

H. Digestive Tracts (Liver and Biliary Tract)

⁶⁷Ga Citrate Uptake and Serum α -Fetoprotein (AFP) in Hepatoma

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⁶⁷Ga citrate scintigraphy and measurement of serum α -Feto-protein using single radial immunodiffusion method were performed in 70 cases with carcinoma of the liver (26 hepatoma, 5 cholangioma and 39 metastatic carcinoma of the liver).

Alpha-Fetoprotein level in 16 cases of hepatoma was increased more than 10 μ g per ml. serum (AFP-positive hepatoma), but in 10 cases less than 10 μ g per ml. (AFP-negative hepatoma).

About two-thirds of hepatoma showed increased uptake of ⁶⁷Ga citrate markedly accumulated in AFP-negative hepatoma rather than in positive hepatoma. In 54 cases of AFP-negative

liver tumor, 7 cases which showed highly increased uptake of ⁶⁷Ga citrate were hepatoma. There was no relationship between hepatoma with cirrhosis or without cirrhosis and ⁶⁷Ga citrate uptake within the lesion. ⁶⁷Ga citrate uptake was highly accumulated in the lesion which was hypervascularized on arteriogram and histologically well differentiating in Edmondson's classification.

It is our conclusion that ⁶⁷Ga citrate scintigraphy is a useful screening method in differentiating AFP-negative hepatoma from other carcinoma of the liver.

Serum Fetoprotein and Liver-Scintiphotos of Liver-Cancer

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By radio-isotope-immunoassay method serum α -fetoprotein was determined about 370 cases of liver-diseases, among which 15 cases

of 20 histologically confirmed hepatomas showed the values over 20 m μ g/ml, but those of most of liver-diseases except hepatoma were less than

320 m μ g/ml. Follow-up studies of 10 cases of hepatomas showed that the values of AFP in 8 cases increased progressively, but those of the rest (2 cases—one of which had a small hepatoma of 2 cm diameter confirmed by autopsy, and no space-occupying lesion in the liver-scintiphotos), were negative over the clinical courses, while the values of AFP of metastatic cancers showed only transient initial increases, and then negative responses. Namely, follow-up study of 11 cases of metastatic cancers showed transient initial increases of AFP in 4 cases, and negative response in 6 cases, one of the rest showed a peculiar clinical course: a 66-year male

had a gastric cancer with hepatomegaly, bloody ascites and positive response of AFP on admission, and after being treated by 5-FU hepatomegaly and ascites disappeared, serum AFP became negative, and then a few months later hepatomegaly again developed, serum AFP became positive response. A peculiar clinical course of hepatoma was presented: Hepatoma of 71-year male, diagnosed with liver-scintiphotos and contrast angiography, showed temporarily negative response of serum AFP without any changes of periodically taken liver-scintiphotos during his clinical course.

A Study of Radioimmunoassay of α -Fetoprotein in Hepatocellular Carcinoma and other Diseases

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The detection of α -fetoprotein in serum has been found helpful in the diagnosis of primary hepatocellular carcinoma.

A sensitive method for measuring the plasma α -fetoprotein has been developed with the radioimmunoassay technique.

The results of α -fetoprotein by single radial immunodiffusion method and radioimmunoassay are compared in 150 patients who were diagnosed hepatitis, hepatoma, metastatic liver tumor and other diseases.

The scintigram findings with 198-Au-colloid and 75-Se-selenomethionine were also compared to α -fetoprotein radioimmunoassay data in these

patients.

Result

1. 55 cases with hepatitis and 47 cases liver cirrhosis showed less than 150 m μ g of α -fetoprotein per ml serum. 5 cases showed about 100 m μ g/ml in which 1 case of acute hepatitis was 1150 m μ g/ml and 1 case of chronic hepatitis was 540 m μ g/ml.
2. In the 3 cases with gastric cancer and 1 case with cancer of prostate, α -fetoprotein increased about 100 to 1000 m μ g/ml.
3. In 15 cases of 17 patients with hepatoma α -fetoprotein increased up to 320 m μ g/ml, while 2 cases showed 46 and 18 m μ g/ml.