

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.

In two hepatoma patients whose α -fetoprotein showed no increase, positive tumor scintigrams were observed that liver tumor scan with ^{75}Se -

selenomethionine is clinically valuable as a method for the differentiation of hepatoma from other liver tumor.

**Study on The Rise and Fall of Serum concentration of Au antigen, antibody,
and α -fetoprotein in cases of Hepatitis, Cirrhosis of The Liver,
and Hepatocellular Carcinoma**

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Australia antigen in serum (Au-Ag) was detected at high frequency more than 65% in patients with chronic hepatitis active form, in particular, in cases of chronic hepatitis with submassive hepatic necrosis. Au-antibody were detected in high percentage in cases of fluminant hepatitis, subacute hepatitis, and chronic hepatitis active form.

The positive rate of Au-antibody was relative high frequency in the cases which Au-Ag was always negative in clinical course. In most cases of chronic hepatitis with SHN, who the existence of Au-Ag and Au-Ab was shown, prognosis of those patients with Au antigenemia was poor.

Serious determination of serum transaminase, Au-Ag, Au-Ab and serum α -fetoprotein were undertaken to elucidate the mutual relationship that levels of those values changed reciprocally in clinical course. Subjectes were comprised 3 cases of chronic hepatitis, 5 cases of cirrhosis of the liver A' and 2 cases of hepatocellular carcinoma.

In 5 cases of chronic hepatitis with SHN, when levels of serum Au-Ag were modelately increased in clinical course, The Dane particle of Au-Ag appeared in sera of the patients. At that time levels of serum concentration of Au-Ab were increased promptly, with tranciently eleva-

tion in Serum GPT. After few weeks, values of SGPT were temporarily elevated in accompany with beeing decreased the value of Au-Ag. Half month later, serum α -fetoprotein concentration increased at the time when levels of SGPT decreased, and the small particle of Au-Ag reappeared in serum.

After temporal fall of the levels of Au-Ag, levels of Au-Ag increased up to 100 $\mu\text{g}/\text{ml}$, in 3 of 5 cases of chronic hepatitis, prognosis of those cases were bad. In 2 of 5 patients of chronic hepatitis in whom serum Au-Ag decreased promptly before and after recrudescence of chronic hepatitis, levels of serum Au-Ab become to positive by immunoelectrophoresis method, but at the time serum Au-Ag was negative by RIA. Prognosis of such a case was good.

In this results, the Dane particle (42 nm. in diameter) of Au-Ag made hepatocellular necrosis, thereafter regeneration of the liver came in accompanied with production of α -fetoprotein.

Levels of serum Au-Ag in a patient of hepatocellular carcinoma with cirrhosis of the liver was decreased from 1500 ng/ml to 500 ng/ml in progress of clinical course, on the other had, levels of serum α -fetoprotein concentration were increased from 1250 ng/ml to 130 $\mu\text{g}/\text{ml}$.

In 29 cases of hepatocellular carcinoma, cor-