Correlation of Effectiveness of Renal Plasma Flow (ERPF) and Mean Transit Time (MTT) on the Renogram Using I-131-Hippuran.

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We reported a method to estimate ERPF of a single kidney from the renogram and 30 minute excretion rate on bladder by external counting using I-131-hippuran in the previous meeting of this society. Recently, MTT calculated by deconvolution analysis is considered to be a favorable parameter of a kidney, because the influence of the input curve is overcome.

According to A. Piepsz et al (Brit. J. Radiol. 55:419, 1982), H(1) and MTT were calculated in our hospital since last year. The aorta was used as an input curve and the renogram curve was corrected by subtraction of tissue background. K. MTT correlates with ERPF in cases from normal to hypofunctional kidneys and H(1) also shows a good correlation with ERPF.

Factors Affecting Deposition of Tc-99m-DMSA in the Liver (II).


It is not infrequent that the liver and spleen are depicted in renal imaging with Tc-99m-DMSA. In the 2nd annual meeting, we reported the degree of accumulation in the liver and spleen corresponded well to the elevation of Complex I/Complex II(C/I-C/II) in Tc-99m-DMSA solution. This study was undertaken to know the difference in the degree of delineation of the liver when Tc-99m pertechnetate(2 kinds) was matched against DMSA(2 kinds). The combination caused the significant increases of C/I-C/II value and of frequency of liver-angie. In the combination, C/I-C/II value changed markedly with time. Another study on the formation of C-I was performed using homemade Tc-99m-DMSA. When the concentration of Tc-99m pertechnetate and SnCl2 were kept constant and the concentration of DMSA was increased, C/I-C/II value decreased. In addition, when the concentration of SnCl2 was increased, C/I-C/II was increased exponentially. On the other hand, the concentration of Tc-99m pertechnetate did not affect C/I-C/II. From these studies, C/I-C/II appeared to depend largely on the concentration of DMSA and SnCl2, as well.

Dynamic Urinary Flow Images in Patients with Ileal Loop Diversion Assessed by I-123 Hippuran Scintigraphy. J. Kawamura, H. Itch, O. Yoshida, N. Tamaki, H. Sakaheara, T. Fujita and K. Torizuka. Kyoto University, Faculty of Medicine, Kyoto.

To evaluate upper urinary tract and ileal loop functions, dynamic urinary flow studies using I-123 hippuran were performed in 10 patients with ileal loop urinary diversion. After 1 mCi of I-123 hippuran were given iv, sequential images of the kidney and ileal loop were taken and recorded in an interval of 20 sec/frame for 30 min. Hippuran activity curves were derived from the whole kidney, cortex, pelvis and ileal loop. IVP, ileal loopography and intraluminal pressure study of the loop were carried out in the different period.

In the normal upper urinary tract, cortical peak time was followed by the pelvic peak time, which was followed by the peak time of the loopogram. Irregular oscillations in the loopogram accompanied by delayed excretion and/or increased activity of the pelvic area indicated ileo-uretero-pelvic backflow in 5 of 10 cases. This was evident in 8 of 10 cases on the retrograde loopography. Most of such cases revealed hydronephrotic changes on IVP.

I-123 hippuran urodynamic study made feasible to observe urinary flow in the kidney, ureter and ileal loop under physiological circumstances, and to detect complications in the upper urinary tract early.


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