CORRESPONDENCE

Continuous Ambulatory Peritoneal Dialysis (CAPD) in the Management of Persistent Hepatic Encephalopathy – More Studies Needed

KEY WORDS: CAPD; hepatic encephalopathy; novel therapy.

Editor:

Pipili C. *et al.* have presented an interesting case of decompensated liver disease with stage 4 chronic kidney disease and hepatic encephalopathy (HE) successfully managed with continuous ambulatory peritoneal dialysis (CAPD) (1). Continuous ambulatory peritoneal dialysis is a safe and effective modality of renal replacement therapy in patients with end-stage renal disease (ESRD) and co-existing decompensated liver disease as evident from clinical studies (1–4). However, the use of CAPD as a treatment modality for HE without ESRD is a novel idea. The various therapeutic approaches so far described for the management of HE are summarized in Table 1.

Patients of decompensated liver disease with HE who fail to respond to conservative measures may be considered for home-based CAPD therapy. However there are some practical and safety issues in initiating CAPD for this subset of patients as follows:

1. These patients have prolongation of prothrombin time and thrombocytopenia. Theoretically, there is a high risk of bleeding and hemoperitoneum during CAPD catheter insertion in this subset of patients.
2. Continuous ambulatory peritoneal dialysis is associated with development of hyponatremia and hypokalemia, which are well known precipitants of HE. Since these two electrolyte disorders are commonly seen in patients with decompensated liver disease as well, there is a risk of worsening of these electrolyte disturbances once a patient is initiated on CAPD.
3. Development of peritonitis in a patient with decompensated liver disease is a known risk factor for HE as well as type 1 hepatorenal syndrome and presence of a CAPD catheter increases the chance of peritonitis.

TABLE 1
Treatment Approaches for Management of HE

Removal of precipitating factor for HE
Decreasing the production or absorption of ammonia in the gut – disaccharides (lactulose), antibiotics (rifaximin, neomycin, metronidazole, and nitazoxanide), probiotics
Removal of ammonia from plasma – LOLA administration, sodium benzoate, phenylacetate
Nutritional interventions – increase in vegetable proteins and branched chain amino acids
Regulation of neurotransmission in brain – benzodiazepine antagonists (Flumazenil), dopamine receptor agonist (Bromocriptine), NMDA receptor antagonist, zinc
Surgical therapies – reduction or closure of porto-systemic shunt
Extracorporeal therapies – charcoal hemoperfusion, liver assist devices
Liver transplantation

HE = hepatic encephalopathy; LOLA = L-Ornithine L-Aspartate; NMDA = N-methyl-D-aspartate.

4. There are no clear-cut guidelines regarding the volume and frequency of the CAPD exchanges required for optimal removal of ammonia from the blood.

Thus, there is an urgent need to perform well designed randomized controlled studies to address these issues.

DISCLOSURES

The authors have no financial conflicts of interest to declare.

Sivaramakrishnan Ramanarayanan^{1*}
Shiv Kumar Sarin²

Department of Nephrology¹
Institute of Liver and Biliary Sciences
New Delhi, India
Department of Hepatology²
Institute of Liver and Biliary Science (ILBS)

Jawahar Lal Nehru University
New Delhi, India

*email: rsrk.rr@gmail.com

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