Summary

Nuclear Medicine of the Liver —Focusing on Functional Diagnosis—

Sang Kil HA-KAWA

Department of Radiology, Kansai Medical University

For evaluating the hepatic function, intrinsic substances are influenced by the physiological activity of homeostasis. Potential reduction of the hepatic reserve can be evaluated by the loading of the extrinsic substances. Asialoglycoprotein (ASGP) receptor reduces its activity according to the grade of hepatic parenchymal injury. The quantitative evaluation was possible with ^{99m}Tc-galactosyl HSA (^{99m}Tc-GSA) using an index of GSARmax by a multi-compartment analysis.

The correlation between GSARmax and the histological activity index (HAI) score of the liver in hepatectomized cases was better than that of the ICGR15. A safe limit of GSARmax was 0.3 mg/min for 1 segment excision and 0.35 mg/min for 2 or 3 segment excision.

Some cases showed discrepancies between 99mTc-

GSA and ICGR15. ICG mainly reflected hepatic blood flow and GSA was related to both the amount of functional hepatocytes and flow.

Regional distribution of GSARmax presented functional SPECT image of the liver. Since the scale was common, the comparison were possible between SPECT images in different studies.

In reservoir treatment, the injection of ^{99m}Tc-MAA in a catheter made it possible to estimate the distribution of the anticancer agent. The incorrect perfusion to the digestive tracts and shunt flow to the lung were monitored, and it was also useful to predict the therapeutic effect.

Key words: Asialoglycoprotein receptor, ^{99m}Tc-GSA, Liver function, Hepatectomy, Functional imaging, ^{99m}Tc-MAA.