Background and Aim: Patients with minimal hepatic encephalopathy (MHE) have mild cognitive and psychomotor deficits with normal mental clinical examination. MHE is associated with increased morbidity and poor prognosis. There is no gold standard test for the diagnosis of MHE and existing tests are either time consuming or need sophisticated equipment. Reliable peripheral biomarker for MHE is lacking. Our aim is to study the use of plasma nitrotyrosine level for the diagnosis of MHE.

Methods: This prospective study included consecutive patients with cirrhosis fulfilling the inclusion criteria were selected for screening for the presence of MHE using the number connection test (A and B) or figure connection test (A and B) and neuro-physiological test (P300 auditory event-related potentials). On the same day blood samples were taken for estimation of plasma nitrotyrosine level (OxiselectTM Nitrotyrosine ELISA kit, Cell Biolabs Inc, USA). Twenty eight healthy controls were also included to access the plasma level of nitrotyrosine. Results: One hundred and ten patients with cirrhosis (mean age 41.29±12.8 years, male: female = 96:14) were screened for the presence of MHE. Forty six patients with cirrhosis (46/110; 41.8%) were detected to have MHE. MHE was detected in 36.7% (11/30), 35.0% (20/57) and 65.2% (15/23) of patients with Child-Turcotte-Pugh score (CTP) A, B and C status, respectively. The proportion of patient with severe liver disease (CTP C) was significantly higher among those with MHE as compared to those without MHE (32.6% versus 12.5%; p=0.03). The mean plasma nitrotyrosine level (nM) in patients with cirrhosis was significantly higher as compared to healthy controls (418.9±19 versus 104.5±23; p=0.001). There was no significant difference in plasma nitrotyrosine level between MHE and non-MHE patients (417.1±22 versus 418.99±1; p=0.96), while plasma nitrotyrosine level was significantly higher in both, with and without MHE patients as compared to healthy control (p=0.001). There was no statistically significant difference in nitrotyrosine level between compensated and decompensated cirrhotic patients (422.7±23 versus 416.5±19; p=0.89). Conclusion: The prevalence of MHE in patients with cirrhosis was 41.8%. Though plasma nitrotyrosine levels are increased in patients with cirrhosis, it cannot be used as a differentiating biomarker for MHE and non-MHE patients with cirrhosis.
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