

H. Digestive Tracts (Liver and Biliary Tract)

Analysis of Diffuse Hepatic Disease by Whole Body Radioactive Colloid Distribution and Hepatic Radioactivity Curve

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Area of interest hepatoangiogram, hepatic isotope accumulation curve and liver, spleen and extrahepatosplenic distribution ratio in the static image were obtained continuously with data processing system. After ^{99m}Tc -sn-colloid 10mCi intravenous injection, dynamic radioisotope changes of liver, spleen and abdominal aorta were measured for 15–20 min., and whole body distribution of ^{99m}Tc -sn-colloid were obtained with omniview system from both anterior and posterior views.

The ratio of hepatic arterial blood flow to total hepatic blood flow was obtained as the percentage of hepatic count at peak count of abdominal aorta to that of 15sec, after, from 1 sec, interval hepatoangiogram. Most of liver cirrhosis and Banti's syndrome showed the increased hepatic arterial blood flow ratio (liver cirrhosis : $43.5 \pm 9.5\%$, Banti's syndrome : $48.8 \pm 4.9\%$) in contrast with $28.1 \pm 4.6\%$ in normal case, and moreover its ratio showed much higher values in the presence of portal hypertension.

The blood clearance half time ($T^{1/2}$) of ^{99m}Tc -sn-colloid was obtained from 10 sec, interval hepatic accumulation curve, Although $T^{1/2}$ in normal case was 1.08 ± 0.14 min., in the case of liver cirrhosis $T^{1/2}$ was delayed

(1.48 ± 0.42 min.). $T^{1/2}$ of chronic hepatitis and blood RES disease were 1.34 ± 0.30 min, and 1.24 ± 0.40 min., respectively.

The liver, spleen and extrahepatosplenic distribution ratio of ^{99m}Tc -sn-colloid were measured as arithmetical average from whole body profile scan. In liver cirrhosis, hepatic distribution ratio was greatly decreased ($42.8 \pm 11.9\%$) and extrahepatosplenic distribution increased ($36.9 \pm 10.9\%$) in contrast with $65.5 \pm 0.8\%$ of hepatic distribution and $22.1 \pm 5.2\%$ of extrahepatosplenic distribution in normal case. In chronic hepatitis and blood RES disease, extrahepatosplenic distribution ratio was slightly increased. Moreover, the correlations among each results were also examined. The correlation between hepatic arterial blood flow ratio and extrahepatic distribution ratio was significant statistically, although significant correlation between $T^{1/2}$ of ^{99m}Tc -sn-colloid and extrahepatic distribution ratio could not be obtained.

From the present study, these serial dynamic and static evaluations were supposed to be useful for the prediction of the pathophysiological changes as well as the improvement of diagnostic accuracy with radioisotope in diffuse hepatic disease.