contrast angiography.

Case IV: Dilated stomach due to pyloric stenosis compressed the outer half of the left lobe. Liver scan in sitting position was useful to differentiate it from the tumor.

Case V: Focal defect in the lower portion of the left lobe. In this area, ^{75}Se-methionine scan showed slight but definite accumulation. α-Fetoprotein was negative. Contrast angiography showed hepatoma and an extremely dilatated tortuous gastric coronary vein, both contributing to the dimished radioactivity on scintigram.

Case VI: The vertical defect in the middle portion of the left lobe. The RI angiography (dynamic and static) revealed tortuous abdominal aorta corresponding to the defect.

Case VII: Round small defect caused by a coin on the skin (artifact).

Calibration of the Respective Clearance Rates of the Liver and the Spleen by Simultaneous Administration of ^{99m}Tc-Sn and ^{198}Au Colloids

Yutaka TAKAHASHI, Kiyoshi AKASAKA and Yasuhiko INAMOTO
Hematology Division of Internal Medicine, Tenri Hospital
Internal Medicine and RI Laboratory, Tsukaguchi Hospital

Increase in the splenic uptake of radiocolloid sometimes masks reduction in the hepatic one behind the compensated blood disappearance rate and visualized splenic uptake does not necessarily reflect the splenic function. Difference was observed between ^{99m}Tc-Sn and ^{198}Au colloids in their distribution among the liver, spleen and the bone marrow on simultaneous administration. This difference is attributable to non-proportional efficiency in their extraction among these organs. Applying this difference, we attempted to calibrate the respective clearance rates of radiocolloid which were attributable to each organs.

Following intravenous administration of a mixture of ^{99m}Tc-Sn, 1.5 mCi, and ^{198}Au, 150 μCi, radiograms of the liver, or spleen, and of the precordium were recorded for the respective radionuclides in order to calculate the total blood clearance rate. The linear scanning along the body axis differentiated the liver-spleen uptake from the extra-liver-spleen one Relative radioactivity of the selected liver 'ROI' and the selected spleen 'ROI' was measured with a scinticamera equipped with clinical data processing system. Setting a model of simultaneous equotions and their solution yielded the distribution ratios of these radiocolloids between the liver and the spleen. With the total clearance rate and distribution ratio among these organs, the clearance rate attributable to each organ was calibrated.

The liver clearance rate thus calculated was more useful than the rate as a whole in detecting the cirrhotic change in this organ and the reduction in the hepatic flow following the splenectomy or the portal-systemic shunting. The liver clearance rate of both ^{99m}Tc-Sn and ^{198}Au was correlated well with ICG clearance rate but some dissociation was observed, which was assumed to be related to the extra-hepatic shunting rate of splenic flow.

The spleen clearance rate was significantly correlated with its size and change, usually reduction, in the latter was almost proportional to that in the former.

Thus the calibration of the respective liver and spleen clearance rate was useful in diagnosing the hepatosplenomegalic patients as well as in evaluating the therapeutic effects in cases with portal hypertension.