quantitative evaluation of renograms in patients with urinary tract abnormalities.

Since the rate of ^{131}I counts in the ^{197}Hg window was experimentally confirmed under 10 per cent when the dose of ^{197}Hg was used over five times larger than of ^{131}I, the ratio of ^{197}Hg to ^{131}I was kept to 5 to 1.

1) The changes of urine flow from the pelvis to the bladder caused by acute ureteral obstruction, voiding in the presence of vesicoureteral reflux, and bladder filling, altered the hippuran renogram pattern. The alterations were characterized by delay in excretory phase, sudden elevation of slow down curve, and prolongation of renal transit time. However, the chlormerodrin uptake curves were not affected by these urine flow changes.

2) Bladder empting by catheterization in patients with large amount of residual urine produced the renogram pattern of shortened transit time, and revealed that T1/2 value of slow component of the blood disappearance curves was also decreased. However, the changes of chlormerodrin uptake curves and its blood disappearance curves after bladder empting were negligible.

The problems in computer assessment of ^{131}I-hippuran renograms in patients with urinary tract abnormalities were investigated, and the advantage of simultaneous tracing of ^{197}Hg-chlormerodrin were emphasized.

Measurement of GFR, Dialysance and RPF Using a Single Injection of ^{51}Cr-EDTA and ^{125}I-Hippuran

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Two substances, ^{51}Cr-EDTA and ^{125}I-Hippuran (^{125}I-OIH) were chosen for the determination of GFR and effective RPF. Following a single injection of the two substances (1 μCi/kg of ^{51}Cr-EDTA and 0.4 μCi/kg of ^{125}I-OIH), blood samples were drawn 20, 40, 60, 90, 120 and 150 minutes later, and clearances were calculated by the slope-intercept method.

1) The slope-intercept single compartment analysis was compared with that of the two-compartment model. ^{51}Cr-EDTA clearances showed small difference ($3.2 \pm 2.1\%$) and this was thought insignificant in practice, but ^{125}I-OIH clearances demonstrated slightly larger difference of $6.1 \pm 5.9\%$. Accordingly one-compartment model was used for ^{51}Cr-EDTA clearance and two-compartment analysis for the calculation of ^{125}I-OIH clearance.

2) The slope intercept method of ^{51}Cr-EDTA was compared with the UV/P method. Correlation coefficient between these two methods was 0.97. This was thought to permit the above calculation valid.

3) Clearances of these substances by the slope-intercept method were compared with $C_{creatinine}$ and C_{PAH}. The correlation coefficient between $C_{Cr\text{-}51\text{-}EDTA}$ and $C_{creatinine}$ was 0.96 and that between $C_{I\text{-}125\text{-}OIH}$ and C_{PAH} was 0.75.

4) ^{51}Cr-EDTA clearance during the hemodialysis was also measured by the slope-intercept method and was compared with actual dialysance. These showed good agreement.

These results was thought to indicate the measurement of GFR, dialysance and RPF with slope method with venous sampling to be used as a routine clinical procedure.