

Liver transplantation: Uses, Risks and Special population

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Introduction

Liver transplantation or hepatic transplantation is that the replacement of a diseased liver with the healthy liver from another person (allograft). Liver transplantation may be a treatment option for end-stage disease and acute liver failure, although availability of donor organs may be a major limitation. The foremost common technique is orthotopic transplantation, during which the native liver is removed and replaced by the donor organ within the same anatomic position because of the original liver. The surgery is complex, requiring careful harvest of the donor organ and meticulous implantation into the recipient. Liver transplantation is very regulated, and only performed at designated transplant medical centers by highly trained transplant physicians and supporting medical team. The duration of the surgery ranges from 4 to 18 hours depending on the outcome. [medical citation needed] Favorable outcomes require careful screening for eligible recipient, also as a well-calibrated live or cadaveric donor match. [medical citation needed].

Uses

Liver transplantation may be a potential treatment for acute or chronic conditions which cause irreversible and severe ("end-stage") liver dysfunction. Since the procedure carries relatively high risks, is resource-intensive, and requires major life-modifications after surgery, it's reserved for dire circumstances.

Judging the appropriateness/effectiveness of liver transplant on a case-by-case basis is critically important (see Contraindications), as outcomes are highly variable.

Risks

Graft rejection

After a liver transplantation, immune-mediated rejection (also referred to as rejection) of the allograft may happen at any time. Rejection may present with lab findings: elevated AST, ALT, GGT; abnormal liver function values like prothrombin time, ammonia level, bilirubin level, albumin concentration; and abnormal blood sugar. Physical findings may include encephalopathy, jaundice, bruising and bleeding tendency. Other nonspecific presentation may include malaise, anorexia, muscle ache, low fever, slight increase in white blood count and graft-site tenderness.

Three sorts of graft rejection may occur: hyper acute rejection, acute rejection, and chronic rejection.

- Hyperacute rejection is caused by preformed anti-donor antibodies. It's characterized by the binding of those antibodies to antigens on vascular endothelial cells. Complement activation is involved and therefore the effect is typically profound. Hyperacute rejection happens within minutes to hours after the transplant procedure.

- Acute rejection is mediated by T cells (versus B-cell-mediated hyperacute rejection). It involves direct cytotoxicity and cytokine mediated pathways. Acute rejection is that the commonest

and therefore the primary target of immunosuppressive agents. Acute rejection is typically seen within days or weeks of the transplant.

- Chronic rejection is that the presence of any sign and symptom of rejection after one year. The explanation for chronic rejection remains unknown, but an acute rejection may be a strong predictor of chronic rejections.

Complications

Biliary complications

Biliary complications include biliary stenosis, biliary leak, and ischemic cholangiopathy. The danger of ischemic cholangiopathy increases with longer durations of cold ischemia time, which is that the time that the organ doesn't receive blood flow (after death/removal until graft placement).

Vascular complications

Vascular complications include thrombosis, stenosis, pseudoaneurysm, and rupture of the arteria hepatica. Venous complications occur less often compared with arterial complications, and include thrombosis or stenosis of the hepatic portal vein, vena hepatica, or vein.

Donor requirements

- Any member of the family, parent, sibling, child, spouse or a volunteer can donate their liver. The criteria for a liver donation include:
 - Being in good health
 - Having a blood group that matches or is compatible with the recipient's, although some centres now perform blood type incompatible transplants with special immunosuppression protocols. [medical citation needed]
 - Having a charitable desire of donation without financial motivation
 - Being between 20 and 60 years old (18 to 60 years old in some places)
 - Have a crucial personal relation with the recipient
 - Being of comparable or larger size than the recipient
 - Before one becomes a living donor, the donor must undergo testing to make sure that the individual is physically fit, in

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excellent health, and not having uncontrolled high vital sign, disease, diabetes or heart condition. Sometimes CT scans or MRIs are done to image the liver. In most cases, the workout is completed in 2–3 weeks.

Benefits

- There are several advantages of living liver donor transplantation over cadaveric donor transplantation, including:
- Transplant are often done on an elective basis because the donor is quickly available
- There are fewer possibilities for complications and death than there would be while expecting a cadaveric donor
- Because of donor shortages, UNOS has placed limits on cadaveric organ allocation to foreigners who seek medical help within the USA. With the supply of living donor transplantation, this may now allow foreigners a replacement opportunity to hunt medical aid within the USA.

Special population

Alcohol dependence

The high incidence of liver transplants given to those with alcoholic

cirrhosis has led to a recurring controversy regarding the eligibility of such patients for liver transplant. The controversy stems from the view of alcoholism as a self-inflicted disease and therefore the perception that those with alcohol-induced damage are depriving other patients who might be considered more deserving. It's a crucial part of the choice process to differentiate transplant candidates that suffer from alcoholism as against those that were vulnerable to non-dependent alcohol use. The latter who gain control of alcohol use have an honest prognosis following transplantation. Once a diagnosis of alcoholism has been established, however, it's necessary to assess the likelihood of future sobriety.

HIV

Historically, HIV was considered an absolute contraindication to liver transplantation. This was partially thanks to concern that the infection would be worsened by the immunosuppressive medication which is required after transplantation.

However, with the arrival of highly active antiretroviral therapy (HAART), people with HIV have much improved prognosis. Transplantation could also be offered selectively, although consideration of overall health and life circumstances should be limiting. Uncontrolled HIV disease (AIDS) remains an absolute contraindication.