

A Study of Changes of ^{131}I -Hippurate Renograms Loaded on Certain Pharmaceuticals

T. TUCHIDA and T. OKA

Laboratory of Radioisotope, Osaka City Shirokita Hospital

H. OCHI

Department of Radiology, Osaka City University Hospital

T. MISSE

Department of Urology, Osaka Prefectural Hospital

In order to investigate a certain screening test being able to evaluate residual renal capacities or latent renal disturbances, the patterns of the ordinary ^{131}I -hippurate renograms (RG-1) were correlated with those of the ^{131}I -hippuraterenograms, which were recorded soon after the intravenous administration of certain pharmaceuticals that would influence renal blood flows or functions (RG-2).

As certain pharmaceuticals Isoxsuprine hydrochloride (IS), Furosemide (FS), and Angiotensine-II (A-II) were used. Patients were positioned at sitting positions, and RG-1 at first was recorded for 20–30 minute duration, and after that RG-2 was similarly done with the intravenous injection of one of the pharmaceuticals.

Each dosis of the added pharmaceuticals was as follows:

FS (10 mg/ml) was given in single injection, IS (8–10 mg) was diluted to 40–60 ml by saline solution (0.2 mg/ml), and given in drop infusion, A-II (200–400 ng/kg) was given with the rate of 10–15 ng/kg/min. by drop infusion.

Indices of renogram were choosed Ht, bt, t-1/2 and Ht. These indices obtained as follows: bt and Ht of C.C. Winter's or R.P. Krueger's denotation of a renogram analysis were used, next t-1/2 and T-1/2 were calculated by analysis of figures which transcribed from the renograms

into semilogarithmic papers. Each pattern of the renograms was classified according to K. Hisada's classification.

FS and IH could transform ad delayed type (D1 or D2) into a standard type, a hypofunctional type into D- or D- type. However, the standard and non-functional types almost could not be transformed into any types.

Concerning the influences of Fs, Ht changed from 10.6 minute to 8.7 min., and T-1/2 from 11.6 minute to 6.8 on the average of 33 cases. As for IH, Ht changed from 9.1 min. to 7.7, and T-1/2 from 15.2 min. to 11.6 (22 cases), but bt and t-1/2 did not change any more.

In contrast of the results of FS and IH, A-II seemed apparently to transform a certain pattern of the renograms into more injured one; the standard pattern was transformed into D₁ (4 cases) or D₂ (7 cases), and D₁ into D₂ (2 cases) and D₂ into D₂ (a case), and the mean values of Ht and bt prolonged, namely bt from 2.5 min. of the standard pattern to 5.3 of the others, or Ht from 7.6 to 13.9 min. and t-1/2 from 4.2 min. to 9.8, T-1/2 from 5.6 min. to 13.4.

We investigated the changes of ^{131}I -hippurate renograms before and after the intravenous administration of certain pharmaceuticals which could influence renal functions, and our methods seems as one of the useful examination of renal function in a routine work.