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ANALYSIS OF HEPATIC BLOOD FLOW BY Tc-99m PHYTATE SCINTIGRAPHY. K.HIRATA,H.ENDO, K.NAKATA,S.YAMAMOTO,Y.KAWAHARA and M.SHIGEYASU. Department of Internal Medicine and Radiology. Kurashiki Central Hospital. Kurashiki.

The ratio of portal venous to total hepatic blood flow was measured 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 curves were generated. In order to analyse a hepatic curve, two points were identified: the time of maximal activity at the left ventricle (to) and left kidney(tc). The total counts of radioactivity of the hepatic curve from to+6 seconds and from tc+6 seconds were calculated by computer system. The ratio of portal venous to total hepatic blood flow equalled the latter total count divided by the sum of both total counts. The average ratio of portal venous to total hepatic blood flow was 77.7 ± 4.7 percent in normal subjects, 67.6 ± 8.2 percent in patients with chronic hepatitis, 36.3 ± 9.0 percent in cirrhotic patients. All patients with the ratio of below 50 percent were cirrhotic. The cirrhotic patients with esophageal varices showed much lower ratio compared with those without. In 4 patients with hepatoma, the analysis of hepatic blood flow in non-cancerous region was useful for the evaluation of hepatic reserve power at the time of hepatectomy.

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EVALUATION OF LIVER CIRCULATION BY DYNAMIC ANGIOSCINTIGRAM USING Tc-99m Tomio Ogawa, Keijiro Suruga, Katsunori Sasaki, Katsuya Nagase, Takuo Tanaka and Susumu Iida. Department of Pediatric Surgery and Radiology, Juntendo University School of Medicine, Tokyo.

Dynamic angioscintigraphic study of liver was introduced to evaluate the condition of liver circulation affected by the cirrhotic diseases in childhood. Tc-99m was bolus injected into the vein. The count of the RI on ROI of liver right lobe was measured every one second and time activity curve of 10 minutes was made. The curve got its peak at about 1 minute after injection and gradually decreased thereafter. The ratio of the count of 8 min. to the count of the peak was calculated and compared. The ratio ranged 50 to 90% and clinically more severe cirrhotic cases showed higher ratio. It was performed on more than 30 cases and patients with extremely high ratio had bleeding esophageal varices. This method seems to be a simple and noninvasive that may be easily performed on pediatric patients to evaluate liver cirrhosis and possibility of esophageal bleeding.

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THE MESUREMENT OF PORTAL VENOUS/TOTAL HEPATIC BLOOD FLOW BY RADIONUCLIDE ANGIOGRAPHY.

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WE STUDIED THE MESUREMENT OF PORTAL VENOUS / TOTALHEPATIC BLOOD FLOW BY RADIONUCLIDE ANGIOGRAPHY USING DOUBLE TRACERS: 99m-Tc PHYTATE AND 99m-Tc PERTECHNETATE METHODOLOGICALLY AND CLINICALLY. THE FIRST DEFFERENTIAL CALCULUS WAS EMPLOYED FOR THE CURVE ANALYSIS. THE RESULTS OF THIS STUDY WERE AS FOLLOWS: PATIENTS OF HEPATITIS PHY.=71.5% TcO4 =63.1% . LC PHY.=67.65% TcO4=57.9%, LC(WITH VARICES) PHY.=38.35% TcO4=43.5% .

THIS METHOD IS NECESSARY FUTHER INVESTIGATION BECAUSE OF ITS DIFFICULTY OF DETERMINATING REGION OF THE INTEREST AND ANALYZING TIME ACTIVITY CURVE, BUT IS CLINICALLY USEFUL IN EVARUATING THE CHAINGE OF HEPATIC ARTERIAL BLOOD FLOW AFTER THERAPEUTIC EMBOLIZATION IN THE LIVER.

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QUANTITATIVE ASSESSMENT OF THE RELATIVE PORTAL VENOUS FLOW BY FIRST-PASS "HEIGHT RATIO" TECHNIQUE, USING Tc-99m-Sn COLLOID. H.Seto,R.Futatsuya,T.Kamei,N.Furumoto,T.Hihara,M.Asou,K.Taki,Y.Ishizaki,M.Hada and M.Kakishita. Toyama Med. and Pharm. University. Toyama.

A new method for quantitative assessment of the relative portal venous flow (Qp) and splenic venous reflux index (Sr) was established, using first-pass "Height Ratio" technique and Tc-99m-Sn colloid, and its usefulness was evaluated in the patients with diffuse hepatic diseases (n=104). Decrease in portal venous flow was also evaluated to compare Qp and visualization of the portal radicals on the contrast portography.

The results were as follows; Normal liver function group (n=30): Qp=73.0 ± 5.2 %, Sr=-0.2 ± 6.1 %, Chronic hepatitis group (n=24) : Qp=65.2 ± 10.9 % (p < 0.01), Liver cirrhosis group: 37.7 ± 18.6 % (p < 0.001), Sr=15.4 ± 15.1 % (p < 0.001), Liver cirrhosis with hepatoma group (n=20): Qp=32.3 ± 19.2 % (p < 0.001), Sr=9.5 ± 13.5 % (p < 0.01).

Qp ratios were significantly decreased and on the contrary Sr indices were significantly increased in the cirrhotic group. Moreover visualization of the portal radicals were correlated well with Qp. This new method is simple and of clinical use to assess the relative portal venous flow and splenic venous reflux in the patients with chronic diffuse hepatic diseases.