Abstract

Objectives. Hepatic encephalopathy is a serious neuropsychiatric complication in advanced liver disease. The affected patients exhibit alterations in psychomotor and intellectual functions. The aims of this study were to identify the set of normal values for the Number Connection Tests (NCT-A and NCT-B) in a population of volunteers without liver disease, to compare the values from this reference population with those from patients with cirrhosis without hepatic encephalopathy. Materials and methods. This study was performed in two referral hospitals in an urban setting from the city of La Plata. We evaluated the Number Connection Tests in 112 healthy subjects and 30 patients with cirrhosis without manifestations of hepatic encephalopathy. Time for performing the tests was measured in seconds. Results were compared according to age, gender, level of education and fine motor skills in both groups. Results. Mean age in the control group was 45.3 years; 56 (50%) were women. Mean age in the cirrhotic group was 54.5 years; 8 (27%) were women. In the control group, the mean time for completing NCT-A and NCT-B was 60 s ± 36 s and 140 s ± 60 s, respectively. In the cirrhotic group, the mean time for completing NCT-A and NCT-B was 114 s ± 64 s and 232 s ± 87 s, respectively (P = 0.00001 for both tests). 56.6% of cirrhotic patients took more than 2 SD to perform the NCT-A and 53.3%, more than 2 SD to perform the NCT-B. Conclusion. We have obtained reference values for NCT-A and NCT-B completing times in our healthy population. Cirrhotic patients without overt hepatic encephalopathy took double time than controls to complete NCT-A and NCT-B and over half of our patients would have minimal hepatic encephalopathy.

Keywords

Cirrhosis, hepatic encephalopathy, liver disease, minimal hepatic encephalopathy, number connection tests.