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THE EVALUATION OF HEPATOBILIARY SCINTIGRAPHY IN ACUTE ABDOMEN. K.Uchiyama, T.Takada, H.Yasuda, H.Hasegawa, J.Shikata, Y.Kuniyasu, H.Kakei, Y.Niio, M.Kawakubo and S.Higashi. Teikyo University School of Medicine, Tokyo.

Although diagnostic capability with nuclear aids in hepatobiliary system has been advanced, it is difficult to differentiate acute cholecystitis and impacted gallstone. We have experienced 19 acute cholecystitis and 20 impacted gallstones at the neck which were carried out hepatobiliary scintigraphy with Tc-99m-PNT from March 1982 to June 1985. In acute cholecystitis, the image of gallbladder was not visualized due to the suppression of its function and found the decrease of the intestinal transition of bile from duodenum to jejunum. This intestinal additional finding was not recognized in impacted gallstones. When the inflammation was regressed, the transition of bile to the jejunum was appeared to be normal. In 11 acute pancreatitis cases, the depression of intestinal transition of bile was seen too. So, this intestinal finding could be useful to diagnose acute cholecystitis and acute pancreatitis.

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DEVELOPEMENT OF IN-111-COLLOID AS HEPATOHISTOGRAM AGENT. S.Sakumoto, H.Mimura, S.Sato, T.Sugiu, K.Orita and Y.Hiraki. Okayama University Medical School, Okayama.

For calculation of KL developed own In-111-colloid as an alternative to Au-198-colloid and performed fundamental evaluation. Preparation (of this agent) is easy and PH adjustment was performed by using 0.01N NaOH and phosphate buffer. Liver accumulation ratio using Wister male rat showed the following result by different PHs and the maximum ratio was observed at PH6.8. PH5.5 : 80.6 + 2.4% PH 6.0 : 82.6 + 2.2% PH6.5 : 90.7 + 1.0% PH6.8 : 95.42 + 0.77% PH7.0 : 94.26 + 1.23% PH 7.5 : 87.37 + 1.99% The accumulation ratios in other organs : 0.95 + 0.31% in spleen, 0.43 + 0.11% in lung, 0.70 + 0.22% in kidney and 1.57 + 0.40% in blood. Moreover, the distribution of colloid particle's diameter using nuclepore membrane is as follows. More than 0.1µm 0.98%, 0.1-0.08µm 1.53%, 0.08-0.05µm 12.42%, 0.05-0.03µm 29.38%, 0.03-0.015µm 41.77%, Less than 0.015µm 13.92% The use of gelatin enabled particles to prevent the aggregation which resulted in no variance of distribution in organs one week after preparation. It is expected that In-111-colloid, instead of Au-198 colloid, is usable clinically as hepatohistogram agent by its high liver accumulation ratio, homogeneity of colloid particles' diameter, low exposure dose and etc.

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EXPERIMENTAL STUDY OF IN-111-COLLOID FOR MEASUREMENT OF LIVER BLOOD FLOW VOLUME. T.Sugiu, H.Mimura, S.Sato, S.Sakumoto, K.Orita, I.Nagaya, Y.Hiraki. Okayama University Medical School, Okayama.

As a new agent using radioisotope for the measurement of liver blood flow, prepared In-111-Colloid and evaluated using rats (Wister male, weight 250-300g). In normal group, both liver accumulation ratio and KL by In-111-Colloid are fairly close to those by Au-198 colloid. No variance of KL value was observed by the dosage of RES activator and inhibitor. Measured KL value after hepatectomy. KL value of 30% resected group recovered to normal value in three days whilst that of 70% resected group decreased significantly from the previous value one/three days after and low value was observed even after 7days which would imply the regeneration. KL value of cirrhotic rat prepared by CCl₄ decreased and showed good correlation with the result measured by hydric gas clearance. The measured volume by liver phantom also approximated to the actual value. From the above, clinical application of our In-111-Colloid is expected as its KL is very close to that by Au-198-Colloid.

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INTRAHEPATIC DYNAMICS WITH Tl-201 PORTAL ADMINISTRATION IN RATS (THE 5th. REPORT). N.Watanabe, K.Yokoyama, S.Kawabata, H.Ishida, H.Shyuke, K.Mukai, T.Aburano, N.Tonami and K.Hisada. Kanazawa Univ. School of Medicine, Kanazawa.

We have reported on a new approach for clinical evaluation of porto-systemic circulation with Tl-201 chloride. The heart to liver ratio (H/L) increases in patients with severe liver injury. The purpose of this study is to evaluate the factors with influences this phenomenon.

Intrahepatic dynamic of Tl-201 Cl were studied using rats with chronic liver damages induced by CCl₄ in olive oil and those with severe acute liver damages by D-galactosamine. Tl-201 (0.5µCi) was directly injected into the portal vein which was exposed. Biodistribution of the Tl-201 was investigated. The rats were sacrificed 2min. after injection. The liver was taken and homogenized for measurement of the weight and the radioactivity.

The following results were obtained.

1. In the models of severe acute liver injury and chronic liver injury the Tl-201 uptake in the liver didn't decrease compared with normal liver.
2. The per gram uptake in the liver of chronic liver injury decreased. In the high level of liver enzymes the per gram uptake of severe acute liver injury didn't decrease, but when the level of liver enzymes decreased, the per gram uptake decreased.