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CLINICAL EVALUATION OF Tc-99m PMT AS A NEW HEPATOBILIARY SCANNING AGENT FOR DIFFUSE LIVER DISEASES. E.Ohtake, K.Matsui, F.Sakai, K.Asakura, Y.Ono, T.Nozaawa, M.Ujii and S.Okano. Yokohama City University School of Medicine and Kanagawa Children's Medical Center. Yokohama.

This study was undertaken to evaluate the usefulness of Tc-99m PMT as a new hepatobiliary scanning agent in diffuse liver diseases.

Twenty-nine cases (5 volunteers, 9 with hepatitis, 9 with liver cirrhosis and 6 with the other diffuse liver diseases) were examined using Tc-99m PMT for the hepatobiliary scanning. Their ages ranged from 9 to 79 years with the average age of 49 yrs.

In normal volunteers, the blood RN level at 4 min, blood clearance ($t_{1/2}$), urinary excretion rate in 90 min, peak time of the liver, liver uptake rate (Ku) and liver excretion rate (Ke) were observed to be 27.5 %dose, 3.3 min, 2.1 %dose, 8.2 min, 0.321 /min and 0.0357 /min, respectively. For the diffuse liver diseases, the hepatogram analysis, blood RN level and urinary excretion rate of Tc-99m PMT were thought to provide the useful information. The Ku and Ke values were observed to be higher in the right lobe than in the left lobe.

In conclusion, the hepatobiliary scanning using Tc-99m PMT could provide the useful quantitative information for the diffuse liver diseases.

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CLINICAL EVALUATION OF TC-99m PI, TC-99m E. HIDA AND TC-99m PMT IN THE HEPATOBILIARY SCINTIGRAPHY. E.Ohtsuka. Department of Internal Medicine. S.Tateno and T.Oh. Department of Surgery. Yamato City Hospital. Yamato.

The hepatobiliary scintigraphy have been performed on 436 patients with hepatobiliary diseases for the past five years in our hospital. After 2-5 mCi Tc-99m reagent was given intravenously during the fasting state, anterior views were sequentially recorded in the microdod images every 5 minutes, and simultaneously collected in the minicomputer of the Scintipac 230 every 1 minute. 0.2ug/kg Caerulin was also injected into the patients 50 minutes after they were given Tc-99m reagent, and the images were further recorded up to 90 minutes. Subsequently, the data in the minicomputer of the Scintipac 230 were analyzed. The regions of the interest were set on the liver, gallbladder, biliary duct and duodenum, and the radioactivity was measured in each point to make curves of uptake and excretion. The effectiveness of these three reagents were compared.

Tc-99m PMT was prompt in uptake and excretion of the liver. Also, Tc-99m PMT was useful for the clinical diagnosis of the cases with jaundice. In the RI activity of the gallbladder, Tc-99m PMT was higher than Tc-99m PI. These results suggest, Tc-99m PMT is more useful than other reagents.

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QUANTITATIVE EVALUATION ON THE LIVER UPTAKE RATE OF Tc-99m-PMT BY SPECT. K.Nakamura, H.Maeda, T.Hirano, Y.Okuda, T.Nakagawa and M.Taguchi. Mie University School of Medicine. Tsu.

A quantitative evaluation of total and regional liver function was made by the uptake of Tc-99m(Sn)-N-pyridoxylamines (Tc-99m-PMT) with SPECT.

Our equipment was GCA-70 AS (Toshiba Co.) with two opposite large field gamma cameras and scan time was one minute, rotating two cameras 180°. Scan was done at 4min. after bolus injection and standard Tc-99m-PMT was scanned to calculate the total counts of injected dose. ECT images were corrected by the attenuation correction of Chang's method. Uptake images were made by dividing the counts of each pixel over the liver by the total counts of injected dose. Liver volume and total uptake rate were calculated by summing all pixels and uptake rate over the liver respectively and mean uptake rate was calculated by dividing total uptake by liver volume.

Total uptake rate of 9 normal subjects and of 11 liver diseases ranged 58.8~82.8(%) (70.7±8.15), 5~32.9 respectively. There were good correlations between total uptake rate and blood retention at 10 min. and between total uptake rate and mean uptake rate, ($r = -0.912$, $r = 0.913$ respectively), but there was some discrepancy in the latter correlation because of large loss of liver volume by tumor. Uptake image gave us not only total liver function but also the regional function and were clinically useful.

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CLINICAL EVALUATION OF Tc-99m-PMT AS A HEPATOBILIARY IMAGING AGENT. K.Tachibana, J.Ishimura, K.Onoue, K.Hamada, Y.Maeda, M.Hara, T.Morita, M.Fukuchi and K.Nagai. Division of Nuclear Medicine, Hyogo College of Medicine. Nishinomiya.

Hepatobiliary imagings with Tc-99m-pyridoxyl-5-methyltryptophan(PMT) was performed in 50 patients for clinical evaluation as a new hepatobiliary imaging agent. The instrument was a gamma camera with a 370,00-hole parallel collimator and a computer on-line system. Each patient received 4 mCi of PMT intravenously by bolus injection after overnight fasting. The data were accumulated on disc for dynamic and functional images. The blood clearance($T_{1/2}$) of PMT was 5.0 min, liver heart ratio(L/H) at 10 min after injection was 18.4, and urinary excretion of PMT at one hour after injection was only 1.78%. Correlation between total serum bilirubin values and L/H at 10 min after injection in the patients were as follows; $r = -0.55$, $y = -0.74x + 15.0$. However, good liver uptake of PMT for clinical examination was obtained in patient who shows high total serum bilirubin value such as 26.5 mg/dl. The dynamic images which made with peak time were useful for observe intrahepatic bile flows in the patients. The studies in this series suggested that Tc-99m-PMT was very suitable new agent for hepatobiliary imaging. In addition, chromatographic analysis of the Tc-99m-PMT in our laboratory was shown single and sharp peak.