323

EVALUATION OF REGIONAL RENAL FUNCTION IN OBSTRUCTIVE RENAL DISEASES. T.Suzuki,S.Aoki, H.Furunishi,T.Yamazaki,K.Masuda,M.Hamazu, and T.Yamazaki,Shiga Medical School,Ohtsu.

We analyzed the regional renal dynamic process with Tc-99m DTPA in the cortex, the medulla, and the pelvis during the renal blood flow, the accumulation and the clearance phase in obstructive renal diseases,to elucidate the characteristics of the regional renal function during each phase in these diseases. Tc-99m DTPA 20 mCi was injected through the vein by a bolus. We made the sequential renal images and recorded the renal dynamic process by a scinti-camera and a digital compute. From analyzing the regional renal dynamic process, seperating the renal blood flow phase from the accumulation phase, the decrease of the renal blood flow in the obstructed region was not so severe, and moreover, the obstructive disorder was limited only in the pelvis; the decrease of the clearance was mild in the cortex and the medulla. This regional-functional characteristics lead the easy diagnosis of the obstructive renal disease from the renal cortical or medullary disease.

324

ASSESMENT of KIDNEY FUNCTION by SPECT. Y.Ohishi,M.Miki,A.Kido,T.Machida*,H.Toyama, H.Yamada**and H.Murata.*Department of Urology,Jikei University School of Medicine, Tokyo.**Department of Nuclear Medicine and Radiological Science, Tokyo Metropolitan Geriatric Hospital,Tokyo.***Department of Nuclear Medicine,Toranomon Hospital,Tokyo.

A method of determining renal function by calculating intrarenal radioactivity through renal tomographic images obtained by SPECT was attempted in 5 subjects with normal renal function and 1 patient with bilateral renal cysts. Two hours after intravenous injection of 4-10 mCi Tc-DMSA, images were obtained at 10-15 second intervals from 64 directions with a rotating gamma camera. Reconstruction was performed by the RPC method . The threshold level was determined from the measurements obtained by a phantom study .The cunnt ml sec mCi was calculated fron SPECT images of phantom with known radioactivity. Using this information, the intraranal radioactivity was calculated from the count obtained from the rena SPECT images and the percentage of the administered amount that was absorbed was determined. The threshold level, which indicates the correct volume, as determined by the phantom test, differed according to the volume and the background. By the RPC method, the threshold level was set at 35% when the renal volume was 200 ml. In 10 normal kidneys, renal volume was 199-333ml and renal uptake of Tc-DMSA was 18.2- 25.9%.

325

FUNCTIONAL IMAGE ANALISIS FOR SERIES OF THE SEQUENTIAL RENAL MAGES, USING Tc-99m-DTPA--FOR UPGRADE RENAL TUMOR DETECTION--. T.Tanaka, H.Fujii, T.Fukushima, T.Matubara, H.Washida, M.Tugaya, N.Hirao, Y.Hachisuka. Anjo Kosei Hospital, Anjo.

It is well known that Tc-99m-DTPA renoscintigraphy is not only better assesment method of renal function, but also finding renal blood flow and radionuclide medication transport in the kidney. We sometimes take mistakes, because these images have many standard deviations with only a few radionuclide decay.
In this time, we pick up some of data of renal cancer and renal cyst patients from old examination files. These data were conpiled to 1 frame/4 sec. for initial blood flow phase, 1 frame/24 sec. for concentration phase. These data were analized by our development functional image method, using microcomputer system (VIP 460: manufactured TECNICARE Corp.). We have get more clear information of renal blood flow and medication transport in the kidney for detection of renal cancer. (ALGOLISM OF FUNCTIONAL IMAGE PRODUCT)
Each pxiel counts on the compiled sequential renal images can be the sourse of the dynanic curve.
$P(Xn1)=(P(Xo1)-B)/P 10$
     $P(Xn1)$:new pxiel counts.
     $P(Xo1)$:old pxiel counts.
     P=peak counts. B=bottom counts.
The new frame of the image is produced for each parameter to be image.

326

AN EVALUATION OF POLYCYSTIC KIDNEY DISEASE - A TOTAL OF 138 CASES.
S. Egawa, S. Ikeda and A. Ishibashi.
Kitasato University Hospital, Sagamihara.
K. Lee. Kitasato Institute Hospital, Tokyo.

138 cases of polycystic kidney disease (PCK) were evaluated in respect to the diagnostic ability of several diagnostic techniques. These techniques include excretory urogram (IVP), renoscintiphotography (RS), ultrasonography (US), angiography (AG) and computed tomography (CT). The polycystic lesions were detected 82/90 (91.1%) in IVP, 101/104 (97.1%) in RS, 90/92 (97.8%) in US, 37/38 (97.4%) in AG and 50/51 (98.0%) in CT. Other organ involvements were also detected--- 61.4% for liver, 10.7% for pancreas, 9.4% for spleen and 7 for cerebral aneurysm. Besides, these five techniques were compared one another in respect to the diagnostic efficacy. CT, US and RS were all seemed to be excellent and non-invasive techniques in the diagnosis of PCK. IVP alone was not sufficient to demonstrate the polycystic lesions of the kidney because its positive rate was only 91.1%.