Clinical evaluation of Tc-99m-PMT hepatobiliary SPECT imaging using deconvolution analysis. H.Sakuma, N.Katou, K.Nakamura, J.Gon, T.Nakagawa, N.Yamaguchi and T.Kitano. Mie University School of Medicine, Mie.

Hepatic transfer function (TP) which is derived from deconvolution analysis of Tc-99m-PMT SPECT images provides a three dimensional information about regional effective blood flow (EBHF) and extractory function. We have tested this method in 24 subjects with diffuse hepatic diseases such as liver cirrhosis. After the injection of Tc-99m-PMT, intermittent 1 minute SPECT data with 60 projections every 2 minutes were obtained for 60 minutes with a rotating dual head gamma camera. TP over ROI and each pixel of transaxial sequential data was calculated from the regional dynamic curves as output and a time activity curve over the heart region as an input function. Four parameters of minimum, mean, maximum transit time and initial height were computed from each TP, and functional images for these parameters were constructed. Three dimensional distribution of EBHF can be visualized on initial height image and transit time on three transit time functional images. In the subjects of liver cirrhosis, segmental distribution of changes in EBHF and transit time, either matched or mismatched was clearly shown. We believe this method will provide us highly valuable information on pathophysiology and the grade of various liver diseases.

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ISOOTIC METHODS FOR THE PRE- AND POSTOPERATIVE EVALUATION OF BILIARY ATRESIA
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Two computer-assisted isotopic methods of hepato-biliary system were effectively applied for the evaluation of pre- and postoperative state of biliary atresia. Hepatobiliary scintigram with 99mTc-PMT was effective to make a quantitative assessment of total hepatic ability of accumulation and excretion. RI-hepatogram with 99mTc pertechnetate was applied to evaluate the circulatory change in chol. This method enables to predict the occurrence of intestinal bleeding due to portal hypertention. Cholangiogram was also performed on these cases and compared. In all, recovery of Tc-PMT excretion, no deterioration of Tc pertechnetate hepatogram and visible bile ducts by cholangiogram were the essential points to the expected recovery after hepatic portoenterostomy for the biliary atresia.

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HEPATOBILIARY SCINTIGRAPHY IN THE DIFFERENTIATION OF CONGENITAL BILIARY ATRESIA AND FOLLOW UP STUDIES.
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Hepatobiliary scintigraphy with 99m technetium-labeled agents were evaluated with regard to differentiation of congenital biliary atresia from neonatal hepatitis and assessment of bile secretion in patients with surgical correction in congenital biliary atresia. Subjects were 41 infants with CBA (preoperative 29 cases, postoperative 28 cases) and 18 infants with NH.

In preoperative study, intestinal radioactivity was not seen in 7 patients with NH. Diagnosis of biliary atresia with scintigraphy was not so reliable, when compared to duodenal fluid collection.

In postoperative studies, those infants who had clinically good functioning portoenterostomy demonstrated prompt excretion of tracer into the GI tract. But those who had no significant fall in serum bilirubin and were believed to have poorly functioning portoenterostomy showed delayed excretion. Hepatobiliary scintigraphy was thought to reflect the bile secretion of postoperative infants.