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**Difference in regional hepatic blood flow in liver segments
—Non-invasive measurement of regional hepatic arterial and portal blood flow
in human by positron emission tomography with H₂¹⁵O—**

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Organ blood flow can be quantitatively measured by positron emission tomography (PET). As the liver has dual blood supplies, arterial and portal, regional hepatic blood flow had not been measured quantitatively. However, we succeeded in simultaneously measuring both regional hepatic arterial and portal blood flow by PET in non-stressed patients. Mean regional portal hepatic blood flow in patients with normal liver and cirrhotic liver was 57.5 and 36.7 ml/minutes/100 g, respectively. Mean regional arterial blood flow was 42.5 and 30.7 ml/minutes/100 g, respectively. A significant difference between regional portal hepatic blood flows in normal and cirrhotic patients was noted. Mean regional portal hepatic blood flow in the lateral, medial, anterior, and posterior segments of the liver was 29.8, 43.4, 50.0, and 40.9 ml/minutes/100 g, respectively. Mean regional arterial blood flow in each liver segment was 37.6, 30.0, 28.2, and 31.6 ml/minutes/100 g, respectively. A significant difference between regional portal hepatic blood flows in lateral and anterior segment was noted. The p value was less than 0.025 and the 95% confidence interval of the difference between means was from -20.2 to -2.7 ml/minutes/100 g by ANOVA. These results showed that regional hepatic blood flow is not the same in all the liver segments.

Key words: regional arterial hepatic blood flow, regional portal hepatic blood flow, segmental hepatic blood flow, PET