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CLINICAL USEFULNESS OF RADIONUCLIDE ANGIOGRAPHY THROUGH CANNULA FOR ARTERIAL INFUSION. K.Suzuki, A.Goto, M.Kuramoto, T.Kondo, S.Nogami and H.Orii. Metropol.Komagome Hospital & Metropol.Inst.Med.Sci., Tokyo.

RN angiography was performed through cannula placed in hepatic artery or portal vein for chemotherapy of metastatic tumor of the liver. Bolus injection of 5 mCi of Tc-99mO₄ or Tc-99mMAA was performed, and the radioactivity images were recorded every 2 sec for 30 frames, and the regional blood flow dynamics was studied with histogram of the ROI.

The results indicated that it is useful for the followings; 1. To ascertain whether catheter is correctly situated. 2. The presence or absence of thrombus in the tip of the catheter. 3. Blood flow distribution in the liver. 4. Hemodynamics of the liver.

Blood supply of the liver from hepatic artery and portal vein is not homogenous throughout, and is shifted to the predominance of portal vein, and supplemented by hepatic artery. In metastatic tumor of the liver, blood supply changes to hepatic artery as the tumor increases. It was reported that pretreatment by angiotensin decreases the normal blood supply but not in the tumor, and in consequence relative increase of arterial blood supply results in favor of arterial infusion therapy. We have confirmed this evidence on our clinical cases as stated above.

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EVALUATION OF Tl-201 CHLORIDE PER RECTAL SCINTIGRAPHY IN LIVER DISEASES. Y.Tanaka, F.Ikegami, T.Ando and T.Inoue. Kanto Teishin Hospital. Tokyo.

Tl-201 chloride per rectal scintigraphy was done in 65 patients and 18 control subjects (21 cases with acute viral hepatitis, 17 cases with chronic hepatitis, 23 cases with liver cirrhosis, and 4 cases with hepatocellular carcinoma).

The heart-to-liver uptake ratio (M/L ratio) at 20 min. after administration of Tl-201 per rectum showed good reproducibilities and was significantly higher in cirrhosis than in normals, acute viral hepatitis, and chronic hepatitis ($p < 0.001$).

The M/L ratio, however, did not show any significant difference among cases with various stages of esophageal varices.

In a patient with alcoholic liver cirrhosis who presented with hepatic encephalopathy without and any precipitating factors, M/L ratio was markedly elevated at 96.7% and superior mesenteric arteriography revealed remarkable portal caval shunting (mesenteric varix), even though esophageal varices were not evident.

These data suggests that the M/L ratio at 20 min. in Tl-201 chloride per rectal scintigram might not only reflect the degree of esophageal varices, but also any other kinds of portal caval shunting. So the dissociation between stages of esophageal varices and the M/L ratio might show the existence of other portal caval shunting (e.g. mesenteric vaix).

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EVALUATION OF PORTAL DYNAMICS AND INTRAHEPATIC SHUNT BY INTRASPLENIC INJECTION OF Tc-99m-MAA— DEVICES FOR ROI SETTING AND SUBTRACTION OF BACK GROUND — Y.Takahashi, H.Komaki, T.Miyamoto, Y.Kuroda and C.Uyama. RI, Radiology and Hematology, Tenri Hospital. Engineering, Kyoto University. Tenri.

Intrasplenic injection of Tc-99m-MAA provides us with sharp input function having an advantage for dynamics analysis. For more precise evaluation of the portal dynamics and intrahepatic shunting, following devices were applied to data procession using an apparatus attached to a scintillation camera.

1) Rectangular ROIs of a fixed size were set on the distal and proximal points of the splenic vein, the portal trunk and the extrahepatic collaterals and then rotated so as to make their major axis intersect perpendicularly to the steam line. 2) The contaminative back ground attributable to neighboring high activity and to its respiratory fluctuation was strictly estimated by multiple regression on radiograms of the liver or spleen ROI and of their surrounding ROIs in the stationary phase of the tracer and then by extrapolation of this regression to its dynamic phase. The net radiograms thus obtained by estimation and subtraction of back ground were used to evaluate the transfer character of the tracer from the distal splenic vein to the portal trunk and to calculate the intrahepatic shunt ratio. 3) The net portal-trunk radiogram was used as a frequency function of Tc-99m-MAA inflow into the liver to calculation of the shunt with a best-fitting time-lag by digital computation.

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INTRAHEPATIC DYNAMICS WITH Tl-201 PORTAL ADMINISTRATION OF RATS. (THE 1st. REPORT) K.Yokoyama, K.Koizumi, M.Ooguchi, M.Seto, T.Michigishi, T.Aburano, N.Tonami and K.Hisada. Kanazawa University. Kanazawa

We have reported on a new clinical evaluation of Porto-Systemic circulation with Tl-201 Cl. The H/L ratio is the useful index, which increases in patients with acute or subacute hepatitis. It may be due to the decrement of the hepatic uptake and/or the increment of the intrahepatic porto-systemic shunts. We tried to know the basic physiology about the hepatic uptake of Tl-201 and the intrahepatic dynamics in normal rats. The portal vein was exposed under anesthesia. Tl-201 was injected directly into the portal vein, and in 2, 30, 60, 120 minutes after administration. They were sacrificed and biodistribution was examined. For control study, Tc-99m MAA was injected simultaneously, and its biodistribution was examined.

1. Tl-201 uptake of the liver was about 84% in 2 min. after portal administration. The radioactivity of Tl-201 of the liver decreased with time, and its half life was about 24 min.
2. The radioactivity of the heart, at first increased, and then, decreased. That of blood decreased gradually.
3. Portal administration with mixture of Tl-201 and Tc-99m MAA revealed both biodistribution studies were possible simultaneously.