

L. Digestive Tracts

Liver and Biliary Tract

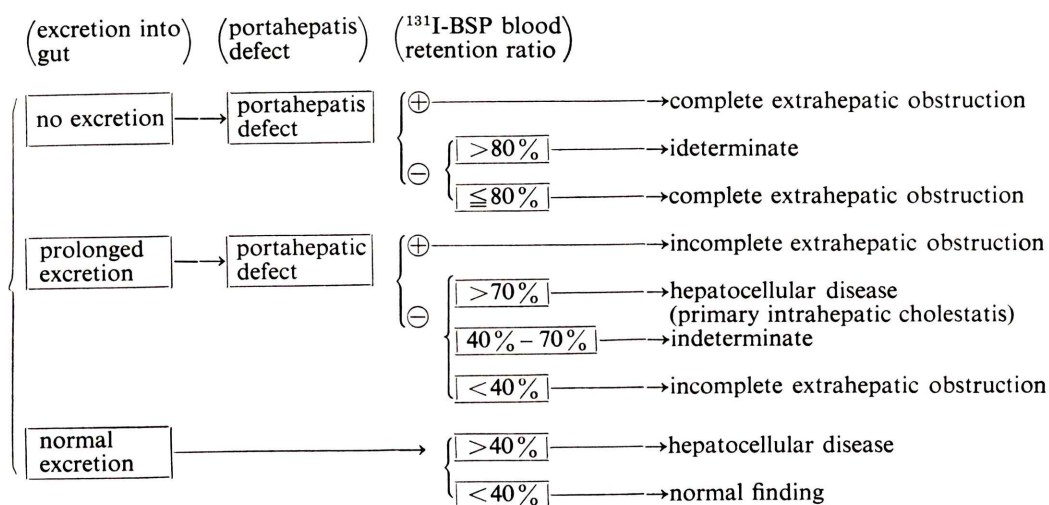
Radioisotope Study for the Evaluation of Hepatobiliary Diseases

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Since 13 years ago, more than 350 hepatobiliary scintigraphies have been done using ^{131}I -Rose Bengal or ^{131}I -BSP. In the present study, histologically confirmed 165 cases were examined to evaluate the clinical usefulness of the hepatobiliary scintigraphy in the diagnosis of hepatobiliary

diseases. Moreover, the blood clearance study of the ^{131}I -BSP expressed as the percentage obtained by dividing the 20 min count rate by 5 min count rate was additionally performed. Obtained results are as follows;



The Clinical Value of RI Test for Preoperative Biliary Diseases.

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The RI test which was ^{131}I -BSP test in 103 cases and ^{131}I -R.B. test in 73 cases, studied for preoperative diagnosis, with the relations of DIC, liver function test and biliary pathologic findings.

^{131}I -BSP scintigraphy performed every 200 sec. The visible image showed in 68 cases, and

showed visible DIC in 88.2% of them. About over half cases, nonvisible or visible image over 40 min of scintigraphy, showed adhesion, and hypertrophy of cholecyst wall.

The biliary duct image showed in 92 cases, and showed visible DIC in 94% of them.

In ^{131}I -R.B. test, normal value were showed in GPT and Al-phos. of serum, for the cases that counted over 7.1%/min. in Ku and over 0.41%/min. in Ke.

The pathologic findings of gall bladder wall was less in the cases that showed positive cholecystogram under 15 min of ^{131}I -RB test.

Radioisotope Combined Diagnosis of Obstructive Jaundice

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Attempts were made to raise the diagnostic rate of obstructive jaundice by a combination of a dynamic study of the liver and bile duct using ^{131}I BSP and a static study of the liver by $^{99\text{m}}\text{Tc}$ -Blended Scientiphography. Four patterns in the liver scintigram, from Type I-Type IV were set forth to indicate the degree of dilatation of the intrahepatic bile duct. In addition to the above, with regard to the reading of liver and bile duct scintigrams, diffuse expansion type, congegrated type around the hepatic hilus were considered to determine whether the diagnosis would be 1) incomplete extrahepatic obstruction 2) complete

extrahepatic obstruction 3) or where the site of obstruction is. As a result compared against the positive diagnostic rate of 41.2% by dynamic study alone, a diagnostic rate of 64.7% was obtained. However, it was found that the diagnosis as to whether the diseased state is malignant or benign was difficult everwhen the duration of the jaundice and liver function were considered together. We are of the opinion that the direction of diagnosis of bile duct diseases by RI should be to clarify partial liver function by determining the bile duct dynamic curve using a computer.

The Effect of Spironolactone Pretreatment on the Biliary Excretion of Cd^{++} , Ce^{+++} , and Zn^{++} in the Rat

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Spironolactone (Sp) pretreatment was reported to protect rats against lethal dose of inorganic mercury intoxication (Selye, Science, 169: 775, 1970). In addition, the biliary excretion of inorganic mercury was reported to be enhanced more than 10 times. (Haddow et al., Gastroenterology, 63: 1053, 1972, Ishimura & Kitani, Jap. J. Nucl. Med. 11: 34, 1974).

In this study, the effect of SP pretreatment on the biliary excretion of i.v. injected heavy metals other than mercury (cadmium, zinc and cerium) was investigated in rats, using $^{115\text{m}}\text{Cd}$, ^{65}Zn , and ^{141}Ce as tracers.

Under nembutal anesthesia, each metal (in chloride form, 0.5 mg/rat) was injected i.v. and

the biliary recovery of injected metal was measured for 4 hrs.

Sp was given orally as a water suspension of powdered Aldactone A tablet (5 mg/100 g B.W. as Sp weight) 1-3 hrs prior to the metal study. The radioactivity of ^{115}Cd was measured by gas flow counter.

The 4 hr recoveries of injected metal expressed as a percent of the injected dose were Cd: control (n=6) 15.7 ± 1.5 , Sp treated (n=5) 14.9 ± 2.0 , $p > 0.05$; Zn: control (3) 2.0 ± 0.6 , Sp (3) 2.1 ± 0.7 , $p > 0.05$; Ce: control (3) 0.13 ± 0.03 , Sp (3) 0.12 ± 0.01 , $p > 0.05$. Thus, the pretreatment of Sp was ineffective in enhancing the biliary excretion of these metals. Multiple treatment of