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ANALYSIS OF SPLENIC BLOOD FLOW AT THE TIME OF Tc-99m PHYTATE SCINTIGRAPHY IN VARIOUS LIVER DISEASES. K.HIRATA, H.ENDO, Y.KAWAHARA and M.SHIGEYASU. Department of Internal Medicine and Radiology. Kurashiki Central Hospital, Kurashiki.

The splenic blood flow was analysed in various liver diseases using a noninvasive isotopic method and its clinical usefulness was discussed. A 10 mCi bolus of Tc-99m phytate was injected into the basilic vein and radioactivity versus time curve of spleen was generated. In order to analyse a splenic curve, two points were identified: the maximum activity or the activity of turning point of splenic curve was C point activity and the activity of 6 seconds after C point was D point activity. Spleen index (SI) was calculated by $D-C / C \times 100$. The average ratio of SI was -22.9 ± 5.9 percent in normal subjects, -19.3 ± 6.1 percent in patients with chronic hepatitis, -7.9 ± 8.8 percent in cirrhotic patients. Thus, the value of SI was markedly increased in cirrhotic patients. The cirrhotic patients with esophageal varices showed higher value of SI than those without varices. In conclusion, the analysis of splenic blood flow using spleen index (SI) was useful for the evaluation of severity of various liver diseases.

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EVALUATION OF DIAGNOSTIC EFFICACY FOR LIVER SCINTIGRAM—INTERNATIONAL COOPERATING RESEARCH ON "QUANTITATIVE EVALUATION OF NUCLEAR MEDICINE IMAGING PROCEDURES FOR DIAGNOSIS OF LIVER DISEASES"—.

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67 physicians from 8 Asian participating countries have interpreted 116 cases of liver scintigram which were collected from 8 representative institutions in Japan by Committee of Efficacy, Japan Radioisotope Association at 1979. The confirmed diagnosis of three patients are consisted 43 cases of space occupying lesion (SOL) in the liver, 20 hepatic cirrhosis, 13 hepatitis and 32 normal liver. Among the result for the ROC analysis of the interpretation, the detection of SOL shows a better performance than those of cirrhosis and hepatitis and variation between countries and individual physicians is also small. The diagnosis on hepatitis resulted in rather poor performance with all countries and the diagnosis on hepatic cirrhosis shows large variation between countries and physicians. It is suggested that some countries do not have hepatic cirrhosis often and physicians of those countries are not accustomed to read such images.

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STUDY OF A EFFECT OF IRON TO THE LIVER FUNCTION BY RADIONUCLIDE EXAMINATION. M.Hasegawa, S.Tamaki, M.Nogami, H.Takenaka, A.Shinotsuka and T.Hishida. Department of Radiology, School of Medicine, Showa University, Tokyo.

It is well known of the effect of iron to the tissue. This time, we studied the effect of iron to the liver function using radionuclide study. Wister male rats were used. The animals were divided into 4 groups, control, iron administrated, carbon tetrachloride administrated, iron and carbon tetrachloride administrated. Tc-99m-EHIDA hepatobiliary scan was performed and hepatic excretion rate was determined. Tc-99m-Sn-colloid scan was performed and number of counts/unit weight/injected dose for liver, spleen and bone marrow was determined. CT study was performed and HU number of the liver was determined. The histological examination of the liver was also performed.

The result was as follows. Both reticulo-endothelial dysfunction and liver cell dysfunction were induced by carbon tetrachloride administration. The reticulo-endothelial dysfunction was enhanced by addition of iron administration.

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Tc-99m-Sn-COLLOID STATIC SCINTIGRAPHIC EVALUATION OF DIFFUSE PARENCHYMAL LIVER DISEASE. S.Dokoh, K.Yagi, T.Takahashi, R.Nakano, S.Shimbo, and K.Takasu. Kyoto City Hospital.

The use of simple criterion for assessing the radioactivity of Tc-99m-Sn-colloid in the liver, spleen, vertebral bone marrow and soft tissues was evaluated in the 435 patients possessing varying degree of diffuse parenchymal liver disease (17 cases of normal, 34 of acute hepatitis, 202 of chronic hepatitis, 23 of pre-cirrhosis, 140 of liver cirrhosis and 19 of fatty liver). Fifteen minutes after intra venous injection of 110 MBq of Tc-99m-Sn-colloid, A-P, P-A, and rt-lateral static liver images were obtained. Simultaneously, the data were recorded on a computer. ROI were drawn around the liver, spleen, bone marrow and soft tissue. Subsequently, uptake ratio of spleen to liver, bone marrow to liver, bone marrow to back ground (soft tissues) and area ratio of spleen to liver were calculated. Those indices have statistically significant correlation with serum cholinesterase, γ -globulin, A/G, ICG \int , prothrombin time and fibrinogen, respectively. In order to express the severity of hepatocellular dysfunction, grade was obtained by totalization of the scores which were calculated from standard deviation of respective indices in normal controls. As the hepatic damage increased, as the grade increased in various liver disease in which 133 cases were verified by liver biopsy. In the routine study of liver scan, those indices and grade seemed to be helpful for the estimation of the severity of hepatic parenchymal damage.