Comparison of Hepatic Isotope-Accumulation Curve and the Liver-Spleen Uptake

Ratios with Various Radiocolloid in Liver Diseases

Y. Tanaka, Y. Yumoto and T. Itoshima

First Department of Internal Medicine, Okayama University Medical School, Okayama

The hepatic isotope-accumulation curve, and the liver-spleen uptake ratio (S/L ratio) was obtained by the use of the combined RI analysing instrument for the aid of computer. The hepatic clearance rate of radiocolloid from hepatic isotope accumulation curve and the S/L ratio were examined in various time of clinical course in liver diseases and compare to other clinical examination.

After $^{198}$Au colloid, $^{99m}$Tc sulfur colloid or $^{131}$I microsphere was injected intravenously, radioactivity over the liver measured continuously. The digital data were fed into magnetic tape, and the increased area of radioactivity in the right lobe, left lobe, spleen and heart on the regenerated hepatic image on CRT were counted at the time intervals of 16 min to make hepatic isotope-accumulation curve.

The clearance rate with $^{99m}$Tc stanneous colloid and $^{131}$I MiAA were higher than those of $^{198}$Au colloid in patients with chronic hepatitis and cirrhosis of the liver. In cases of the cirrhosis of the liver, the activity of isotope uptake in right lobe and left lobe of the liver were also different at the stage of cirrhosis.

Levels of the clearance rate with $^{198}$Au colloid showed from 0.71 to 2.09 in chronic hepatitis, above 0.1 in liver cirrhosis.

The S/L ratio with $^{198}$Au colloid were less than 10% in chronic hepatitis and normal control. On the other hand, the S/L ratio were increased more than 10% in chronic hepatitis active form and cirrhosis of the liver. The value of correlation rate between $K_{ECg}$ and $K_{Au}$ was 0.58 which was significant statistically. The value of the correlation coefficient between the liver spleen uptake ratio and $K_{ECg}$ was $-0.86$ which was also significant value statistically.

In chronic hepatitis with submassive hepatic necrosis, the values of the S/L ratio which showed relative high value in comparison with those of $K_{ECg}$, were relative high value in comparison with those of $K_{Au}$. When the isotope-accumulation curves above spleen were also examine in such a case. Values of clearance rate were increased in comparison with those of other chronic hepatitis.