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Indications for Liver Transplantation

Thomas Martens*

Department of Surgery, Ghent University Hospital, Belgium

Introduction

The list of indications for liver transplantation includes all the causes of end stage disease which are irreversible and curable by the procedure. In 1997 the American Society of Transplant Physicians and therefore the American Association for the Study of the disease suggests the minimal listing criteria for patients with end stage disease. To qualify for the listing, the patient's expected survival should be ≤ 90% within 1 year without transplantation. Liver transplantation should cause prolonged survival and an improved quality of life. the result following liver transplantation is best for those with chronic cholestatic disease (including primary biliary cirrhosis and first sclerosing cholangitis) compared with those that have hepatoma.

Acute Liver Failure (ALF)

Fulminant hepatic failure (ALF and subfulminant hepatic failure) is characterized by encephalopathy, jaundice, and coagulopathy. It accounts for 5-6% of all patients undergoing liver transplantation, within the West, acetaminophen toxicity is that the leading explanation for ALF, and hepatitis A, E, B and seronegative hepatitis are the opposite common aetiological factors. The main explanation for subfulminant hepatic failure is idiosyncratic drug induced liver injury. Patients who meet the King's College Criteria for urgent transplantation provide a really small window for action, and that they got to undergo transplantation, as soon as possible. There's a one hundred pc mortality if these selected patients don't undergo transplantation and this is often either thanks to liver failure intrinsically or due to sepsis and multiorgan failure. Patients with subacute failure have a poor outcome with almost universal mortality if not transplanted these patients might require transjugular liver biopsy to determine the presence of massive or submassive liver cell necrosis. Timely referral is vital within these patients because in the absence of transplantation death may occur from sepsis and cerebral oedema. There are several scoring systems for listing a patient for urgent liver transplantation: King's College criteria, UK Blood and Transplant criteria, Clichy criteria (acute viral hepatitis), and Wilson's prognostic index/revised Wilson's prognostic index (Wilson's disease with fulminant hepatitis).

Chronic disease

Patients who have a projected 1-year mortality of 10% without liver transplantation get entry into the roll . aside from their CTP and MELD scores, the united kingdom Liver Transplant Units have developed a replacement rating system to predict the mortality of such patients. This is often the uk model for end-stage disease (UKELD) score—which is calculated by using the patient's serum bilirubin, INR, creatinine, and sodium levels. Patients with a UKELD score of quite 49 fall under the standards for listing. This score is dynamic and is reassessed over a period of your time.

Alcoholic disease (ALD)

A patient with ALD who is abstinent for a period of a minimum of 3–6 months and who has had an evaluation with a psychiatrist is listed for transplantation if he features a CTP score of ≥ 7, portal hypertensive bleed, or an episode of spontaneous bacterial peritonitis. These patients may have a concurrent infection with hepatitis B or C virus which needs evaluation. They're also more susceptible to develop hepatoma. A period of abstinence is mandatory to make sure that they are doing not relapse and also to offer an attempt of an alcohol-free period during which the liver function might recover. The amount of abstinence isn't uniform, however, but presently a 6-month rule of abstinence is usually followed in US and European liver transplant programmers.

Acute alcoholic hepatitis (AAH) may be a contra-indication for liver transplantation because the required period of abstinence is lacking, and there's little or no and mixed experience of liver transplantation during this situation. The severity of AAH is assessed using the Maddrey discriminant function (DF) score which predicts the danger of early death. Patients with a DF score of ≥ 32 are placed on medical therapy. There are recent reports from France where transplantation is being proposed for patients with AAH; however, it's still not accepted as a sign elsewhere.

Viral Hepatitis

Hepatitis C virus (HCV)-related chronic disease is that the commonest indication for liver transplantation within. It's important to understand the pretransplant viral load and genotype; this helps in predicting the prognosis after transplantation. Patients with decompensated HCV-related chronic disease don't tolerate interferon therapy, and people with high viral loads have a high chance of recurrence within the new graft. consistent with the International Liver Transplantation Society (ILTS) guidelines patients with a child's score of 8–11 could also be considered for antiviral treatment while they're listed for transplantation however, there are very high chances of adverse events. Posttransplantation serological recurrence is universal in patients who have viraemia at the time of transplantation. Patient survival is adversely suffering from the pretransplant viral load and cytomegalovirus status, advanced recipient age, hyperbilirubinaemia, a raised INR, and advanced donor age. Retransplantation within the se patients with recurrent HCV infection and cirrhosis is controversial in the setting of DDLT. The efficacy of antiviral therapy within the presence of a recurrence is questionable. Patients with early (within one year) aggressive recurrence and graft failure have a poor outcome following retransplantation.

Hepatitis B virus-related chronic disease is another common indication for transplantation, and this was previously also related to a high prevalence of recurrent infection within the graft. However, the supply of hepatitis B immunoglobulin (HBIG) and oral nucleoside or nucleotide therapy reinfection of the graft and recurrent hepatitis B

***Corresponding author:** Thomas Martens, Department of Surgery, Ghent University Hospital, Belgium, E-mail: Thom.martens@ugent.ir

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disease is rare. The duration of HBIG therapy and oral antiviral therapy remains controversial; a couple of programmes give HBIG for one year while others are using it life long.

Cholestatic disease

The severity of cholestatic liver diseases like primary biliary cirrhosis(PBC) and first sclerosing cholangitis (PSC) is taken into consideration aside from using the child's score (≥ 7) and therefore the Mayo models for PSC and PBC with a risk procedures (endoscopic or percutaneous), intractable itching, xanthomatous neuropathy, and severe metabolic bone disease are a number of the opposite indications for transplantation, score predicting>than 10% mortality at one year without transplantation. Quality of life issues like recurrent cholangitis requiring repeated drainage.

In paediatric patients, biliary atresia and sclerosing cholangitis are the most typical cholestatic disorders requiring transplantation, with biliary atresia being the foremost cause (60-70%) in those undergoing liver transplantation. Liver transplantation is required in most patients with biliary atresia regardless of a previous Kasai's procedure. Other cholestatic disorders which may cause cirrhosis and decompensation requiring transplantation are the Alagille syndrome and Byler's disease.

Hepatic Malignancy

Cirrhosis is related to a 2 to eight annual incidence of hepatoma . Liver transplantation has become the mainstay of treatment for HCC within the early stages, because it offers the advantage of not only being curative, thus, minimizing the danger of recurrence; it also takes care of the complications related to the underlying cirrhosis. There are several criteria for listing these patients for transplantation. they need been modified over a period of your time so on include as many patients who would enjoy transplantation and who would have a 5-year survival of >50%. The Milan criteria defines early stage HCC as those with one lesion <5 cm, or no quite 3 lesions, with none>than 3 cm, within the absence of vascular invasion and metastases. However, using the University of California, San Francisco , (UCSF) criteria (a single lesion ≤ 6.5 cm or 3 or fewer lesions with the most important being ≤ 4.5 cm and a complete tumour burden of 8 cm or less), patients had an identical outcome following transplantation compared to those within the Milan criteria. The MELD score in patients with HCC could be low, and this might prevent these patients from being given priority or maybe being listed in spite of the very fact that their disease is fatal if left untreated. Because these patients are prioritized depending upon the stage of the tumour, those with T1 lesions are given a score of 20, and T2 lesions a score of 24. While expecting transplantation, they typically undergo either transarterial chemoembolisation or radiofrequency ablation as a "bridge" to more definitive therapy.

Other uncommon primary malignancies of the liver which are indications for transplantation are epitheloid haemangioendothelioma and hepatoblastoma. Metastatic lesions of the liver have a poor prognosis; hence, they are doing not form a sign for transplantation; however, neuroendocrine tumors after the removal of the first may have an honest outcome following the procedure.

Metabolic disease

Metabolic liver diseases which cause decompensation and irreversible damage are indications for transplantation. These include hepatolenticular degeneration , hereditary haemochromatosis, and α 1-antitrypsin disease. They also affect other organ systems; hence, pretransplant evaluation includes assessment of the concerned system to rule out systemic disease which might otherwise preclude transplantation. Other metabolic disorders, which affect extrahepatic organs while the synthetic liver functions are intact like Type-1 hyperoxaluria or familial homozygous hypercholesterolaemia, are indications for transplantation because the concerned disorder gets corrected. In childhood, the metabolic disorders which form a sign for transplantation are the urea cycle defects, Criggler-Najjar syndrome, tyrosinaemia, and CF.

Vascular Disorders

The Budd-Chiari syndrome is characterized by obstruction to the hepatic venous outflow either at the extent of the hepatic veins and/or the inferior vein, it's related to myeloproliferative disorders (50%), malignancy (10%), hypercoagulable states (15%), webs within the IVC, and paroxysmal nocturnal haemoglobinuria (5%). No cause is found in about 20% of patients. Indications for transplantation in these patients are established cirrhosis and acute decompensation. These patients generally require life-long anticoagulation after the transplant procedure.

Miscellaneous

Complicated polycystic disease (combined with or without kidney disease) with haemorrhage, infection, pain, massive cystic enlargement, malignant hypertension, biliary obstruction, and infrequently malignant transformation also forms a sign for liver transplantation. These patients may need well-preserved synthetic functions. Auto immune hepatitis (AIH) either alone or as an overlap syndrome with PSC/PBC is another indication for transplantation. It's important to spot the AIH as these patients require life-long low-dose steroids. Nonalcoholic steatohepatitis is another explanation for cirrhosis which could require transplantation.