

Fetoprotein positive hepatoma, by radioimmunoassay. Their levels rised immediately and after 3-5 months they changed positive by single radial immunodiffusion.

Levels in acute hepatitis with jaundice were very high within one month after the appearance

of jaundice. But they fell in parallel with the levels of the transaminase and the bilirubin.

Levels in the active type of acute hepatitis were higher than the inactive type.

Levels in the hepatitis and liver cirrhosis were changed in parallel with the transaminase.

Study of Scintiphotos of Liver Cancer

Part 1. About α -Fetoprotein

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Frontal and right lateral scintiphotos of 26 pathologically confirmed liver cancers, including 15 primary liver cancers (P.L.C.) and 11 metastatic liver cancers (M.L.C.), were analyzed, and correlated with their α -fetoprotein contents in blood. The scintiphotos were made by a gamma camera after intravenous injection of ^{198}Au -colloid. P.L.C. seemed likely to develop in contracted livers, and M.L.C. in enlarged livers. The contracted livers, in which P.L.C. developed, was disposed to produce small space-occupying lesions (S.O.L.), while the enlarged liver of the M.L.C. tended to produce large S.O.L. S.O.L. of the P.L.C. was inclined to develop in the posterosuperior portion of the

right lobe of the liver. The S.O.L. of M.L.C. was likely to develop in any part of the liver. The number of S.O.L. of P.L.C. was almost always limited to one, while those of M.L.C. numbered 2 or more. Visualization of the spleen was about 64% in P.L.C., and 40% in M.L.C. The α -fetoprotein determination was positive in 9 cases of 15 in P.L.C., and it was negative in all cases of M.L.C. .

In 15 cases of P.L.C. there were 9 cases of pathologically confirmed liver cirrhosis, and 3 cases presented pathologically no cirrhosis and the rest were not confirmed.

Serum Alpha-fetoprotein and Hepatic Scintigram in Patients with Liver Diseases

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Radioimmunoassay of serum alpha-fetoprotein and camera images of the liver were evaluated for the early diagnosis of hepatoma.

Among 20 patients with histologically diagnosed hepatoma, serum alpha-fetoprotein were positive in 100%, 53%, and 55% using radioimmunoassay, single radial diffusion, and double diffusion, respectively.

Alpha-fetoprotein was found in about 50% of active chronic liver diseases by radioimmunoassay, most of these values were less than 320 nanograms per ml. of serum, whereas in 95% of hepatoma showed alpha-fetoprotein higher than 320 nanograms per ml. of serum.

In hepatic scintiphotos, definite cold area was demonstrated in 70% of patients, whose serum

contained alpha-fetoprotein over 320 nanograms per ml., while in patients having serum alpha-fetoprotein less than 320 nanograms per ml., only 9% of patients showed definite cold area.

Australia antigen was appeared in about 50% of either cirrhosis or hepatoma patients assayed

with solid phase radioimmuno-method.

A case, diagnosis was made by alpha-fetoprotein assay, hepatic scintigram, and selective angiography, and the hepatoma node with 3 cm. diameter was successfully resected, was reported.

An Application of Radioimmunoassay of α -Fetoprotein to the Liver Scintigraphic Study

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To detect primary hepatoma, the radioimmunoassay (RIA) of α -fetoprotein (AFP) was used combined with liver scintigraphy and laboratory liver function tests. For this study α -feto-125 kits (supplied by DAINABOT) were used, and the values above 20 ng/ml were evaluated as positive.

Among the sera of 8 hepatoma patients with accurate diagnosis, 6 were positive. One out of 2 negative cases was cholangioma. In 5 out of 6 positive cases, the tumors were found in the upper right quadrant of the liver. AFP could be detected in the sera of 3 out of 12 liver cirrhosis patients (90-2,000 ng/ml).

Small hepatoma under 2 cm in diameter is difficult to detect by liver scintigraphy, and even though such a size of hepatoma is able to detect by the liver angiography, it is often difficult to distinguish hepatoma from hemangioma. There-

fore the authors have to say, that there is a limit to the detection of hepatoma by radiological study, and RIA of AFP is expectable to apply.

When AFP in serum is evaluated as positive, hepatoma exists in high probability, then liver angiography should be indicated for these positive patients.

Even though AFP is negative, still there is a possibility of hepatoma. Many cases of hepatoma showed the typical patterns of liver cirrhosis. Therefore it is necessary to check up liver cirrhosis, particularly in the case of suspected hepatoma, by data processing with likelihood method from the informations of liver scintigraphy, laboratory liver function tests and other clinical findings. Then these suspected cases of liver cirrhosis should be indicated to liver angiography. From these data, primary hepatoma may be diagnosed systematically.

The Relationship with α -Fetoprotein, Hepatic Scintigram and Liver Function

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Method Hepatic scintigram were studied with ^{198}Au and ^{67}Ga .

Radioimmunoassay of α -fetoprotein were em-

ployed two antibodies method of Abbott Co. And also single radial diffusion method were performed.