Liver Transplantation for Acute Liver Failure

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KEYWORDS

• Liver transplant • Acute liver failure • Living donor liver transplant

KEY POINTS

- With the advent of liver transplant for acute liver failure (ALF), survival rate has improved drastically. Liver transplant for ALF accounts for 8% of all transplant cases.
- The 1-year survival rates are 79% in Europe and 84% in the United States, which is acceptable considering the emergent nature of the listing process and the severity of illness.
- Some patients with ALF may recover spontaneously, and approximately half will undergo liver transplant.
- It is imperative to identify patients with ALF as soon as possible to transfer them to a liver transplant center for a thorough evaluation that includes a complete socioeconomic assessment.
- Emergent liver transplant in a patient with ALF may place the patient at risk for severe complications in the postoperative period, with longer intensive care unit stays and higher retransplantation rates.

LIVER TRANSPLANTATION IN THE CONTEXT OF ACUTE LIVER FAILURE

ALF as an indication for liver transplantation (LT) was adopted in the 1980s by a consensus of the National Institutes of Health.[1] Currently, ALF accounts for approximately 8% of all liver transplants, as per data from the Scientific Registry of Transplant Recipients (SRTR) and the European Liver Transplant Registry (ELTR).[2,3] In the United Kingdom, 53% of the nonacetaminophen-related cases of ALF are transplanted, versus 40% in the United States. On the other hand, acetaminophen-related cases are transplanted only 35% of the time in the United Kingdom and 8% in the United States, respectively.[4,5] Survival of patients with ALF has significantly improved from 16% to 62% since the introduction of liver transplantation.[2] In the same series, nontransplanted

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patients had a survival rate improvement from 17% to 48%.[4] This improvement was most pronounced when the cause of ALF was acetaminophen toxicity, hepatitis B, and drug-induced liver injury (DILI). No significant improvement was reported in etiologies like seronegative hepatitis and in indeterminate causes of ALF.[2,4]

Approximately half of the patients admitted with ALF will receive a liver transplant, worldwide. The 1-year survival rates are 79% in Europe and 84% in the United States.[2,3] These outcomes are somewhat inferior compared with patients receiving a transplant due to chronic liver disease.[6]

ALF survival is similar to patients transplanted with a high MELD and in the intensive care unit (ICU) at the time of transplant.[3]

OPTIMIZATION OF LISTING CRITERIA

Liver transplant is a lifesaving treatment for ALF patients. The general recommendation is to transfer these patients to a facility with a liver transplant program as soon as possible.[7,8] It is imperative to thoroughly evaluate these patients and maximize medical management prior to liver transplant. Prognostic scoring systems may predict which patient will require liver transplantation versus those destined to recover (an approach favored by European Association for the Study). Alternatively, all the patients can be evaluated and listed if they fulfill the criteria for listing at the time of the presentation, an approach that is favored by the American Association for the Study of Liver Diseases, and a clinical reassessment will be performed at the time of the liver availability.[7–10] In any event, the decision to list the patient should be made expediently through a multidisciplinary approach in order to prevent further clinical deterioration that might prohibit listing.

Ethical Issues

Psychosocial assessment of the potential transplant patient is a critical aspect of the transplant evaluation process. For patients with ALF, this may prove challenging, as the patient may have already developed hepatic encephalopathy.

The extenuating circumstances may make the evaluation suboptimal compared with the full psychological assessment performed for patients undergoing nonemergent transplant evaluation. In addition, issues such as adherence, social and family support, and social environment should be discussed with the patient's family, friends, and treating physicians.[11] The etiology of ALF may present additional problems when there is an associated social stigma such as suicide attempt with acetaminophen overdose or hepatitis B transmission in the context of intravenous drug use or sexual transmission.[11,12] In addition, these cases can provide challenges in terms of bioethical principles of justice and beneficence.[12]

Additionally, in ALF cases some centers may tend to overlook traditional contraindications to LT such as alcohol abuse, drug use or suicidal attempt, a practice that is not standardized for all transplant centers. The decision to transplant or defer in this context should be done involving the multidisciplinary transplant team and a thorough documentation of the rationale is warranted.[8] Predicting compliance with posttransplant regimen can be challenging due to suboptimal evaluation,[13] but in these cases there are few alternatives to gather further information or set goals for the patient and caregivers to further assess their adherence capabilities.

Suggested Approach

Given the complex presentation and potential for rapid deterioration of patients, it is essential to have an organized and comprehensive approach in the management of