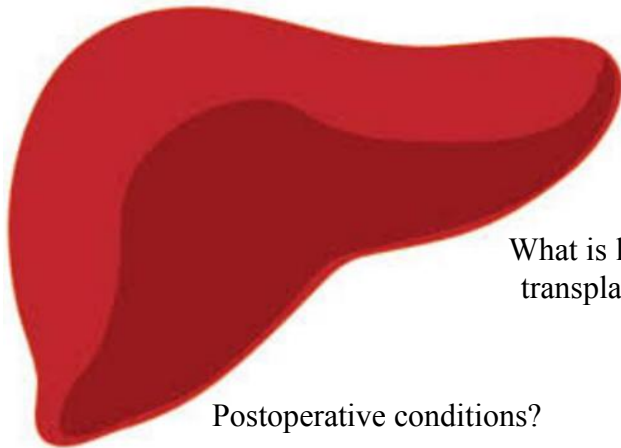


Information for patients (and their families) waiting for liver transplantation

Waiting list?



What is liver
transplant?

Postoperative conditions?

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What is a liver transplant?

Liver transplantation is the best treatment for end-stage liver disease in both adults and children. In this operation, the diseased liver is removed and replaced by a healthy one. The success rate for the operation is high and terminally ill patients can return to normal life. The liver transplant service in Queen Mary Hospital was initiated in 1991. Until now, over 1300 liver transplants have been performed and the success rate is over 90%.

Who needs a liver transplant?

The following diseases are common indications for liver transplantation:

1. Cirrhosis due to chronic hepatitis B, hepatitis C or other causes
2. Acute liver failure
3. Metabolic diseases e.g Wilson's disease
4. Selected patients with early liver cancer and poor liver function
5. Biliary atresia

When should a liver transplant be performed?

When your liver is severely damaged and cannot function properly, the following complications may develop and liver transplantation should be considered:

1. Hepatic coma
2. Massive upper gastrointestinal bleeding
3. Abdominal distension from fluid collection and ankle edema
4. Infection of fluid in the abdomen
5. Bleeding tendency
6. Jaundice (yellowing of the eye balls)
7. General weakness and malaise resulting in poor quality of life
8. Liver cancer best treated by complete removal of the liver
9. Failure to grow in children

In general, when you need a new liver, the earlier the operation is, the higher the success rate will be.

What will happen after a liver transplant?

The overall success rate of a liver transplant is over 90% and the majority of liver transplant recipients can return to normal activities. Since your body may reject the new liver, it is essential for you to take immunosuppressive medications and continue these medications for a very long period of time, but at a reducing amount.

Where does the liver graft come from?

Your new liver can come from 2 sources: 1. a brain-dead cadaveric donor, 2. a living donor.

I. Brain-dead cadaveric donor

After you have gone through the clinical assessment to confirm the need for a liver transplant, you will be put on a waiting list of the Central Registry for brain-dead cadaveric liver graft which will be allocated according to the following criteria:

- Your blood group matching
- The urgency of your operation (based on the severity of your liver disease according to the MELD score for adult patients and pediatric patients of 12-17 years of age, or the PELD score for pediatric patients under 12)
- Your waiting time

The Central Registry assigns the priority of allocation of cadaveric livers among patients on the basis of objective clinical parameters to ensure that donated livers are allocated to patients with the most urgent needs. The Central Registry adopts the internationally recognized MELD (Model for End-stage Liver Disease) and PELD (Pediatric End-

stage Liver Disease) scoring systems to compute the pre-transplant death risk score of patients. As a higher MELD/PELD score indicates more urgent conditions, priority will be given to the patient with the highest score. Where there is a potential cadaveric liver graft, the Liver Transplant Coordinator will check through the lists of patients on the Central Registry with identical blood group as the cadaveric liver donor and identify the patient with the highest MELD/PELD score. The Liver Transplant Coordinator will then inform this patient that he or she may undergo the transplant operation.

MELD stands for Model for End-stage Liver Disease. It is a scoring system used for liver allocation in adult patients and pediatric patients aged between 12 and 17. The score predicts a patient's risk of dying within 3 months without transplantation. It is calculated by a formula based on the patient's serum total bilirubin, creatinine and INR readings. The score range from a minimum of 6 to a maximum of 40 (patients with a score higher than 40 are not given extra priority). The score is updated regularly to reflect the changing condition of each patient. The scoring system makes sure that the liver is allocated to the most critical patient with the highest score at that time on the waiting list.

PELD stands for Pediatric End-stage Liver Disease. It is scoring system used for liver allocation in pediatric patients under 12. The score predicts a patient's risk of dying within 3 months without transplantation. It is calculated by a formula based on the patient's serum total bilirubin, albumin, INR readings, growth failure (based on sex, body weight and body height), and age at listing. The scores range from -10 to 40 or higher and is also updated regularly.

MELD score cannot reflect the need for liver transplant in patients suffering from metabolic diseases or liver cancer. Hence, to ensure that these patients have a fair chance to receive a liver graft, at a similar waiting time, the MELD score of these patients will be adjusted and additional points will be added according to waiting time.

Patients' medical conditions and MELD score may change over time during the waiting period. Hence, their scores and ranking on the Central Registry are subject to constant changes accordingly and doctors will not be able to inform them of their exact ranking on the Central Registry. Nevertheless, patients may contact our doctors or Liver Transplant Coordinator to enquire about their disease status and prognosis.

Cadaveric organ donation requires consent from the donor's family and there is no monetary reward. The timing of such donation is unpredictable and the operation usually starts at night. You may be called into the hospital at any time on any day once you are put on list. It is therefore necessary for you to carry a mobile phone and be prepared to report to the hospital **within 2 hours** of receiving the call. You should make sure that your telephone numbers are updated in our hospital computer system, so that Liver Transplant Coordinators can contact you successfully. Necessary changes can be made at S4 Out-patient Clinic register counter or admission office.

Unfortunately, the supply of cadaveric livers in Hong Kong is limited and for the past few years, an average of only 20-30 liver grafts is available each year. Depending on your blood group, you may have to wait for 12-36 months or even longer before you get a new liver. During this waiting period, you may develop complications and your condition may deteriorate. In fact, at Queen Mary Hospital, about 40% of patients die before getting a new liver and for those acutely ill patients waiting in the intensive care unit, less than 10% will be able to receive a cadaveric liver graft in time.

When a potential cadaveric liver graft is allocated to you, you will be called to be admitted to the hospital by our liver transplant coordinator. You should inform your family members of the situation and start fasting immediately. It will be useful to bring along all your prescribed medications to the hospital. A series of tests and investigations (ie.

Blood tests, cultures, ECG and chest X-Ray) and assessment by the anesthetist will be performed on you promptly after admission. Our transplant surgeons in the ward will explain to you the nature, purpose and risks of the operation. You are also required to sign a consent form regarding the success rate, the complication rate, a chance that the operation cannot be accomplished and a risk of cancer or disease transmission from the cadaveric organ. For an adult patient who is comatose or mentally incapacitated, the patient's guardian or next-of-kin should sign the consent form. For a minor patient (aged under 18 years) who is unfit or unable to sign the form, the patient's parent, guardian or next-of-kin should sign the form.

It is important for you and your family to understand that assessments and investigations on the potential cadaveric donor are ongoing and unexpected changes may happen to the donor's medical conditions. There are certain circumstances that may render the donor unsuitable for donation even when you have been admitted to the hospital.

In case the transplant operation is unable to proceed, you will be discharged from the hospital & follow up in out-patient clinic.

2. Living donor

It is now technically feasible to remove part of the liver from a living person and transplant it to a patient who needs a new liver. The operation has been developed for children since 1989 and for adult patients since 1994. Depending on the size matching of the donor and the recipient, either the left side (about 35%) or the right side (65%) of the liver will be removed from donor. The remaining liver in the donor will grow to 80% of its original size in 4 to 6 weeks' time.

In considering the option of living donor liver transplantation, you should carefully balance the benefits for the recipient against the risks for the living donor.

Benefit for the recipient in terms of living donor liver transplantation

- Earlier transplantation before the recipient's condition deteriorates
- Avoid the risk of death while waiting for a cadaveric liver graft(40% overall and 90% for patients in the intensive care unit)
- A living donor liver transplant can be often be arranged within 1 months' time after both the donor & the recipient have completed work up.

Description of recipient operation

A skin incision similar but longer than that of the donor will be made. On entering the abdomen, the surgeon will decide whether it is feasible to proceed with the operation. The operation may have to stop if:

1. severe adhesion that prevents dissection of the liver as well as its inflow and outflow blood vessels is present (severe adhesion is usually due to recurrent infection and previous operation in the abdominal cavity); or
2. cancer spread is found

Despite meticulous effort to rule out the above possibilities, there is still a chance that the preoperative assessment fails to diagnose a condition that makes the transplant not feasible.

After excluding any condition that contraindicates liver transplantation, the surgeon will remove the diseased liver. When the liver graft is ready, it is implanted into the original position of the diseased liver. The surgeon then connects the relevant blood vessels and the bile duct. The whole operation may take about 12 hours or longer, depending on the patient's condition.

Recipient Mortality & Morbidity

- *recipient's death rate: 10%*
(including death during operation, early after the

operation & secondary to major complications)

- *complication rate: 30%*

Description of recipient postoperative conditions

After the operation, the recipient will be treated in the Intensive Care Unit. The duration of stay in the Intensive Care Unit depends on the rapidity of the recipient's recovery.

Some major complications include:

- thrombosis of the hepatic artery, hepatic vein or portal vein
- primary graft non-function
- delayed graft function
- bile duct complication
- graft failure due to hepatitis, recurrent disease or rejection
- intra-abdominal bleeding
- sepsis
- renal failure
- recurrence of liver cancer

Some minor complications include:

- wound infection
- chest problem (infection, pleural effusion or pulmonary edema)
- diabetes mellitus
- hypertension

It is emphasized that standard clinical history and necessary evaluations are taken for all potential cadaveric donors and living donors before donation to ensure the suitability of the organs for transplantation.

However, despite our best effort to rule out the possibility of cancer or disease transmission to recipients through organ donation, pre-transplant diagnosis of some occult diseases may not be feasible because of various reasons like asymptomatic disease, window period of infection or endured time required for tests. However, the recipient will be informed once such diagnosis is known. The risk of transmission is low yet it cannot be totally eliminated.

If you have any questions, please contact our Liver Transplant Coordinators: Ms. Ho, Ms. Kwan, Ms. Chik and Ms. Lam.

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