Dynamic Studies of Hepato-biliary Diseases in Surgery

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The dynamic studies were tried to improve the diagnostic accuracy of the hepato-biliary system, especially differentiate diagnosis of the extra-hepatic jaundice from the intra-hepatic jaundice in surgery, using the PHO/GAMMA III scintillation camera combined a 1600-ward memory system.

Studies were performed in 108 patients with various disorders. 30 healthy subjects also served as control subjects.

After intravenous injection of ^{131}I-Rose Bengal (4 μCi/kg), routin liver image was performed, and recorded in magnetic tape also at intervals of one minute during the first 2 hours after injection. In cases of infantile jaundice, imaging was performed at 24 hrs to 48 hrs after injection, and the excretion of ^{131}I-Rose Bengal in the stool were counted.

By the digital simulation method, quantitative analysis and various radiohepatogram were maken up for each disease. The following result were obtained.

1. Normal subject: The total liver uptake and excretion curve was showed a pattern of quick initial uptake curve and max. uptake time was 34 ± 4 min, then excreted slowly, at first 2 hours was $22\pm2\%$.

2. Cholelithiasis: A slow uptake curve than normal subject, max. uptake time was 34 ± 2 min, the excretion rate was $19\pm2\%$.

3. Chronic hepatitis, liver cirrhosis: More slow uptake curve pattern was showed. Max. uptake time was 45 ± 5 min. Excretion rate was less than 10%.

4. Obstructive jaundice: A slow uptake and excretion pattern was showed, max. uptake time was 46 ± 6 min. Excretion rate was less than 2%.

5. The differential diagnosis of extra-hepatic jaundice from intra-hepatic jaundice was difficult by hepatogram in 2 hrs after injection, but it was useful to count the excretion of ^{131}I-Rose Bengal in the stool, and imaging at 24 hrs and 48 hrs after injection.