Elevated systemic zonula occludens 1 is positively correlated with hyperammonemia and inflammation in patients with cirrhosis

Background/Aim: In liver cirrhosis, disruption of the intestinal barrier function increases intestinal permeability, which contributes to endotoxemia and derangement in liver cirrhosis. In acute liver failure, cerebral endothelial cells formed tight junctions are compromised, which may lead to increased paracellular permeability across the blood-brain barrier (BBB). The aim of this study was to assess and compare the blood concentrations of ZO-1 with systemic ammonia and inflammatory marker in patients with cirrhosis and healthy individuals. Patients and Methods: 30 cirrhotic patients and 30 healthy individuals were enrolled in the study. Blood ZO-1 and hsCRP were measured by ELISA and biochemical parameters by AU680 Beckman Coulter (USA) autoanalyser. Results: The serum ALT, AST, bilirubin, gamma GT, ALP and were significantly (P<0.0001) elevated whilst serum albumin concentration was decreased in cirrhotic patients when compared to healthy individuals. Systemic ammonia levels were significantly increased in cirrhotic patients compared to healthy individuals (138.0±7.46 vs 84.39±5.45 μM/L, respectively; P<0.0001). Furthermore, tight junction protein ZO-1 concentration was significantly elevated in cirrhotic patients compared to normal healthy volunteers (590.0±32.79 vs. 349.9±18.76 pg/ml, respectively; P<0.0001). hsCRP level was also significantly increased in cirrhotic patients compared to healthy individuals (10.50±1.05 vs 5.31±0.65 mg/L, respectively; P=0.001 ). Significant positive correlation was found between increased ZO-1 and ammonia (r = 0.5308 P=0.022). Significantly increased ZO-1 was also positively correlated with elevated hsCRP (r = 0.2680 P=0.013). Conclusion: Our results suggested that increased systemic ZO-1 concentration was associated with elevated systemic ammonia and inflammation in cirrhosis. Thus, targeting tight junction proteins may provide a positive therapeutic approach to the cirrhotic patients with hepatic encephalopathy.

Body Of Abstract

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