ORIGINAL ARTICLE

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Single photon emission computed tomography and statistical parametric mapping analysis in cirrhotic patients with and without minimal hepatic encephalopathy

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Objective: The early diagnosis and treatment of cognitive impairment in cirrhotic patients is needed to improve the patients' daily living. In this study, alterations of regional cerebral blood flow (rCBF) were evaluated in cirrhotic patients using statistical parametric mapping (SPM). The relationships between rCBF and neuropsychological test, severity of disease and biochemical data were also assessed. ***Methods:*** ^{99m}Tc-ethyl cysteinate dimer single photon emission computed tomography was performed in 20 patients with non-alcoholic liver cirrhosis without overt hepatic encephalopathy (HE) and in 20 age-matched healthy subjects. Neuropsychological tests were performed in 16 patients; of these 7 had minimal HE. Regional CBF images were also analyzed in these groups using SPM. ***Results:*** On SPM analysis, cirrhotic patients showed regions of significant hypoperfusion in the superior and middle frontal gyri, and inferior parietal lobules compared with the control group. These areas included parts of the premotor and parietal associated areas of the cortex. Among the cirrhotic patients, those with minimal HE had regions of significant hypoperfusion in the cingulate gyri bilaterally as compared with those without minimal HE. ***Conclusions:*** Abnormal function in the above regions may account for the relatively selective neuropsychological deficits in the cognitive status of patients with cirrhosis. These findings may be important in the identification and management of cirrhotic patients with minimal HE.

Key words: liver cirrhosis, cerebral blood flow, single photon emission computed tomography, hepatic encephalopathy, cingulate