

of porta-systemic circulation in liver cirrhosis.

In a patient with essential tremor, a patient with essential hypertension and 3 patients with chronic hepatitis, as well as in 5 patients with liver cirrhosis and a patient with portal hypertension,  $^{13}\text{N}$ -activities were measured for 50 min over the head and leg.

In all subjects,  $^{13}\text{N}$ -activity appeared in the head and leg in about 1 min after rectal administration, and increased linearly up to 30 min.

$^{13}\text{N}$ -head activity seems to serve in differentiating between the control and the cirrhosis or portal hypertension group.

### **Studies on Portal Hemodynamics by Per-Rectal Portal Scintigraphy**

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The per-rectal portal scintigraphy was reported at this conference previously (1975, 1976).

This time, portal shunt index was measured in animal study and compared with that by other procedures such as trans-splenic injection and portal vein catheterization.

Materials: Sixteen rats with hepatic damages induced by carbon tetrachloride and 5 healthy control rats were used

Portal shunt indexes by the per-rectal portal scintigraphy were calculated from the radio-activities in the ROI on the liver and head after the instillation of  $^{99\text{m}}\text{TcO}_4^-$  into the rectum. On the same subjects within one week, portal shunt indexes by trans-splenic injection and portal vein catheterization were calculated from the activities of  $^{131}\text{I}$ -MAA or  $^{99\text{m}}\text{Tc}$ -MAA in the removed liver and lung.

Results: In cases with hepatic cirrhosis or portal hypertension over 150 mmH<sub>2</sub>O, portal-

shunts by these three techniques were detected frequently and portal shunt indexes correlated well with the extent of hepatic fibrosis and value of the portal blood pressure.

Even in cases without hepatic cirrhosis or cases with slight elevation of portal blood pressure, portal shunt indexes by perrectal portal scintigraphy correlated well with the extent of hepatic fibrosis and value of portal blood pressure.

On the other hand, other 2 methods were almost unable to detect the portal shunts in these cases and portal shunt indexes not always correlated with the extent of hepatic fibrosis and value of portal blood pressure.

In conclusion, our per-rectal portal scintigraphy is possible to detect the portal shunt more sensitively even in the cases with the early stage of hepatic fibrosis and slight elevation of portal blood pressure.

### **Comparative Study of RI Tomoscan (PHO/CON) and CT (ACTA Scan) in Intrathoracic Diseases**

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Abnormal accumulation of  $^{67}\text{Ga}$  citrate detected by PHO/CON was compared with the findings of CT image in the intrathoracic diseases.

Diagnostic value of the RI tomoscan and CT on

anatomical localization of the lesion detected by both methods were discussed.

Comparison was performed in 28 cases with malignant tumor in the lung and the mediasti-