recrystalization was repeated several times and obtained bilirubin-^{3}H with speficic activity of Ca 24μc/mg.

Visualization of the Spleen in Liver Scaning

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Visualization of the spleen has been an accidental finding in liver scan. We are of the opinion that visualization of the spleen is related to the function of liver RES, and this report deals with the frequency of visualization of the spleen in various diseases. The color multiscintigraphy of the multiscintigram system has been used and 235 scintigrams taken from 204 patients were analyzed. The visualization occurred in 7 (30.0%) out of 23 patients with acute hepatitis, 7 (22.6%) of 3 with chronic hepatitis, 24 (70.5%) of 34 cirrhotics, 7 (77.8%) of 9 with chronic schistosomiasis, 18 (72.0%) of 25 with primary liver cancer, 2 (11.2%) of 18 with secondary liver cancer, 2 (100%) of 2 with the aBnti's syndrome, and 5 (14.5%) of 35 with other diseases. In 63 (51.6%) out of 122 patients with liver disease the spleen was visualized, and only 9 (16.3%) out of 55 with nonhepatic diserders.

The degree of visualization was (+) in most of the patients with acute hepatitis, (+) ~ (++) in chronic hepatitis, (+) ~ (+++) in cirrhotics, and (++) in primary liver cancer. All those who had liver disorders and a palpable spleen showed positive spleen, suggesting increase RES function of the spleen, whereas in 4 patients with leukemia and malignant lymphoma, the spleen was negative.

No direct correlation was seen between the degree of visualization of the spleen and the liver function tests, except for a relative correlation with the decrease of albumin and A/G.

When the accumulation of ^{189}Au over the liver and the spleen was studied with regard to time after administration, to evaluate the phagocytic activity of these organs, a trend was noted that with increasing severity of liver fibrosis the splenic curve becomes somewhat similar to the hepatic curve.

Splenic Scanning by ^{197}Hg MHP Treated Red Cells

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In spite of the growing importance of the radioisotope organ scanning for the clinical diagnosis, satisfactory radiopharmaceuticals for the splenic scanning was not yet available so far in Japan.

According to the report made by Dr. H. N. Wagner et al., we have evaluated the method to prepare ^{197}Hg labelled 1-mercuri-2-hydroxypropane (MHP) and the application of this material for the splenic scanning. Results

were compared with the method using ^{203}Hg labelled BMHP, ^{51}Cr labelled red cells treated with stable BMHP and ^{51}Cr labelled heat treated red cells.

This material has good binding capacity to the red cells up to 92%, and the binding could be kept firmly after serial washing by saline. Marked sequestration of labelled red cells into the spleen was achieved in high percentage at a concentration of 1—2.5 mg/lml of red cells.

This method has more advantages of the simplicity of its procedure, good reproducibility and reliability than the previous ^{51}Cr labelled heat-treated red cell method.

Authors believe this material should be used routinely for the diagnosis of location and morphology of the spleen and differential diagnosis of a left upper quadrant abdominal mass and so on.

We are now working further on the more quantitative diagnosis of splenic function using several other labelled materials besides ^{197}Hg MHP.

The Functional Test and Radioisotope Scanning of the Spleen by Chromium-51 (^{51}Cr)

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There has been no special reports of splenic examinations up to the present. The biopsy for the splenomegaly was not used so often because of its danger.

Recently, it has become possible to make clear the function of the spleen by radioisotope studies. The technique is based on the function of the spleen to phagocyte damaged red blood cells from the circulation. Red blood cells are labelled with chromium-51 (^{51}Cr), damaged by heating at a temperature of 50°C for one hour, and reinjected into the patient from whom the blood had been withdrawn.

^{51}Cr labelled damaged red blood cells will be removed by the spleen from the circulation.

The clearance rate of the damaged blood cells is obtained in each case. The half time clearance is the time (min) to correspond with 50% of clearance rate. The half time clearance in normal subjects is in a certain limited range. The mean value of half time clearance was 12.5 min. It has been possible to evaluate the function of the spleen by the value of the half time in each case. Hyperfunctional spleen removes the damaged red blood cells more rapidly and hypofunctional spleen more slowly.

The features of this method are based on;

1. The half time clearance gives no significant deviation for the repeated procedures.

2. The liver in case of normal spleen absorbs a few amount of damaged red blood cells, but almost no uptake of the liver in case of splenomegaly.

Owing to this method, the scanning image of the spleen can be easily demonstrated. The splenic scanning will be useful for the detection of shape and extent of the spleen and space-occupying lesion in it and for the differential diagnosis of the upper abdominal masses to ascertain how the masses are related with spleen. Furthermore various anomalies of the spleen will be found by this procedure.