battery of time-activity curves selected from various parts of the kidney such as outer part of cortex and inner part of pelvis, any differences in the temporal events between these tracers were not evident, indicating such were tagged tubular fluid which ran preferentially down and up again along the course of nephrons. Impulse response of this tubular transit process of the parenchymal part of kidney revealed a bimodal distribution function.

On loading osmotic diuresis, the distribution function became unimodal with shortened spread, which corresponded with increased rapid flow component and reciprocal decrease of slow component, according to the radioxenon washout study simultaneously carried out, suggesting that the intrarenal urine and blood flow were invariably related.

Quantitative Estimation for Results of Operated Obstructed Kidneys, Applying to Computer Analysis as Functional Image with $^{99m}$Tc-DTPA

K. Tsurumi*, Y. Takei* and M. Takizawa**

*Suwa Red Cross Hospital

**Department of Radiology, School of Medicine, Shinshu University

RI-images on pre- and postoperative obstructed kidneys, hard to distinguish their functional improvements with IVP, were acquired as 45 pictures of each 20 sec. interval for computer analysis.

From regional renograms, functional images on both peak counts and its arrival times, some values for quantity were estimated in order to follow up the changes of the operated kidney.

Values from each 4 horizontal ROI of kidney were compared, resulting inversely related with counts and times in each region following to improve on operated kidney function.

Lated flow index value (LFI) as the expression for dynamic function included each count and time were set up, and applied to the same follow up studies. That is:

$$LIF = \frac{1}{N} \sum_{i=1}^{n} \frac{PCI - 1}{BG} \left( \frac{PTi}{K} \right)^{2}$$

where, $K=180^\circ$ (DTPA), BG; background, PC; peak count, PT; peak time, showing gradation of kidney functions.

By this, in 7 of 10 cases, changes of kidney function were observed just as renal counter balance of Joelson, J.C. (1929).

A Study of the Diagnostic Usefulness of Serial Renal RI Images in Upper Urinary Tract Obstruction, Especially in Children

T. Tsuchida, N. Ueno, T. Kohmo and T. Nakajima*

Department of Pediatrics and RI Section* OSAKA Shirokita City Hospital

Urinary tract obstruction and its complications occupy an important place in pediatric nephropathy. The nature and etiology of such obstructions are quite complex and the symptoms are most of such cases during in fancy and early childhood are considered as congenital. Stricture or obstruction at the ureteropelvic junction or at the lower end of the ureter is a congenital anomaly of relatively frequent occurrence which, even in mild cases, tends to be associated with flareups of urinary tract infection, proves often to be therapyresistant and is likely to be overlooked at times. In the diagnosis of such upper urinary tract obstructions functional image by using renal scanning agents is of graet use.

This radiodiagnostic procedure consists of taking serial scintiphotos of the kidneys in order, 4, 8, 12 and 16 minutes after the rapid intravenous injection of $^{131}$I-hippurate using an Anger scinti-camera which is placed externaly against the