ANALYSIS OF EARLY PHASE RENORAM USING FAST FOURIER TRANSFORM. N. Takezawa, T. Kobayashi, N. Mivazawa and K. Surumii. Shinshu University Hospital, Suwa Red-Cross Hospital, Matsumoto and Suwa.

There are many informations in the renogram by the dual time interval method with 99mTc-DTPA. Early excretory phase of this renogram has been not analyzed. The authors report a trial to analysis in this phase by the fast Fourier transform (FFT) and power spectrum.

99mTc-DTPA renogram is corrected by 200 frames with 300 msec interval, continuously 280 frames with 3 sec interval, 480 frames in total. Thirty second from the end of initial renal blood flow spike are processed by FFT.

Results are obtained some feature power spectrum. Cyclic change was shown on the spectrum from 0.1 to 0.3 Hz. In the case of renal hypertension, remarkable spectra is obtained. By these spectrum, both pre- and post renal diseasess can be classified.

This results suggested that this method will be useful for physiological diagnosis of the renal diseasess by early phase renogram.

WHOLE-BODY AUTORADIOGRAPHY OF Tc-99m-DTPA IN RATS WITH ACUTE TUBULAR NECROSIS.
S. Ikeda, A. Fujino, and A. Ishibashi. Department of Urology, Kitasato University Hospital, Department of Urology, Kitasato Institution Hospital, Department of Urology, Kitasato University.

The effect of transient renal ischemia on whole-body and renal concentration and distribution of Tc-99m-DTPA was investigated by sequential macroautoradiography of rats with acute tubular necrosis. Male Sprague-Dawley rats were divided into three groups. One served as a control, 60 minutes of warm ischemic time (WIT) in the second, and 90 minutes of WIT in the third. In 60 minutes of WIT group, the excretory process is comparatively preserved and blood level of this tracer is almost similar to control.

About kidney, rapid distribution of renal cortex and medulla, which is considered the shunting of blood flow, was demonstrated, in early phase. While, high accumulation of cortex and renal pelvis was shown, in the late phases. The pattern of sequential radioactivity of kidney showed an ascending type of curve. In 90 minutes of WIT group, demonstrated severe acute tubular necrosis, showed poor excretion and comparatively high accumulation of blood. About kidney, high distribution of vascular system was shown, in early phase. While, although poor accumulation of cortex was demonstrated in late phases.

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