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## BLOOD PERFUSION IN EARLY STAGE IN LIVERSCAN WITH Tc-99m PHYTATE.

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It is important to study a blood perfusion for observing clinical situation of the liver.

We studied that the early scan of the liver as the blood perfusion was expressed as a counting rate and a visual image. Tc-99m phytate was injected into the cubital vein in a bolus method and then a time frame was obtained every 5 sec, up to 8 min.. The analogical data was obtained every 10 sec. for 60 min. using polaroid film. And 30 min. later, the static image was taken. The liver concentration curve was made by ROI placed in the liver's right lobe and the blood disappearance curve was made by ROI placed in the heart. The results were that  $\tan \theta$  was changed in various liver diseases and the decreased T max appeared in chronic hepatitis and liver cirrhosis. The blood disappearance curve varied in liver cirrhosis. We showed the visual image that corresponded with the variation of liver concentration and blood disappearance curve by means of a logarithmic image 30min. later and the image in 10sec intervals. The visual image of early blood perfusion in the liver was clinically useful.

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STUDIES ON RECTAL ABSORPTION RATE OF  $^{99m}\text{TcO}_4^-$  WITH PER-RECTAL PORTAL SCINTIGRAPHY.

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The portal circulation has been analysed with serial scintiphotograms and hepatocardial time activity curves in the early phase (0 to 120 sec) of per-rectal portal scintigraphy in our previous reports. This time, RI activities on the heart and the liver in the late phase (300 sec after administration of  $^{99m}\text{TcO}_4^-$  solution into the upper part of the rectum) were studied in the chronic liver diseases.

Results: The RI activities on the heart and the liver in the late phase were obviously lower in hepatic cirrhosis compared with chronic hepatitis. In 20 cases with hepatic cirrhosis, the mean of these activities in the heart was 64% of the mean in 10 cases with chronic hepatitis and the mean of these activities on the liver was 44% of the mean in chronic hepatitis. They suggested that the rectal absorption of  $^{99m}\text{TcO}_4^-$  decreased in cases with hepatic cirrhosis or portal hypertension.

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LIVER SCINTIGRAM AND BLOOD BILE ACID IN LIVER DISEASE. K.Ishii, Y.Kobayashi, N.Yamada, S.Mimoto, K.Nakazawa, J.Suzuki, S.Kobayashi, K.Sakai, S.Yoda, T.Matsubayashi, H.Ishida, M.Ito and M.Inoue. Kitasato University School of Medicine and Tokyo Metropolitan Kiyose childrens Hospital. Kanagawa and Tokyo.

Substances such as Tc-99m-collid, I-131-Rosebengal, Tc-99m-PI and Tc-99m-HIDA are used to take liver scintigrams of children. On the other hand, attempts have been made to utilize these to measure the density of bile acid in blood and thus discover liver functioning, and Simonds et al established to measure blood bile acid by means of radio-immunoassay. We measured blood bile acid in children and compared the results with the scintigrams of livers and biliary ducts. It is necessary to diagnose infantile hepatitis and congenital common bile duct atresia in their early stages. The differential diagnosis between these two diseases is very difficult, but it is helpful to study scintigrams of livers and biliary ducts and the density of bile acid in blood. We had some post-operative cases without jaundice. Although these cases showed almost normal bile excretion into biliary ducts and good biochemical examination, liver cirrhosis appeared on liver scintigrams and a high concentration of blood bile acid was measured. We think it is useful to study the scintigrams of liver and biliary ducts and know the density of blood bile acid at appropriate intervals in order to follow up post-operative congenital common bile duct atresia.

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CLINICAL EVALUATION OF HEPATOBILIARY IMAGING WITH Tc-99m-(p-butyl)IDA. H.Sakata, M.Nakajo, K.Shirono, K.Shimabukuro and S.Shinohara. Kagoshima University School of Medicine. Kagoshima.

Tc-99m-(p-butyl)IDA, a new hepatobiliary imaging agent, was used to evaluate its clinical value in 5 normal subjects and 39 patients with various hepatobiliary diseases. In normal subjects, the peak time of hepatic activity was 10 or 20 minutes and the appearance times of common bile duct, gallbladder and intestine were within 40 minutes after intravenous injection. In a patient with carcinoma of common bile duct and high bilirubin level of 9.6mg/dl, a good image of hepatobiliary tract was obtained and the stenotic lesion was revealed clearly. In the patients with high bilirubin level more than 10mg/dl, the images of biliary tract were not obtained. The renal images were seen in 4 patients with complete biliary obstruction and in one with Roter's hyperbilirubinemia, but not seen in other patients with hyperbilirubinemia. The retention ratio and the ratios of activity of liver to blood pool provided us useful informations. In conclusion, it is thought that Tc-99m-(p-butyl)IDA is more useful and valuable imaging agent than other previously reported Tc-99m-labeled compounds such as Tc-99m-PI and Tc-99m-HIDA.