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EVALUATION OF SINGLE PHOTON ECT IN DETECTION OF LIVER MASSES. Y. Ichiya, Y. Oshiumi, Y. Kuwahara, M. Wada, Z. Ayabe, K. Matsuura Department of Radiology, Kyushu University, Fukuoka

Efficacy of single photon emission computed tomography (SPECT) in detection of liver masses was evaluated. The materials include 87 cases with liver masses (49 hepatoma, 2 cholangiocarcinoma and 36 metastasis) and 80 cases without liver masses (23 cirrhosis, 6 obstructive jaundice and 51 normal). Each patient received 3-5 mCi of Tc-99m-phytate. Conventional liver images of 4 views and SPECT images of coronal and transverse sections using Shimadzu LFOV-E were obtained. Scintigraphic findings were classified retrospectively into 4 grades from (2+) to (2-), initially by conventional images, then by both conventional and SPECT images. Detection of liver masses was slightly improved by adding SPECT. Especially, SPECT was useful in detection of relatively small masses of the right lobe.

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THE EVALUATION OF EMISSION COMPUTED TOMOGRAPHY AND TOMOGRAPHIC FUNCTIONAL IMAGE OF HEPATO-BILIARY SCINTIGRAPHY. K.Yamamoto, T.Mukai, N.Tamaki, T.Fujita, K.Minato, Y.Ishii and K.Torizuka Dpt. of Radiology and Nuclear Medicine, Kyoto University Hospital, Kyoto.

We evaluated clinical usefulness of ECT of hepato-biliary scintigraphy and attempted to reconstruct the tomographic functional images from these ECT images.

From 5min. after intravenous administration of 10 mCi Tc-99m-EHIDA, 64 projections data at the rate of 5sec. per each projection was acquired around the patient at every 10 or 15 minutes for about 1 hour.

The serial ECT images were reconstructed from each acquired data. Radionuclide activity excretion rate of each pixels calculated from serial ECT images was displayed in 32x32 matrices, 16 gray-scale as a tomographic functional image of hepato-biliary scintigraphy.

By reconstructing the ECT images, three dimensional information on biliary tract could be obtained. Functional images showed the irregular distribution and delayed excretion of radionuclide activity in the hepatic region clearly.

The ECT and functional images might make the three dimensional diagnosis of hepato-biliary dysfunction more comprehensible, however, this method might not feasible to clinical use at present.

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ANALYSIS OF SINGLE PHOTON EMISSION CT IMAGES IN LIVER DISEASES. T.Imaeda, J.Matayoshi, T.Kato, K.Hirota, Y.Goto, H.Doi. Department of Radiology, Gifu University Hospital. Gifu.

Analysis was made on 56 diffuse parenchymal liver diseases and 53 hepatic neoplasms in comparison with five normal subjects. RCT images were reconstructed with 20% cut-off. No or very vague splenic visualization was obtained in RCT images of normal subjects. The liver/spleen activity ratio in diffuse parenchymal liver diseases was obtained from anterior image of conventional liver scintigrams, and RCT images. 8 cases out of 25 liver cirrhosis showed the liver/spleen activity ratio of 1 or less in anterior image of conventional liver scintigrams, and 12 cases (48%) in RCT images. Except liver cirrhosis, there was one case of chronic hepatitis with the liver/spleen activity ratio of 1 or less. In the configuration of the inferior edge of the right hepatic lobe, 80% or more cases of normal subjects, slight liver dysfunction and chronic hepatitis were thin, while 60% cases of liver cirrhosis were round and thick. All subjects with the inferior edge of right hepatic lobe found located in the dorsal region were cases of chronic hepatitis and liver cirrhosis. RCT images were more suitable for the diagnosis of liver cirrhosis. The minimum size of hepatoma ever found by RCT was 3.2 cm in diameter.

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CLINICAL UTILITY OF A ECT FOR THE DETECTION OF HEPATIC SOL. M. Kudo, K. Fujimi, S. Tomita, H. Komori, Y. Endo, Y. Okimoto, A. Todo, T. Mori, Y. Kitaura, Y. Saiki, H. Ito, Y. Morimoto, N. Oshiro, K. Yamamoto and K. Ikekubo Department of Internal Medicine and Nuclear Medicine, Kobe Central Municipal Hospital. Kobe

We have evaluated the clinical utility of a single-photon emission computed tomography (ECT) for the detection of space occupying lesion (SOL). ECT was performed on GE Maxi-Camera 400T following conventional liver scans with 3-5 mCi of Tc-99m phytate in 77 patients. Of the 77 patients, 36 had SOL confirmed by angiography, surgery or autopsy. The sensitivity and specificity of ECT were compared with those of conventional liver scans, ultrasonic scans and X-ray CT on 35 patients by using the receiver operating characteristic (ROC) analysis technique. ECT had a 97% greater sensitivity and slightly improved specificity than conventional liver scans. The combination of ECT with conventional imaging was superior to ultrasonography and accuracy comparable to that of X-ray CT. In patients studied there was a case with isodensitic SOL that was demonstrated by ECT but was falsely negative on X-ray CT. We conclude that ECT images add more accurate information to conventional liver scanning. The combination radionuclide studies of ECT with conventional scans improve the diagnostic accuracy and are useful as a clinical screening test in the diagnosis of SOL.