CONCLUSION

Functional renal imaging through factor analysis with Tc-99m DTPA was evaluated in VUR and hydrenephrosis. Dynamic renal imaging and renograms were carried out in 10 cases. Furosemide was injected intravenously in 10 min. after the administration of tracer. Acquisition was performed with a ZLC-7500 scinticamera coupled to a Scintipac 2400 minicomputer. 50 images of 20 sec. each were recorded and stored in the form of 64×64 point matrices. Factor images were divided into three components, namely vascular, parenchymal and pelvic components. 11 kidneys with Type A and B by O'Reilly's classification had both parenchymal and pelvic TAC* with response to diuretic injection (Type I). Two of 3 kidneys with Type C had both parenchymal and pelvic TAC without response (Type IIa), but one kidney got parenchymal TAC with response (Type IIb).

* Time Activity Curve

Conclusion
We conclude that functional renal imaging through factor analysis from diuretic renogram is useful for evaluating renal function of VUR and hydrenephrosis.

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MEASUREMENT OF GROMERULAR FILTRATION RATE (GFR) BY Tc-99m-DTPA RENOGRAM. M.Nogami, S.Tamaki, M.Hasegawa, H.Takenaka, A.Shibotsuka and T.Hishida. Department of Radiology, School of Medicine, Showa University, Tokyo.

A simplified method, according to the method of Gates, to determine GFR from the renal uptake of Tc-99m-DTPA was studied. The counting efficiency of a scintillation camera was previously measured. The injected dose was determined by a digital curiemeter and was converted into count rate. The depth and width of the kidney was obtained from body height and weight and the width of the abdomen using the conversion formula made by us. The region of interest of back ground was set up around the kidney. The improved method of back ground subtraction and count correction of the depth of the kidney, using the coefficient calculated from the depth and width of the kidney and the width of the abdomen, was applied. A hand calculation of the renal uptake was so troublesome that a calculation program was written into the data processor (Scintipac 2400) to obtain easily the value of uptake.

The correlation between renal uptake and 24 hour creatinine clearance (Ccr) was studied in 59 cases whose renogram and Ccr were examined at the almost same time. The result was that the renal uptake within 3 to 4 minutes had good correlation (r=0.976) with Ccr. This method to easily determine GFR was available for a routine examination.