Editorial

Dialysis of Liver - A Lifesaving Drive in Acute Liver Failure: Transplantation or Regeneration

We are very much oriented about the kidney dialysis that removes the west products from the body. Liver dialysis similar to kidney dialysis allows blood to be purified after liver failure.Hepatic dialysis is an artificial extracorporeal liver support device designed to filter out toxins accumulated in patients with acute liver failure (ALF). First developed in the 1950s, however scarcely employed, hepatic dialysis gained its reputation as an efficacious modality of liver bridging therapy[1]. Liver dialysis has shown promise for patients with hepatorenal syndrome. It is similar to hemodialysis and based on the same principles, but hemodialysis does not remove toxins bound to albumin that accumulate in liver failure. Like a bioartificial liver device, it is a form of artificial extracorporeal liver support.

Acute liver failure (ALF) in children is rare but associated with high mortality rates[2]. Orthotopic liver transplantation (OLT) is considered to be the only curative treatment in ALF. However, the liver is the only organ with a regenerative potential, able to fully recover from an acute insult. Hence, spontaneous recovery and preservation of the native liver is the desirable outcome in ALF, avoiding complications and side effects especially in an era of donor organ shortage. The rate of spontaneous regeneration or the need for transplant and overall survival is etiology-dependent. In ALF induced by paracetamol overdose and Hepatitis A, the rate of spontaneous regeneration is much higher than compared with indeterminate causes, drug-induced ALF other than paracetamol or Hepatitis B, where most of the patients require liver transplantation[3].

As liver is the only organ which can regenerate and, thus, potentially negate the need for transplantation in acute liver failure (ALF). Cerebral edema and sepsis are leading causes of mortality in ALF. Both water-soluble and protein-bound toxins have been implicated in pathogenesis of various ALF complications. Ammonia is a surrogate marker of water-soluble toxin accumulation in ALF and high levels are associated with higher grades of hepatic encephalopathy, raised intracranial pressure, and mortality. Therefore, extracorporeal therapies aim to lower ammonia and maintain fluid balance and cytokine homeostasis. Ideally, extracorporeal liver-assist devices (ECLAD) should perform both synthetic and detoxification functions of the liver. ECLAD may temporarily replace lost liver function and serve as a bridge, either to spontaneous recovery or liver transplantation. Various bioartificial and biologic liver-assist devices are described in specialty literature.[4,5]

Various bioartificial and biologic liver-assist devices are molecular adsorbent recirculating system (MARS), single pass albumin dialysis (SPAD), and total plasma exchange (TPE), Prometheus and dialive. The foundation of ALF management is supportive treatment and extracorporeal liver support plays an important role in determining the prognosis of critically sick patients. The various modalities used depend on the indications for each patient, local resources and protocols, and costs.

In developed country, still liver dialysis is considered only to be a bridge to transplantation or liver regeneration (in the case of acute liver failure)6,7 and like kidney dialysis it cannot support a patient for an extended period of time (months to years). Never the less hope in near future it will be more useful in expensive and available to everyone who need it.

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