CLINICAL APPLICATION OF NEW HEPATO-BILIARY RADIO-NUCLIDE $^{99m}$Tc-(SN)-PI (PYRIDOXILIDINE ISOLEUCINE) ESPECIALLY FOR THE PATIENTS OF OBSTRUCTIVE JAUNDICE TREATED PTC TÉCHNIQUE


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In our recent study of various hepato-biliary diseases using new hepato-biliary radionuclide, $^{99m}$Tc-(SN)-PI, which was very useful agent with sharpness and early evaluation for the various obstructive hepato-biliary diseases as primary or secondary carcinoma of bile duct and cholelithiasis.

The method was intravenous injection of 2-5 mCi of $^{99m}$Tc-PI for these patient, the images were obtained only anterior view by γ-camera covering parallel high resolution collimator in serial time after injection.

In these patients, the liver image was poor frequency with positive kidneys and cardiac pool image in early time after injection and no biliary duct or duodenum notified completely during the study. According to carried out the PTC technique, the blood clearance, I.I. and enzymatic activities data were gradually improved. The significant evidence was the increased activities in the collected bile juice at first 30 min. after injection, which was indicated the improvement of liver function such as patient.

In summary, we concluded that $^{99m}$Tc-(SN)-PI for hepato-biliary scanning is very available and suitable for not only the diagnosis but for the follow up study of obstructive jaundice cases after treated PTC technique.

SCINTIPHOTOGRAPHY OF HEPATOBILIARY SYSTEM WITH Tc-99m-PYRIDOXILIDINE ISOLEUCINE (PI) AND DIFFERENTIATION OF CONSTITUTIONAL HYPERBILIRUBINEMIAS.

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Sequential 2 min scintiphotos were obtained with scintillation camera after intravenous administration of 4 mCi of Tc-99m-PI. Digital matrix images were simultaneously recorded on a digital magnetic tape through a data storage and analysis system with computer. Late image of abdomen were obtained at 18 hr after injection. Sequential samples for the bloodclearance of Tc-99m-PI were obtained 120 min following injection. Time activity curve for blood clearance and that over the liver were simulated by two or three exponential function and fractional turnover rate were obtained. Subjects comprised of 85 cases, including various liver diseases and bile duct obstruction. In normal controls, biliary tract and gallbladder were within 10 min of injection and made accumulation of radioactivity in biliary system and gastrointestinal tract was noted at 20 min.

Cumulative 120 min urine samples contained 9.0±1.5% of the injected dose. Sequential scintiphoto with Tc-99m-PI showed normal images in 2 cases of Dubin-Johnson syndrome with abnormal retention of I-131-BSP, one of Gilbert disease and one with abnormal retention of ICG each with normal retention of I-131-BSP.

However, the sequential hepatobiliary scintiphoto with Tc-99m-HIDA showed a slight delayed visualization and a slow washout of radioactivity into the gut in Dubin-Johnson syndrome. The patient with Gilbert disease shows neither uptake disturbance nor excretion disturbance with Tc-99m-HIDA. In jaundiced patients, blood clearance of the tracer was delayed and urinary excretion increased, but intestinal activity was imaged in those patients without complete obstruction of common bile duct. Of 5 cases diagnoses by the scintiphoto as partial biliary obstruction, two had calculi in the left biliary tree, one had calculi in the right biliary tree, one primary biliary cirrhosis, one hepatoma. In liver cirrhosis, functional scintigram for fractional turnover rate of uptake by the liver and excretion from it to bile showed irregular distribution. Our results suggest that the Tc-99m-PI liver sequential study can serve as a useful screening method for detecting intrahepatic bile stone and intrahepatic partial obstruction by the liver tumor.