

Liver Transplant

What is a Liver Transplant?

- A liver transplant is the replacement of a diseased liver with a healthy liver.¹
- When a patient receives a liver transplant, his or her entire liver is removed. It is then replaced by either a complete new liver or a portion of a healthy liver.
- Once transplanted, a piece of a healthy liver can grow into a normal-size liver.
- From 1999-2003, over 4,854 liver transplants were performed in China.²
- The first successful liver transplant in Hong Kong was performed in October 1991.
- In 2007, 69³ liver transplants were performed in Hong Kong.

When is a Liver Transplant needed?1

- A healthy liver can restore itself from the effects of infection, alcohol and drugs.⁴
- However, liver cells can be gradually be destroyed if too much strain is placed on them.
- This can cause chronic (long-term or acute) liver disease such as hepatitis, cirrhosis, liver cancer and alcohol-related illnesses.
- Liver transplantation will only be needed if treatments of liver disease are no longer helpful or if the liver disease is at an irreversible stage which threaten the patient's life.
- The most common cause of liver failure is cirrhosis, which is the scarring and subsequent death of liver cells.
 - Cirrhosis caused by hepatitis is the most common reason for liver transplants worldwide. In Asia, the prevalence is highest from hepatitis B
- Other conditions that may ultimately require a liver transplant include:
 - Diseases of the bile ducts, which can cause liver failure if there is a backup of bile in the liver.
 - Some inherited diseases, including Wilson disease, in which dangerous levels of copper build up in the body, and haemochromatosis, where the liver is overwhelmed by iron
 - Primary liver cancer or cancer that affects only the liver
 - Cirrhosis caused by alcohol abuse

Who is eligible for a liver transplant?

- There are many more people who require a liver transplant than there are livers available for donation. Patients will be examined by a team of specialists from a variety of fields to determine if a liver transplant is appropriate and likely to succeed.
- This interdisciplinary healthcare team may include the following professionals.⁵
 - Liver specialists (hepatologists)
 - Transplant surgeons
 - Clinical psychologists to help patients deal with issues, such as anxiety and depression, which often result from liver transplantation
 - Anesthesiologists to discuss potential anaesthesia risks
 - Intensive care team for perioperative case

What is the average amount of time that patients wait for a donated liver?

- The time that people spend waiting for a liver transplant varies widely.
- Blood type, body size, severity of illness and availability of donor organs all affect waiting time.
- Some people who develop sudden and complete liver failure from an acute illness may only have to wait a few days for a transplant.
- Other people, whose condition is less severe, may stay on the waiting list for many months.

What tests are required before undergoing a liver transplant? ⁵

- Before undergoing a liver transplant, chest X-rays, liver biopsy slides and a record of medications will be needed for evaluation
- Additional tests may be performed during evaluation if specific problems are identified:
 - Computed tomography, which uses X-rays and a computer to generate pictures of the liver, showing its size and shape
 - Doppler ultrasound to determine if the blood vessels to and from the liver are not obstructed
 - Echocardiogram to help evaluate the heart

In addition to an evaluation of liver disease, cancer, alcohol and drug abuse, potential donors will also be tested for hepatitis, blood, AIDS, pulmonary function studies and other infections.

Where do donated livers come from?

- Livers for transplantation can come from deceased donors or living donors.
- In both cases, a donated liver will be matched to the patient by blood type and body size.
- Age, race, and sex are not considered.
- In most cases, the new liver or liver tissue comes from a deceased donor.
- However, it is becoming more common for patients to receive liver tissue from a living donor.
- In recent years, living donor liver transplant has out-numbered deceased donor liver transplant and accounts for about two-thirds of all the liver transplants performed in Hong Kong.

Deceased Donor

- The deceased donor may be a victim of an accident or head injury. His or her heart is still beating, but the brain has permanently and irreversibly stopped responding, a condition known as brain stem death.
- The heart continues to beat because the donor is attached to a respirator, which delivers an adequate supply of oxygen to all vital organs.
- Either deceased donors have arranged in advance to be organ donors or their family grants permission for organ donation when the victim is declared brain dead.

Living Donor

- Living donor liver transplant is an option for some patients with end-stage liver disease, in which a segment of a liver from a healthy living donor will be implanted into a recipient.
- This is possible because the liver is the only organ that can regenerate itself.
- Both the donor and recipient liver segments will grow to normal size in a few weeks.
- Living donors are generally family members or close relatives of the patient as blood type and body size are critical factors in determining who is an appropriate donor.
- In a living donor transplant, the recipient's health must be stable enough to undergo transplantation. If so chances of success are excellent.

What happens during transplant surgery?

- Liver transplant surgery takes between six and twelve hours.
- During the operation, doctors remove the diseased liver and replace it with the donated liver.
- Several tubes will be placed in the patient's body to help carry out certain functions during the operation, and for a few days afterward.
- Most patients stay in the hospital for up to three weeks after surgery.

The results of Liver Transplants

- The results of liver transplantation have been improving steadily. Within one year, the survival rate is around 90% with the five-year survival rate around 75-80%.
- In Hong Kong, the 1-year and 5-year patient survival rates are over 90% and 80%, respectively, which exceeds international norms. 錯誤! 尚未定義書籤。

- The recurrence rate of hepatitis B has been reduced to only 3.8%.⁶
- Factors contributing to the increased success rate include improved anaesthetic and surgical techniques, enhanced donor organ preservation, better recipient selection, and more specific management of transplant rejection.⁷

The complications of Liver Transplants

- The most common complications following liver transplantation are rejection and infection.
- Rejection: The immune system works to destroy foreign substances that invade the body, so it may attempt to attack and destroy the new liver. Anti-rejection medications are given to ward off the immune attack.
- Infection: As anti-rejection drugs are used to suppress immune system to prevent the liver from being rejected, the risk of infection increases.
- Some people may also develop diabetes, high blood pressure and high cholesterol.

Post-Liver Transplant Care

- Most patients can return to a normal or near-normal lifestyle six months to a year after a successful liver transplant.
- They must understand the requirements after Liver transplantation, and face the challenges brought along by long-term immunosuppression, such as lifestyle and hygiene changes and the need for chronic medication⁷
- Patients are also advised to quit smoking and drinking and avoid exposure to people with infections.⁸
- Maintaining a balanced diet, getting regular exercise and staying on prescribed medications, are all important ways to stay healthy.
- Support from family and the community, as well as the health system are essential for good post-transplant outcomes.

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