

Cerebral dopamine D2 receptor binding activities in patients without hepatic encephalopathy by positron emission tomography using ¹¹C-methylspiperone

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Abstract

Although many substrates were recognized as the causes of hepatic encephalopathy (HE), little is known to the central alterations 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.

Twelve patients with liver cirrhosis without HE and four controls were underwent PET using ¹¹C-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 bilirubin, 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.