out of nine cases with metastatic cancer which showed hypervascular findings on radioisotope angiogram showed clear blood pool activities in the area of focal defects on ^{99m}Tc-colloid scan although less than liver.

On the other hand, none of hypovascular tumors on radioisotope angiogram showed blood pool activities. However, four hours later, in most malignant lesions, the lesion to liver activity ratio calculated from data processing system showed a much higher value than the ratio obtained 5 min. later after injection, although two cases with benign focal lesions did not show such sequential change.

From the present study, the sequential evaluation of the vascular state of hepatic tumor using redioisotope angiography, and early-and delayed blood pool scintigraphies was supposed to be extremely useful for the elucidation of the nature of focal hepatic lesions on ^{99m}Tc-colloid scan, especially in case of the differentiation between hypovascular malignant- and benign lesions.

Potential Use of Stable Isotope Labelled Benzoic Acid in Evaluation of Liver Function

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We have attempted to devise a test of liver function using non radioactive deuterium labelled benzoic acid. Orally administered benzoic acid is combined with glycine in the liver, and the resulting compound, hippuric acid is excreted in the urine.

We administered deuterium labelled benzoic acid to normal subjects and to patients with a variety of liver diseases. Evaluation of liver function was attempted by measuring the quantity of deuterium labelled hippuric acid (D_5-Hippuric acid) excreted in the urine.

Procedure: Approximately 100 mg sodium bicarbonate and 100 mg deuterium labelled benzoic acid (C_6D_5COOH, 99 atom%) were dissolved in water. The solution was drunk by the subject 1 hr after breakfast, and the urinary bladder was emptied. Urine was collected after administration of the solution at 1, 2, 4, 6, 8 and 10 hrs. Urine volume was measured at each collection.

The D_5-Hippric acid was measured with a Gas chromatography/mass spectrometer.

Amounts of H_5-hippric acid and D_5-hippric acid were measured simultaneously by method of dilution analysis.

Results: The cumulative excretion of D_5-Hippuric acid into the urine is as follows. Most of D_5-Benzoic acid taken into body by oral administration is excreted in 1–2 hours in the form of D_5-Hippric acid. After that it is excreted little by little and excretion reaches plateau in 4–6 hours.

The percentage of D_5-Hippuric acid excretion in hours after oral administration is as follows: Normal person: more than 55%; Liver trouble patient: less than 55%; (except one example of liver cirrhosis) One example of Hepatitis: 35.1%; Three example of Liver cirrhosis: 36.8%, 50.2% and 94.8%.

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