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LIVER TRANSPLANTATION IN THE USA

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Liver transplantation or hepatic transplantation is the replacement of a diseased liver with some or all of a healthy liver from another person (allograft). The most commonly used technique is orthotopic transplantation, in which the native liver is removed and replaced by the donor organ in the same anatomic location as the original liver. Liver transplantation is a viable treatment option for end-stage liver disease and acute liver failure. Typically three surgeons and two anesthesiologists are involved, with up to four supporting nurses. The surgical procedure is very demanding and ranges from 4 to 18 hours depending on outcome.

Before transplantation, liver-support therapy might be indicated (bridging-to-transplantation). Artificial liver support like liver dialysis or bioartificial liver support concepts are currently under preclinical and clinical evaluation. The transplant operation can be conceptualized as consisting of the hepatectomy phase, the anhepatic phase, and the postimplantation phase. The operation is done through a large incision in the upper abdomen. The hepatectomy involves division of all ligamentous attachments to the liver, as well as the common bile duct, hepatic artery, hepatic vein and portal vein. Usually, the retrohepatic portion of the inferior vena cava is removed along with the liver, although an alternative technique preserves the recipient's vena cava ("piggyback" technique). The donor's blood in the liver will be replaced by an ice-cold organ storage solution until the allograft liver is implanted. Implantation involves anastomoses of the inferior vena cava, portal vein, and hepatic artery. After blood flow is restored to the new liver, the biliary anastomosis is constructed, either to the recipient's own bile duct or to the small intestine. A major advance in pediatric liver transplantation was the development of reduced size liver transplantation, in which a portion of an adult liver is used for an infant or small child. Further developments in this area included split liver transplantation, in which one liver is used for transplants for two recipients, and living donor liver transplantation, in which a portion of a healthy person's liver is removed and used as the allograft. Living donor liver transplantation for pediatric recipients involves removal of approximately 20% of the liver. Further advance in liver transplant involves only resection of the lobe of the liver involved in tumors and the tumor-free lobe remains within the recipient. This speeds up the recovery and the patient stay in the hospital quickly shortens to within 5–7 days.

Many major medical centers are now using radiofrequency ablation of the liver tumor as a bridge while awaiting for liver transplantation. A stable, trusting patient-physician relationship is, therefore, crucial if a patient is to have the best possible outcome after liver transplantation. Psychological and social support are necessary to ensure good patient compliance with medication and with lifestyle modifications, and to prevent recurrent alcohol abuse. In the future, immunosuppressive drugs that are already being investigated in clinical multicenter trials could offer approaches to the immunosuppressive treatment to a patient’s individual needs, and thereby improve tolerability and patient adherence to treatment. The transplant team provides both the donor and family thorough counseling and support which continues until full recovery is made.