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Hepatic Hemodynamics and Arterial Ketone Body Ratio in patients with chronic liver deseases
（慢性肝障害患者における肝血行動態と動脈血中ケトン体比に関する研究）

梶　村　幸　三

主論文1

Transcatheter Hepatic Arterial Drug Infusion Therapy for Hepatocellular Carcinoma

Effect on the Arterial Ketone Body Ratio

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Kajimura K, Moriyasu F, Someda H, Okuma M, Mori K, Ozawa K. Transcatheter hepatic arterial drug infusion therapy for hepatocellular carcinoma. Effect on the arterial ketone body ratio. Scand J Gastroenterol 1993;28:000–000

The arterial ketone body ratio (acetoacetate to β-hydroxybutyrate) was measured in 15 patients with chronic liver disease before and after the infusion of anticancer drugs or embolic agents (gelatin sponge or iodized oil) into the hepatic artery. The arterial ketone body ratio decreased after hepatic angiography and decreased further at 15 min after infusion therapy. When the arterial ketone body ratio decreased to 1.0 or less on at least one occasion after infusion therapy, the ratio after hepatic angiography was always 1.35 or less. Such patients developed marked systemic symptoms like fever and severe liver dysfunction. Ascites also developed in three patients in whom the arterial ketone body ratio was reduced to 0.7 or less at 24 h after infusion therapy. The arterial ketone body ratios improved at 3–7 days after infusion therapy. In the seven patients treated with gelatin sponge embolization, the ratio at 3–7 days after therapy was actually higher than that before angiography.

Key words: Arterial ketone body ratio; redox; transcatheter arterial embolization

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Effect of dobutamine on the arterial ketone body ratio and portal blood flow velocity in cirrhosis

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Kajimura K, Moriyasu F, Kimura T, Okuma M, Mori K, Ozawa K. Effect of dobutamine on the arterial ketone body ratio and portal blood flow velocity in cirrhosis.

Abstract: We studied the relationship between the portal blood flow velocity and the arterial ketone body ratio in patients with chronic liver disease receiving a dobutamine infusion. We used an ultrasonic Doppler duplex system to evaluate the portal blood flow velocity. Dobutamine was given intravenously at 5 μg/kg/min for 20 min. Dobutamine infusion induced smaller changes in the portal blood flow velocity and ketone body ratio in liver cirrhosis than in chronic hepatitis. The existence of shunts and the poor increase of the cardiac index in response to dobutamine explained the limited improvement of portal blood flow velocity in cirrhosis patients. The ketone body ratio was improved by dobutamine in cirrhosis patients whose portal blood flow velocity was increased by more than 10%, while this ratio decreased when the increase of it was less than 10%. There was no change in portal oxygen extraction in the cirrhosis group, and portal oxygen uptake only increased when the portal blood flow velocity rose by more than 10%. Dobutamine should only be used to treat liver failure if the portal blood flow velocity is increased by more than 10% or the arterial ketone body ratio is improved by a test infusion.

Abbreviations used in this paper: AKBR (arterial ketone body ratio), CH (chronic hepatitis), CI (cardiac index), FHVP (free hepatic venous pressure), POE (portal oxygen extraction), POU (portal oxygen uptake), LC (liver cirrhosis), PBFV (portal blood flow velocity), WHVP (wedged hepatic venous pressure).

Key words: arterial ketone body ratio – dobutamine – hepatic hemodynamics – portal blood flow velocity – redox

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