher and PI ($p < 0.02$) at the second lower than the poor group. This study indicates that serial measurement of renal function by radionuclide methods provide the state of rejection and the prognosis in patients with transplanted kidney.

336

RENAL SCINTIGRAMS OF I-123 OIH COMPARED Tc-99m DTPA IN THE RENAL TRANSPLANTATION. A. Ishibashi, K.Lee, S.Egawa, A.Fujino, S.Ikeda, J.Suzuki, K.Yoda, K.Ishii and J.Kurokawa. Kitasato university School of Medicine, Kanagawa.

99 renoscintigraphies were done in 37 allograft recipients. I-123 OIH and Tc-99m DTPA were used for this study and compared the usefulness of them. In the patients of the vascular phase, perfusion index (PI) and (mean) transit time (TT) were identical between the two scanning agents. A positive correlation was obtained also between the two agents of each parameter. Therefore it might be thought that renal circulation of I-123 OIH is similar to that of Tc-99m DTPA. Moreover I-123 OIH can afford us specific information on the excretory phase. Using B/K ratio, one of the parameters of this phase, the complicated renal transplants were well differentiated from normal ones. I-123 OIH could be a useful agent for the clinical evaluation after renal transplantation.