secretory angle, maximum counts (peak counts, cpm), time from the injection to peak point, time from the injection to 75% of the peak and time from the injection to 50% of the peak were proved to be highly correlated for classifying the renograms into four types (N, M1, M2 and L-type according to Dr. Machida's method).

The types selected by computer using these five parameters were agreed with those by observers in 86% of curves, and these studies were shown clinical usefulness of the system in routine examination.

Clinical Evaluation of Functional Imaging of the Kidney in Obstructive Renal Diseases

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We have previously reported on a method for functional imaging of the kidney using dynamic data after ^{131}I-Hippuran administration. In this study, this functional imaging was clinically evaluated in obstructive renal diseases and pyelonephritis especially in contrast with IVP findings. After intravenous administration of 300 Ci of ^{131}I-Hippuran, sequential frames were acquired at 3 per minute in a frame mode with 64×64 matrix, using a gamma camera and an on-line computer system [DAP 5000-N]. Each of the parameters of Tmax, T 1/2, T 2/3 and T 1/2 IDS (T 1/2 of initial descending slope of a time-activity curve plotted on semilog. paper) was calculated for all the time-activity curves on the elements of the matrix and displayed such that brightness is proportional to the calculated values. In normal kidney all the calculated values were less than 4 minutes in any of the parameters. In 7 cases of hydronephrosis with parenchymal atrophy on IVP, calculated values for all the parameters represented as brightness increased dif-

fusely. In contrast, in all 8 cases without parenchymal atrophy on IVP, there was found demarcation between enlarged pelvis with higher brightness and parenchyma with lower brightness. It represents that renal parenchyma is still functioning and the degree of damage is visualized as brightness. In all 7 cases with pyelonephritis with either focal parenchymal atrophy or cavity on IVP, functional images showed coincident areas with increased brightness. In 14 cases with pyelonephritis with focal calyectasis on IVP, there were found multifocal areas with increased brightness on functional images. Out of 10 cases with clinical diagnosis of pyelonephritis without any abnormal IVP findings, 3 cases showed normal functional images, while 7 cases showed focal areas with abnormally increased brightness which was especially noticeable on T 1/2 IDS images.

We believe that functional images are clinically very useful not only supporting IVP findings but also indicating the part and the degree of the diseases, those are not detectable on IVP.

Relation Between Intrarenal Urine Flow Process and Intrarenal Blood Flow Process

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It is well known that renal cortex consists of two anatomically and physiologically identifiable compartments according to the elaborate animal experiment. However, there is no report to identify this situation on the level of clinical medicine. Present report is concerned with clinical identification of these compartments in term of

intrarenal urine flow blood flow using radionuclide tracer and its external detecting device.

A bolus of 131-I Hippuran and 99m-Tc (sn) DTPA were introduced into a renal artery and subsequent transit process of these tracers through kidney was observed using scintillation camera and analyzed by a computer. On inspecting a