Cerebral dopamine D2 receptor binding activities in patients without hepatic encepalopathy by positron emission tomography using ^{11}C-methylspiperone

M. Iwai, A. Kato, K. Sahara, Y. Watanabe, K. Suzuki
[*1]T. Sasaki,[*1]K. Terasaki,[*1]K. Sera

First Department of Internal Medicine, Iwate Medical University School of Medicine
19-1 Uchimaru, Morioka 020-8505, Japan

[*1]Cyclotron Research Center, Iwate Medical University
348-58 Tomegamori, Takizawa 020-0173, Japan

Abstract

Although many substrates were recognized as the causes of hepatic encephalopathy (HE), little is known to the central alternations of dopamine in liver cirrhosis. Thus our aim is to clarify the binding activities of the dopamine D2 receptor in patients with liver cirrhosis by positron emission tomography.

Eight patients with liver cirrhosis without HE and three controls were underwent PET using ^{11}C-methylspiperone. The pixel values of frontal lobe, temporal lobe, occipital lobe and striatum divided by the pixel value of cerebellum after 80 minutes static scan were used as dopamine D2 binding activities. D2 binding activities were significantly decreased in frontal lobe, temporal lobe, occipital lobe and striatum compared to controls. Moreover the activities in striatum were correlation to the severity in hepatic functions such as total billirubin, prothrombin activity and Fischer's ratio. These findings suggest that the activities of dopamine D2 receptor have a relation to the severity in hepatic functions.