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LIVER SCINTIGRAM USING DYNAMIC POSITRON EMISSION TOMOGRAPHY WITH N-13 AMMONIA. N.Hayashi*, N.Tamaki*, M.Senda*, Y.Yonekura*, K.Yamamoto*, S.Tanada*, H.Saji*, J.Konishi*, S.Fujisawa*, K.Torizuka*, Y.Fujibayashi** and A.Yokoyama**. *Dept. of Radiology and Nuclear Medicine, Kyoto Univ. School of Medicine, Kyoto. **Kyoto University Faculty of Pharmacological Science, Kyoto.

Fifteen patients with liver tumors including 11 hepatocellular carcinoma (HCC), 3 metastatic carcinoma and 1 hemangioma were studied using dynamic positron emission tomography (PET) with N-13 ammonia. After intravenous injection of 10-20mCi of N-13 ammonia, dynamic PET scans were performed every 150 seconds for 20-30 minutes.

Nine HCC showed remarkable uptake of the radionuclide from the earliest scan as we had reported previously. In one case with HCC, where hypervascular tumor was not shown on angiography, tumor was not visualized on PET, either. In the other one case with HCC, accumulation of the radionuclide was low and slow. In this case, continuous intra-arterial perfusion chemotherapy had been performed before. Two metastatic tumors were visualized as defects in the liver. In a case with hemangioma, most of the tumor was shown as a defect, which was considered to indicate blood pool. Hypervascularity and active uptake of the radionuclide are necessary for this PET imaging of the liver tumor.

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THE DIAGNOSTIC VALUE OF GA-67 SCINTIGRAPHY IN HEPATOCELLULAR CARCINOMA. H.Iguchi, H.Toba, K.Masuda, O.Sui, H.Takeji, K.Fujita and H.Yagi. Health Insurance Naruto Hospital and Tokushima University Hospital, Naruto and Tokushima.

We have assessed the detectability in 68 masses of 31 patients with HCC.

Scintigraphy was performed 3 days after administration of 3mCi Ga-67 citrate. SPECT added to planar image of Ga-67 scintigraphy. The degree of Ga-67 accumulation in the lesion of HCC was classified into 4 groups: (++), (+), (±), (-) as compared with the surrounding area. In the planar image, the result was as follows; 57% in all of more than 1cm, 30% in 1-3cm, 63% in 3-5cm, 100% in more than 5cm in tumor size. On the contrary, the detectability of SPECT was showed; 71% in all of more than 1cm, 42% in 1-3cm, 94% in 3-5cm, 100% in more than 5cm in tumor size. No definite relationship between the degree of Ga-67 uptake and serum AFP level in HCC could be found. In hepatic mass of less than 4cm in size, efficacy of adding the SPECT was definitely helpful in detectability. Adding the SPECT was able to increase the degree of Ga-67 concentration in HCC and also improve new detection, compared with the planar image only.

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UTILITY OF THE THREE PHASE Tc-99m PMT HEPATOBIILIARY SCINTIGRAPHY FOR DIFFERENTIAL DIAGNOSIS OF HEPATOCELLULAR CARCINOMA (HCC) AND METASTATIC LIVER CANCER. A.TADA, I.Tatuno, T.Takanaka, M.Yoneshima, T.Wakabayashi, K.Suzuki. Department of Radiology and Internal Medicine Kanazawa Natinal Hospital, Kanazawa

For the differential diagnosis of hepatocellular carcinoma (HCC) and metastatic liver cancer (MLC), we performed three phase Tc-99m PMT hepatobiliary scintigraphy in the patients of 15 HCC and 5 MLC. The method of three phase study was consisted of RI angio, early sequential images and multiplanar delayed images 4-5 hours after injection of Tc-99m PMT 5 mCi. Assessment of each image was visual inspection, but 6 cases of HCC did not reveal focal defect on the routine colloid liver-spleen scan. So that in these cases Tc-99m PMT scintigraphy were assessed only by the delayed scan. In the RI angio 6 of 9 patients of HCC showed hypervascularity corresponded to the defect of the colloid scan. On the other hand, 4 of 5 patients of MLC showed hypovascularity and one was undetermined. In the delayed scan, 5 of 9 patients of HCC showed increased activity compared with normal liver tissue, and 2 cases showed same activity. In the 6 cases of HCC did not reveal cold defect by the colloid scan, 3 cases showed increased activity corresponded abnormal lesion that was detected CT or US. So that overall sensitivity of the RI angio was 40%, sensitivity of the delayed scan was 67%.

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EVALUATION OF GA-67 SCINTIGRAPHY ON TRANS-CATHETER ARTERIAL EMBOLIZATION (TAE) FOR PRIMARY LIVER TUMOR.

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We have evaluated the change of Ga-67 scintigraphy before and after TAE in detecting primary liver cancer, in comparison with X-CT. Subjects were 23 cases of primary liver cancer, histologically proven or diagnosed clinically by high serum AFP and selective hepatic angiography etc. SPECT added to planar image of Ga-67 scintigraphy. Three cases of nodular HCC with complete defect of Ga-67 accumulation after TAE, were showed complete necrosis after resection and autopsy. Increased uptake of Ga-67 citrate in the lesions before TAE was become defect or diminished after TAE, corresponding to marked decrease in tumor density or density accumulation of Lipiodol on X-CT. If incomplete TAE was performed, high uptake of Ga-citrate was unchanged. In recurrence, increase in Ga-67 accumulation was newly detected, corresponding to X-CT. Therefore, it is considered that Ga-67 scintigraphy was useful for evaluation of the effectiveness of TAE, follow up examination and diagnosis of the recurrence.