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DIURETIC RENOGRAPHY - COMPARISON BETWEEN INDIRECT AND DIRECT METHODS.

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Diuretic renography is a noninvasive method for evaluation of a patency of urinary drainage in patients with dilated ureteropelvis. However, patients with renal hypofunction occasionally showed false positive findings of obstructive drainage pattern with a lack of ureteropelvic obstruction. We evaluated difference of urinary drainage pattern between regular intravenous diuretic renogram and direct infusion diuretic renogram through the nephrostomy.

On direct method, dripped infusion of 60 ml per 1 minutes in speed through the nephrostomy was done. Indirect method, diuretics (flosemide: 0.4 mg/kg, max 20 mg) was administered intravenously after 20 minutes and the postvoiding. 10 patients with obstructive patterns shown on the indirect method were evaluated.

Direct method was very useful for correct assessment of a patency of ureteropelvis with renal hypofunction.

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GLOMERULAR FILTRATION RATE (GFR) ESTIMATION WITH Tc-99m DTPA ---- ITS CORRELATION WITH CREATININE CLEARANCE (Ccr) AND COMPARISON WITH DTPA RENOGRAPH PATTERNS.

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Tc-99m DTPA renogram and GFR estimation by Gates' method were done in 76 patients (84 exam.). In 48 pts (adults; 36 pts (39 exam.), children; 12 pts (12 exam.)) of these 76, comparison between GFR and Ccr was possible. The correlation in adults was fairly good, but much worse than those previously reported ($r=0.720$). The correlation was poor in children ($r=-0.169$), and GFR was grossly overestimated. GFR/Ccr ratio was inversely correlated with body weight ($r=-0.83$), and height ($r=-0.919$). (*)

Comparison with renogram patterns (76 pts). The pattern were classified as normal, delayed, obstructive, and hypofunctional. Normal pattern with low GFR, and delayed pattern with normal GFR were frequently observed. (Considerable overlap.)

Conclusion. DTPA renogram approach is sometimes inadequate in the split renal function estimation. GFR estimation method can be used as a more quantitative index of renal function. However, this method cannot be used in children, and more precise estimation formula is needed.

(*) --- Data in children.

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ESTIMATION OF EFFECTIVE RENAL PLASMA FLOW FROM RENAL UPTAKE OF I-123 OIH.

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Effective renal plasma flow (ERPF) was estimated from renal uptake of I-123-OIH using gamma camera computer system. The simultaneous injection of I-123-OIH and PAH was performed in 26 patients and kidney depth was obtained ultrasound scanning. The gamma ray attenuation ratio of I-123-OIH was calculated by renal phantom study.

The attenuation corrected renal uptake was obtained from renal uptake counts and kidney depth. There was well correlation between the attenuation corrected renal uptake and PAH clearance. It was suggested that this method was valuable for estimating ERPF.

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THE EVALUATION OF THE RENAL FUNCTION IN THE HYPERTENSIVE PATIENTS WITH Tc-99m-DTPA AND I-123-OIH.

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The purpose of this study was to evaluate the renal function in the patients with hypertension with Tc-99m-DTPA and I-123-orthiodohipurate (OIH). Computer assisted renography with Tc-99m-DTPA and OIH were performed on 8 cases of control subjects (G1), 8 cases of normal renal function with hypertension (G2), 6 cases of renal dysfunction (G3) and 8 cases of renal dysfunction with hypertension (G4). The effective renal plasma flow (ERPF) by Tauxe's method and perfusion index by Rosenthal's method were also calculated with OIH and Tc-99m-DTPA respectively. The parameter for analysing the histogram with Tc-99m-DTPA was measured: the time required to achieved maximum count (T) and the time required to achieve a half of the peak counts ($T_m/2$).

There were no significant difference with creatinine clearance, pattern of renogram with OIH and ERPF between G1 and G2. However, the value of $T+T_m/2$ and the time of maximum counts of the renogram with Tc-99m-DTPA increased in G2.