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Perspective

Liver Substitution Treatment for End-Stage Liver Illness

Adesanya wahba*

Abstract

Liver replacement represents the sole definitive treatment for end-stage liver disease. Medical treatment does little to improve survival; when life-threatening complications of liver failure such as encephalopathy, gastrointestinal bleeding, or uraemia develop, the 5-year survival rate .Acute varietal bleeding is a particularly ominous prognostic sign, with a hospital mortality rate similar to that of myocardial infarction. The 3-year survival isb30%, despite endoscopic and pharmacologic advances

Pathophysiology of Liver Failure

Patients with end-stage liver disease have secondary dysfunction of virtually all other organ systems, and aesthetic management must include protection of other organs damaged by liver failure. Central nervous system Up to 80% of patients with acute liver failure develop cerebral enema and increased intracranial pressure. The cerebral symptoms of chronic liver failure are not believed to be associated with cerebral enema, but increased intracranial pressure can occur. These reports support the belief that the encephalopathy found in chronic liver disease may have a common underlying pathophysiology with the cerebral enema of acute liver failure, with only the rate and magnitude of change accounting for the clinically observed differences.Further supporting this belief, a number of similarities exist in both acute and chronic encephalopathy. The failure of hepatic clearance leads to an accumulation of toxins, such as ammonia and manganese, and to alterations in endogenous transmitters and messengers, includingg-aminobutyric acid (GABA), glutamate, and nitric oxide.

Anesthetic Preparation and Induction

Anaesthesia typically begins with a rapid sequence induction which is necessitated by the emergent nature of the surgery, preoperative administration of oral immunes up presents and bowel decontamination antibiotics, and the presence of ascites. An arterial catheter is placed either before induction or shortly thereafter. Large-bore intravenous access is obtained. At UCLA, two9 French introducers are placed centrally. Sites designated for venovenous bypass are avoided. A pulmonary artery catheter is commonly used in adult patients. Transesophageal echocardiography (TEE) is a technique that is increasingly being used during the procedure.

Some liver transplant sites avoid pulmonary artery catheter insertion when TEE is used, although the pulmonary artery catheter may be necessary when continuous intraoperative monitoring of pulmonary artery pressures is desired or for postoperative fluid management in the intensive care unit (ICU). A rapid infusion system capable of high transfusion flow rates is typically used. Such systems incorporate a reservoir, pump, filters, heat exchanger, and safety features designed to avoid and monitor for the presence of blood or air embolism, hypo-thermic, and line occlusion.

Conclusion

Liver transplantation offers patients with liver disease an optimal chance for long-term survival because medical therapy, particularly after the complications of end-stage liver disease such as varietal bleeding, encephalopathy, and renal failure occur, is associated with a poor prognosis. The success of liver transplantation has led to a rapidly expanding waiting list of potential recipients. The long waiting list along with a nonexpanding pool of cadaveric liver donors have led to a shortage of grafts and prolonged waiting times. Novel solutions using segmental liver grafts, including those from living donors, have seen rapid growth in the last 5 years, until 2002 when the number of living donor liver transplants decreased for the first time because of reports of donor morbidity and mortality. These reports underscore the physiologic trespasses associated with extensive hepatic surgery. Undoubtedly, further refinement of techniques de-signed to improve the supply of scarce donor organs will remain an area of focus for the future.

Adesanya wahba*

Department of Neuroscience,Associate Professor of Neurology, University of UTHSC, USA.

***Address for correspondence:** kong wahba, Department of Neuroscience,Associate Professor of Neurology, University of UTHSC, USA.; E-mail: wbaa@gmail.com

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