

From ^{198}Au colloid liver scanning data, spleen/liver ratio can be obtained and this seems to be a good parameter which is closely related with portal pressure except for special diseases. Likewise, pancreas/liver ratio in ^{75}Se -selenomethionine pancreas scan,

the ratio of pulmonary blood perfusion between both entire lungs or regional perfusion rate in ^{131}I -MAA lung scan can be obtained and in brain scan the microcuries present in the brain tumor in vivo and percent of administered dose could be calculated.

A New Device for Calculation of the Ratio of Splenic to Hepatic Radioactivity with the Isosensitive Phosscintigram

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Splenic uptake is often increased on scintigram with ^{198}Au -colloid or ^{131}I -Microaggregated Albumin (^{131}I -MiAA) in the cases of liver cirrhosis and chronic hepatitis etc.

We attempted to produce an apparatus that calculates the ratio of splenic to hepatic radioactivity (S/L ratio) and to apply it to clinical cases.

Methods: Isosensitive measurement with the wide range is obtained with dual probes (five inches) scintiscanner A-107-4 (Toshiba) by following conditions; the distances between the two collimator with 85 holes and focal length 10 cm setting to opposite direction are 29-30 cm and 27 cm using ^{131}I and ^{198}Au respectively as radioactive source.

Correlation between film density and frequency (photo recording signal) are straight up to 120 cps by 40 cm/min. of scanning speed and 200 cps by 70 cm/min. with the following conditions; density A 5, B 70 and Contrast A 50, B 1.

Film density is measured by Film Scanner MRA-201-2 that including the photomultiplier, tungsten light and the logarithmic amplifier.

Output of Film Scanner is converted to digital signal by A-D converter and therecounts the area of liver or spleen by counter.

Results: When the liver and spleen phantoms contained ^{198}Au -colloid with ratio of radioactivity 2:1, S/L ratio showed 57%. S/L ratios were obtained in 70 cases of various diseases as follows: A) S/L ratio using ^{198}Au -colloid; Hospital controls (4 cases) 0-0.1%, Liver cirrhosis (15) 0-19.5%, Chronic hepatitis (19) 0-22.2%, Intrahepatic cholestasis 0%, Acute hepatitis (4) 2.6-11.2%, Liver cancer (2) 0 and 89.7%, Banti's syndrome 5%, SLE (2) 0 and 2.8%, Multiple myeloma 0.1%. B) S/L ratio using ^{131}I -MiAA; Hospital controls (4) 1.4-9.5%, Liver cirrhosis (18) 12.7-806.6%, Chronic hepatitis (17) 2.5-43.4%, Subacute hepatitis 28.6%, Acute hepatitis (2) 10.7 and 66.2%, Liver cancer (2) 14.6 and 68.6%, Banti's syndrome 92.6%, Cholecystopathy (3) 30.9-44.2%, SLE 30%, Multiple myeloma 5.1%.

S/L ratio using ^{131}I -MiAA were on the average 12.5 times higher than that using ^{198}Au -colloid.