

In cases of acute hepatitis Autoradiography revealed that α_2 -M, α_2 -HS, CP, B-Lipo and B₁-E are more increased than those of healthy man and Pre, Hp and γ -M decreased. In chronic hepatitis B-AC increased and pre α_2 -M, B₁-E

decreased. In liver cirrhosis α_2 -M, α_2 -HS, CP, B₁-AC and B₁-E are increased, and pre and HP decreased. In Single Radial immunodiffusion by using Antisera plate similar results were obtained.

Dynamic Distribution Study of Hepatobiliary System with ¹³¹I Labelled BSP by Aid of Computer —Mainly with Respect to the Cases of Constitutional Jaundice—

T. NAMBA, Y. TANAKA, Y. YUMOTO and K. KOSAKA

*First Department of Internal Medicine, Okayama University Medical
School, Okayama*

The scintillation camera is employed for dynamic function studies with ¹³¹I labelled BSP mainly with respect to the differential diagnosis of the constitutional jaundice.

Method: After injection of ¹³¹I-BSP 120 μ Ci time dependent images of the liver are obtained with scinticamera.

Then, by assuming a three compartments model, kinetic analysis of ¹³¹I-BSP distributions in various organs are calculated based upon disappearance curve of ¹³¹I-BSP radioactivity in the serum, time dependent curve of radioactivity over the liver and urinary excretion of ¹³¹I-BSP in attempts to clarify the kinetic distribution of ¹³¹I-BSP and the time dependent pool size of ¹³¹I-BSP in each compartment such as serum pool, liver pool and the other pool.

Subjects: 40 cases of various liver diseases including 6 cases of Dubin-Johnson's syndrom, 3 of Gilbert's disease and one of suspected Roter type.

Results: A) Time dependent images of the liver with scinticamera. In the cases of Gilbert's diseases, normal patterns were obtained. In the case of Roter type, heart pool scan was obtained

until 20 minutes after injection of ¹³¹I-BSP, but the following excretion of radioisotope from the liver was normal. In the cases of Dubin-Johnson's syndrom, the excretion of radioisotope from the liver were very slow, so the liver images were obtained quite deeply after 24 hours and the images of gallbladder were obtained more slowly, but the excretion of ¹³¹I-Rosebengal were not so impaired. The dissociation of the manner of excretion with above two radiopharmaceuticals will be one of the basis of the diagnosis of Dubin-Johnson's syndrom.

B) Kinetic analysis.

The individual values for the fractional rate constant for distribution and metabolism of I-BSP are expressed as k_{01} , k_{02} , k_{12} , k_{13} , k_{21} , and k_{31} . In controls, the calculated rate constant of k_{02} , expressing the excretion from liver into bile duct, is $0.00071 \pm 0.000256 \text{ min}^{-1}$. In the cases of Dubin-Johnson's syndrom, remarkable decrease in the values of k_{--} and biliary excretion of ¹³¹I-BSP is showed, but the second rising curve in time dependent curve of ¹³¹I-BSP radioactivity in serum is not demonstrated.