



Role of Liver in Human Life and Importance of Liver Donation in Today's Era

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Abstract

The liver is an essential organ in the upper right part of the abdominal cavity, below the diaphragm and above the stomach. It consists of four lobes: the larger right and left lobes, and the smaller caudate and quadrate lobes. The right and left lobes are divided by the falciform ligament, a sickle-shaped structure that connects the liver to the abdominal wall. Internally, the liver is segmented into eight parts, each made up of thousands of small lobules. Liver metabolizes nutrients, drugs and hormones; creates bile to digest fats, manufactures proteins which involved in blood clotting; detoxifies the body by removing bacteria and toxins from the blood; and assists immune responses to suppress infection. When liver get damage, then liver transplantation may requires as their liver cannot continue to function properly. This procedure requires early detection of living donor, consideration of grafting technique and reduced preservation related complications. Studies attest that organs donated by living donors tend to provide superior results over those donated by deceased donors. This article explores role of liver in human life and importance of liver donation in current scenario.

Key-Words: *Liver, Transplantation, Organ Donation, Hepatitis, Cirrhosis*

Introduction

The liver is the body's largest internal organ and is responsible for overall health by performing a variety of vital functions. The lobules have ducts that drain bile into the common hepatic duct. Liver secretes bile to assist digestion and waste elimination. Everything absorbed from the intestines and the stomach goes through the liver, where it gets processed as nutrients, neutralizes toxins and metabolizes drugs. Primary functions involve the production of bile to digest fats, protein synthesis, glucose storage and iron storage from degraded hemoglobin, conversion of ammonia to urea, detoxification of toxins, immune protection by producing immune factors and bilirubin removal [1-3].

Significance of liver

- ✓ Liver cleanses the blood by converting toxins into less harmful forms that can be eliminated safely. These include drugs, alcohol and other toxic chemicals.
- ✓ It secretes bile, to digest and absorb fats.
- ✓ Liver regulates blood glucose levels and releasing it when the body needs stored energy.
- ✓ It produces proteins which are responsible for blood clotting and facilitate eliminations of waste protein in the form of urea.
- ✓ The liver metabolizes fats and cholesterol and carry fats in the bloodstream.
- ✓ It serves as a reservoir for essential vitamins and minerals such as iron and vitamin A, releases them in accordance with the body's demand.
- ✓ Liver supports immune defense by detoxifying bacteria in the blood and manufacturing immune-related compounds.

As mentioned above liver is very important for physiological functioning of body since it is the largest internal organ, when the liver can no longer function appropriately as a result of chronic liver disease or acute failure then liver transplant might be required. The operation consists of removing the diseased liver and replacing it with a healthy one, either from a donor who has died or a segment of liver from a living donor. Liver transplant is usually reserved for patients with severe complications of end-stage liver disease or, exceptionally, for individuals with sudden liver failure [4-6].

Need of Liver Transplantation

When the liver is seriously damaged and unable to perform functions, person's health and quality of life decline seriously. Liver transplantation is an option and living donor partial liver transplant is preferred because the liver is capable of re growing to its normal size in both donor and recipient. Liver transplants are employed to cure both acute and chronic liver failure. Acute liver failure, which happens suddenly within weeks, is uncommon and usually associated with drug complications. Figure 1 depicted major condition where liver transplantation may required for saving diseased life.

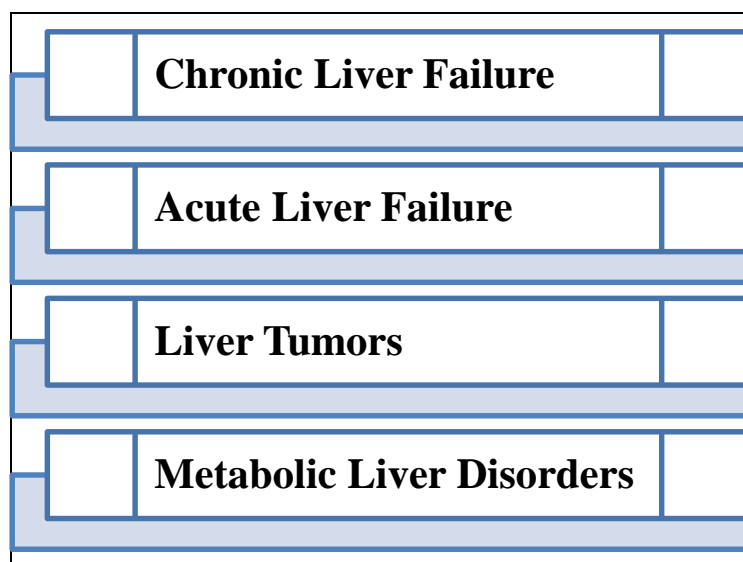


Figure 1: Major Health Issues Requires Liver Transplantation

Transplants are more frequently required for chronic liver failure, which develops slowly over months or years. The leading etiology of chronic liver failure is cirrhosis, an illness where liver function is lost due to replacement of healthy liver tissue with scar tissue. Cirrhosis may be a consequence of several underlying conditions, such as hepatitis B and C, chronic alcoholism, fatty liver disease and genetic diseases like Wilson's disease. Other conditions that can result in a liver transplant are diseases of the bile ducts, like primary biliary cirrhosis, primary sclerosing cholangitis and biliary atresia, etc. Many livers have been transplanted world widely and large number of individuals on the waiting list for a transplant, indicating the continued demand for additional donors and the importance of transplantation in saving lives. Prior to a liver transplant, there are various tests conducted to determine health of receiver and donor to comply success of the procedure, these include [5-7]:

- ✚ Tests in the laboratory like blood and urine tests to determine the health of organs.
- ✚ Imaging studies, such as an ultrasound, to check the health of liver.
- ✚ Heart tests to determine the wellness of cardiovascular system.
- ✚ Routine health examination, which encompasses regular screening and other tests to detect any possible health problems that may impact the success of the transplant.

Importance of Donation

Living donor partial liver transplantation provides a chance to save someone life and in this process both donor and receiver survive after the successful completion of process. This process not only changes the life of the recipient but also profoundly affect their loved ones. Although there are numerous advantages of living donation, it is worth knowing the risks involved before proceeding with donation. Only a small percentage of liver transplants annually are from living donors. In such situations, a section of a healthy liver is taken surgically from a donor and implanted in the recipient. The method is initially employed mainly for children, because there were limited numbers of appropriate livers from deceased donors, but it is increasingly becoming a useful option for adults with end-stage liver disease [8-10].

Living-donor liver transplanting saves patients from possible health problems related to prolonged waiting for deceased-donor organs. The majority of living liver donors are close friends or relatives of the patient requiring a transplant. Results of living-donor liver transplants are usually similar to those of deceased-donor transplants. Potential donors have to go through extensive medical and psychological testing to make sure they are a safe candidate and healthy enough for the surgery. In general, more than 50 % individuals who receive a liver transplant survive at least five years following the operation. Living-donor recipients tend to have superior short-term survival results compared with patients receiving livers from deceased donors [9-11].

Complications of the procedure

Liver transplant surgery involves the risk of severe complications. These complications result not only from the surgery itself but also from the drugs taken to prevent rejection of the donor liver by the body after transplantation. Risks of liver transplant surgery may includes complications with bile ducts, such as leaks or

obstruction of the bile ducts, bleeding, blood clots, infection, donor liver rejection and mental confusion, etc [10, 11].

Conclusion

The liver has a critical function in keeping the body as a whole healthy by its role in digestion, metabolism, detoxification, storage of nutrients and immune protection, etc. When the liver is severely impaired by diseases such as hepatitis, acute liver failure and cirrhosis, etc. transplantation is an essential, life-saving measure. Liver transplantation from a deceased or living donor provides hope and a second chance at life for patients with end-stage liver disease. Progress in medical treatment, as well as growing perception of the role of organ donation, continues to enhance transplant performance. The liver transplantation procedure is not without risks for the donor, so careful evaluation and support are crucial throughout the process.

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