

305

THE EVALUATION OF LOCAL OBSTRUCTION OF BILE DUCTS USING TECHNETIUM-99m-PMT SCINTIGRAPHY. N.Okazawa†W.Yukiyasu†H.Sekine†K.Kawakami†A.Nakayoshi*,T.Zeniya*,N.Katsuyama**, *Jikei Uni.Sch.of Med. Tokyo. **Ryukyuu Uni. Naha.

Cholescintigraphy with a new radionuclide Tc-99m-PMT, was performed in 56 patients having hepatobiliary diseases. The patients consist of 24 cases of hepatocellular diseases, 20 of biliary duct disease, 9 of gall bladder diseases and 30 of liver tumors. On this study, we came to the conclusion as the followings. (1) We evaluated the usefulness of this radionuclide agent from the point of view of the visualization of the following 3 bile ducts, the left intrahepatic duct, the anterior branch and the posterior branch of the right hepatic duct. Compared with one group, in which any bile duct was not visualized, the other group, in which at least one of the ducts was visualized, was higher in total bilirubin, blood retention ratio and urine excretion ratio, and lower in Ke. value. There is, however, no significant difference was shown between the number of the visualized bile ducts and the above mentioned parameters. In the some cases with obstructive jaundice, the bile ducts were imaged as photon deficient areas. The ability of Tc-99m-PMT to identify the bile ducts was 100% in the left hepatic duct, 75% in the anterior branch of the right hepatic duct and 38% in the posterior branch of the right hepatic duct, in the patients with no jaundice. In the cases with jaundice, this ability was 100%, 66%, and 50% respectively, including the cases in which the bile ducts were imaged as photon deficient.

307

HEPATOBILIARY SCINTIGRAPHY WITH Tc-99m-N-PYRIDOXYL-5-METHYLTRYPTOPHAN IN CASES WITH HYPERBILIRUBINEMIA. H.Sakahara,K.Yamamoto, N.Tamaki,N.Hayashi,T.Fujita,R.Morita, K.Torizuka. Kyoto University School of Medicine. Kyoto. Y.Ishii. Medical University of Fukui. Fukui. Y.Taniguchi. Takashima Hospital. Shiga.

Twenty-four patients with hyperbilirubinemia (serum bilirubin levels over 4.7 mg/dl) were studied with a new hepatobiliary radiopharmaceutical, Tc-99m-N-pyridoxyl-5-methyltryptophan (Tc-99m-PMT). Scintigraphy with Tc-99m-diethyl-IDA (Tc-99m-EHIDA) was also evaluated in four of these patients. Tc-99m-PMT showed rapid blood clearance and prompt hepatobiliary transit. In nineteen patients, including a case with serum bilirubin level of 19.4 mg/dl, biliary tract was visualized within 1 hour after administration. Urinary excretion was very low (percent dose excreted in urine in 1 hour: 0.7-4.2) and there was no case in which urinary tract was clearly visualized. Tc-99m-EHIDA, on the other hand, demonstrated higher urinary excretion and the images of hepatobiliary system were worse in comparison with those obtained by Tc-99m-PMT because of high background activity and urinary tract visualization.

It is concluded that Tc-99m-PMT is a superior hepatobiliary imaging agent in patients with high serum bilirubin levels.

306

CLINICAL EVALUATION OF HEPATOBILIARY FUNCTION BY Tc-99m-PYRIDOXYL-METHYL-TRYPTOPHAN. Y.Morimoto,H.Tochio,Y.Saiki,H.Ito,K.Ikekubo, M.Senda,M.Kudo,T.Mori,N.Tamaki and K.Yamamoto Kobe Central Municipal Hospital. Kobe. and Kyoto University School of Medicine. Kyoto.

Tc-99m-PMT hepatobiliary scintigraphy was performed in 52 patients with hepatobiliary diseases. Serial hepatobiliary images were obtained every 225 seconds for 1 hour in the fasting state after the injection of 3.75mCi of Tc-99m-PMT. The data were simultaneously acquired on 64x64 computer matrix at 1 frame/30sec. The time-activity curves from heart and liver ROI were analyzed by using a two-compartment model. Both the first compartments of blood disappearance activity and hepatogram were very fast. The second compartment of the blood activity showed fair correlation with slow compartment (λ_m) of hepatogram (N=46, r=0.66). The urinary excretion rate of Tc-99m-PMT in the first one hour was extremely little (0.7-4.0%). There was an inverse correlation between λ_m and ICG R-15 values (N=13, r=-0.64). Good quality of hepatobiliary images were obtained in all 52 patients including 8 patients with hyperbilirubinemia (1.4-18.4mg/dl).

These studies indicate: (a) Tc-99m-PMT is rapidly cleared from the circulation into the liver and metabolized. (b) Good hepatobiliary images were obtained in hyperbilirubinemia patients. (c) Low urinary excretion (d) Tc-99m-PMT is a useful agent in clinical evaluation of hepatobiliary function.

308

Tc-99m PHYTATE LIVER SCINTIGRAPHIES IN CHILDREN. H.ISHIDA*, A.HAYASHI*, N.IHARA*, I.SHIMADA*, K.TAMURA*, K.HAGANE*, K.OHMORI**, I.OHWAKI**, S.TAKEYOSHI** and K.ISHII***. DEPARTMENT OF PEDIATRIC SURGERY**, DEPARTMENT OF RADIOLOGY**, TOKYO METROPOLITAN KIYOSE CHILDRENS HOSPITAL and DEPARTMENT OF RADIOLOGY***,KITASATO UNIVERSITY. TOKYO and KANAGAWA.

From september 1974 to april 1982 five hundred and ninety eight liver scintigraphies using Tc-99m phytate were performed for the children, ranged between 2 days newborn baby and 15 years old, at Tokyo metropolitan KIYOSE childrens hospital. 369 of the 598 cases (61.7%) were male and 229 (38.3%) were female, and 389 cases (65.9%) were performed to the children under 3 years old. None of them used anesthesia or sedativa. 357 of the 598 (59.7%) were performed for the children with diffuse liver disease, and 180 of the 357 (50.4%) were for the children with congenital biliary atresia due to calculate the Liver/Spleen ratio. 221 of the 598 (37%) were performed for the children with tumorous lesion (26.9% were for hepatoblastoma, 24.4% were for neuroblastoma, 18.1% were for Wilms' tumor). 37 of 221 cases (16.7%) were for benign lesion, and 10 of this 37 cases were for the cystic dilatation of the common bile duct. Only 20 of 598 cases (3.3%) were performed to show the hepatic deformity, for example situs inversus or evenytrinity of the diaphragm.