Material: Patients with disease of the liver and biliary system were studied. As the control patients with miscellaneous disease having over 20% of \(\gamma\)-globulin in protein fraction. In this study 1259 cases were studied in total.

Result: The normal range of \(\alpha\)-fetoprotein by radioimmunoassay in our laboratory was less than 20 mg/ml.

2. High level of \(\alpha\)-fetoprotein were found in primary carcinoma of the liver, metastatic carcinoma of the liver carcinoma of the cholelucus, cirrhosis of the liver, chronic hepatitis and acute hepatitis.

3. In all cases of primary carcinoma of the liver \(\alpha\)-fetoprotein of radioimmunoassay revealed over 300 mg/ml.

4. There is no correlation between size of cold area of the liver on the liver scintigram and value of \(\alpha\)-fetoprotein in patient with primary liver carcinoma.

5. Relationship with value of liver function test and \(\alpha\)-fetoprotein was not recognized.

Liver Scintigraphy with \(^{131}\)I-MIAA

I. Tatsuno and S. Kato

Department of Radiology, National Kanazawa Hospital, Kanazawa

\(^{198}\)Au colloid was used for conventional liver scintigraphy on account of cheapness and saving trouble of milking and preparation in short-lived nuclides, in spite of high radiation dose for the liver.

Against above, Micro-aggregated Albumin \(^{131}\)I (\(^{131}\)I-MIAA) is an efficient scintigraphic compound for liver, because it is 1–3 micron uniform particle size and it can be metabolized in the reticuloendothelial system.

We have presented the studies of liver scintigraphy with \(^{131}\)I-MIAA and have compared \(^{131}\)I-MIAA with \(^{198}\)Au colloid on the radiation dose of liver and RI distribution (spleen/liver).

Each patient received intravenously 200 \(\mu\)Ci \(^{198}\)I-MIAA. Half time disappearance from blood was one and half minutes. The hepatogram reached maximum at 7 minutes. Effective half life in the liver was 2.5 hours after injection. Thus, scintographies were usually performed 10 to 60 minutes after injection.

The radiation dose to the liver was calculated based on the Quimby formula. The radiation to 1,200 g of liver (which is average weight of Japanese male) from 200 \(\mu\)Ci of \(^{131}\)I-MIAA will be approximately 0.23 rad. The dose was reduced to 1/40 compared with one using 180 \(\mu\)Ci of colloidal \(^{198}\)Au.

\(^{131}\)I-MIAA was accumulated in the spleen more than \(^{198}\)Au colloid. RI distribution ratio (spleen/liver) of \(^{131}\)I-MIAA in chronic hepatitis, liver cirrhosis and Banti’s syndrome showed less overlap and broader range of each diseases compared with \(^{198}\)Au colloid.

Therefore, \(^{131}\)I-MIAA was concluded to be a useful radiopharmaceutical for the liver scintigraphy.