The Clinical Evaluation of the Renal Function Test by the Radioisotope Human Serum Albumin and Radioisotope Hippuran—Analysis of the A-Segment in Radioisotope Renogram at the Diseased Kidney—

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We obtained interesting results of the experiments in which we try to analyze the A-segment in RI-renogram which was still unsolved.

Method of experiments:
Though RI-renogram recorded by means of the surface counting method using only hippuran, presently we analyzed the A-segment of RI-renogram by using both hippuran and RISA.

The RISA-hippuran renogram was recorded by the separated two of the same counts of RISA and hippuran. Therefore, the renogram obtained is consisted of RISA-renogram and hippuran-renogram, in which the pattern recorded before hippuran injection indicates the RISA-renogram.

We compared the a-segment in RISA renogram with the A-segment in hippuran renogram.

Results:
1) It is apparently by our method that the A-segment is consisted of vascular segment and renal secretion phase, though the A-segment has been recognized to indicate vascular segment.

We consider that the upper part of value by drawing that of the a-segment in RISA renogram from that of the A-segment in hippuran renogram should be involved in renal secretion phase, since the lower part of value in the A-segment is equal to that of the a-segment in RISA renogram, vascular segment.

2) It was proved that the value of the A-segment/the a-segment ratio in a good functioning kidney was larger than 1.3 and becomes near to 1.0 in disfunctioning kidney.

In other words the value of the A-segment/ the a-segment ratio was found to be in a certain correlation with the effective renal plasma flow (the value of the PAH clearance).

Use of $^{131}$I-Hippuran and $^{197}$Hg-Neohydrin for the Renal Function Test

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There are few ways in the quantitative analysis of renogram with a definite examination because of its own complexity. A small autofluoroscope with 30 (58mm thick, 12mm square) sodium iodide crystals was used to study the quantitative analysis of renal function in normal subjects and various renal diseases. They were injected intravenously with $^{197}$Hg-Neohydrin 100$\mu$Ci, $^{131}$I-Hippuran 50$\mu$Ci and $^{131}$I-RISA 50$\mu$Ci in sucession, the radioactivity was observed every 40 seconds compartmentally (cortex, medulla and pelvis).