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EVALUATION OF PORTAL CIRCULATION BY Tl-201 PER-RECTAL SCINTIGRAPHY. N. Tonami, K. Nakajima, T. Michigishi, H. Matsuda, M. Oguchi, K. Koizumi, A. Kuwajima, A. Tada, T. Maeda, H. Bunko, T. Aburano, K. Hisada, K. Kobayashi and N. Hattori. Department of Nuclear Medicine and First Internal Medicine, Kanazawa University, Kanazawa

A new method of per-rectal scintigraphy using Tl-201-chloride was performed in 67 patients to evaluate portal circulation. Two or 0.5 mCi of Tl-201-chloride was given rectally after emptying the rectum with the enema. Scintigrams were taken sequentially at 5 minutes interval up to 25 minutes. The 20 minutes' heart/liver activity ratios were chosen to evaluate the degrees of porta-systemic collateral circulation. In normal the liver was visualized in 0-5 minutes' images, while other organs were obscure even in 20-25 minutes' image. In patients with significant porta-systemic shunts the liver was not clearly visualized, while Tl appeared in the systemic circulation. The 20 minutes' heart/liver activity ratios (mean $\pm$ S.D.) were 0.16 ± 0.07 in normal, 0.96 ± 0.40 in cirrhosis, 0.74 ± 0.23 cirrhosis with hepatoma, 0.21 ± 0.15 chronic hepatitis, 0.29 ± 0.23 acute hepatitis. All of the patients with esophageal varix showed 20 minutes' heart/liver ratios of more than 0.60. This noninvasive method seems to be essential to discriminate between normal or chronic hepatitis and cirrhosis and might be useful to evaluate the degrees of porta-systemic collateral circulation.

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EVALUATION OF PER-RECTAL PORTAL SCINTIGRAPHY WITH Tc-99m RBC. M. Shiomi, S. Itoh 3rd. Dep. of Int. Med. K. Suzuki, M. Mashimo, K. Nishimura and T. Miyamae Dep. of Radiology, Saitama Medical School

Per-rectal portal scintigraphy is a non-invasive and useful method for diagnosis of portal circulation. We evaluated portal shunt in liver disease with Tc-99mRBC scintigraphy. Catheter is inserted into anus. 1m1 pyrophosphate is injected intravenously before instillation of 15 mci of 99m TcO₄ into the upper part of rectum or sigmoid colon. 99m TcO₄ was labeled with Tc-99m RBC in vivo. We take scintigrams sequentially every 20 second and get the time histogram, from which we evaluated appearance time, early liver to heart slope ratio and Tl/2 in liver disease. Tl/2 obtained from the time activity curve of the heart. Tl/2 was prolonged in liver disease. Per-rectal portal scintigraphy with Tc-99m RBC is useful to detect the location of portal shunt.

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INFLUENCE OF PHYTATE (Na) UPON Ga-67 CITRATE UPTAKE INTO LIVER. S. Kikuchi, S. Morita, M. Oshibuchi, Y. Kaneyuki, Y. Moriguchi, S. Chibana, H. Ohtake, N. Umezaki*, K. Yano** and H. Koga** Department of Radiology, Kurume University School of Medicine, *Institute of Radioisotopes, Kurume University School of Medicine, Kurume, **Department of Radiology, Yanagawa Public Hospital, Yanagawa

During Ga-67 citrate scan test, we happened to find that there were several cases that Ga-67 citrate concentrated low into liver. One of them was the case that Ga-67 citrate happened to be injected just after Tc-99m phytate scan. We thought that phytate might reduce the incorporation of Ga-67 citrate into liver, and carried out the influence of phytate upon Ga-67 citrate uptake into liver used adult mice. Method: Phytate was injected intraperitoneally, and then Ga-67 citrate was added at various intervals. pH 3, 6 and 9 of phytate were made by a buffer and injected. As control, pH 3, 6 and 9 of the buffer only groups and Liverkit (contained Sn-phytate) groups were prepared. Results: Reduction of Ga-67 citrate uptake into liver, spleen and bone were found in the following groups respectively, that is, pH 6 and 9 of phytate groups and Liverkit groups in liver, pH 6 and 9 of buffer only groups, pH 6 and 9 of phytate groups and Liverkit groups in spleen and all groups in bone.

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Application of single photon emission CT using opposed gamma camera to imaging of liver disease. T. Hirano, T. Hattori, H. Maeda, T. Nakagawa, M. Taguchi, T. Kitano, M. Kakegawa and A. Ueyama Department of Radiology, Mie University School of Medicine Tsu. Central Clinical Division of Radiology, Mie University Hospital, Tsu. Toshiba, Nasu.

Single photon emission computed tomography (SECT) using opposed gamma camera was used to investigate liver disease. Image data was collected for six min. by continuous rotation mode following administration of 3.0 mCi of Tc-99m phytate. As compared with standard scintigrams, SECT images were absolutely effective in the detection of small space-occupying lesion of liver in spite of their superficial or deep location. We experienced a case with a surgically proved hepatoma of 2 cm. in diameter which was clearly detected on SECT images and not detected on standard scintigrams. SECT images were useful in the interpretation of the structure of liver hilus where prominent concavity is seen on SECT images in normal liver, while interpretation is often equivocal on standard scintigram. In a case with a large cholangioma in hilar region, a large defect extending from hilus to lateral margin of right lobe was depicted on SECT images, though it was not evident on standard images. In this case extensive infiltration of the tumor confirmed at surgery was more evident by SECT than X-ray CT.