
The usefulness of Tc-99m-N-pyridoxyl-5-methyl-triptophan (PMT), a new hepatobiliary tract imaging agent, was investigated by comparing with Tc-99m-N-(P-butyl phenyl carbamoylmethyl) iminodiacetic acid (P-butyl IDA). The cases subjected to study were 30 cases with normal serum bilirubin levels and 22 cases with high serum bilirubin levels (1.6-26.1mg/dl). 28 cases of these 52 cases were also studied by P-butyl IDA scintigraphy within 1 week after PET scintigraphy. Upper abdominal scintigrams were obtained with a LFOV gamma camera (Searle Radiographics) or MaxiCamera 400T (GE) at 5, 10, 20, 30, 40, 60 minutes after the injection. If necessary, additional scintigrams were obtained even after 60 minutes.

Results: In cases with normal serum levels, the mean appearance times of gall bladder, common bile duct, small intestine using PMT were 20.5±11.3 min., and these were definitely earlier than those of P-butyl IDA (p<0.05). In cases with high serum bilirubin levels less than 10mg/dl, excretion into intestine were observed in 11 cases out of 14 (maximum value was 9.2mg/dl). But it was difficult to observe excretion into intestine in all 8 cases with high serum bilirubin levels higher than 10mg/dl.


The authors studied the effectiveness of 99mTc-N-pyridoxyl-5-methyltriptophan (99mTc-PMT) for dynamic imaging and function on 40 patients with various hepatobiliary diseases and on healthy individuals.

In healthy subjects, 99mTc-PMT is rapidly removed from the blood by the parenchymal cells of the liver and is excreted through the biliary system. The imaging of liver, bile ducts, gallbladder and intestines with 99mTc-PMT was satisfactory. There were no renal visualization. In the case of serial images of healthy individuals, the gallbladder, intrahepatic bile duct and small intestine were visualized after 18.8±7.2, 8.8±1.4, and 16.7±6.3 minutes, respectively; the mean peak time on the hepatogram was 8.0±5.3 minutes.

At 70 minutes after the intravenous administration of 99mTc-PMT, 2.52±1.48 % of the injected dose was excreted into the urine of the healthy individuals. The urinary excretion of 99mTc-PMT by the patients with hepatobiliary diseases, was not increased. At 5 minutes after injection, the values for the patients who had cholelithiasis, liver cirrhosis and hepatic tumors. Blood retention at 20 min. after the injection was related to serum GOT and serum-total bilirubin.