

Liver Transplant

Overview

When irreversible liver failure occurs, the only option for treatment is for the patient to have a liver transplant. A liver transplant is when a patient undergoes surgery to remove a diseased or malfunctioning liver to be replaced with a complete or portion of a healthy liver that has been donated by another person.

There are two main types of donation:

Orthotopic liver transplantation is a procedure in which the liver donor is someone who has recently died. This is the most common form of transplant.

Living donor transplant is when a healthy person donates part of their liver to the recipient. Frequently used as an option in children, where the donor is an adult, because child sized livers are in such short supply. This form of transplant is becoming more popular due to the shortage of deceased liver donors.



Preparing for a Transplant

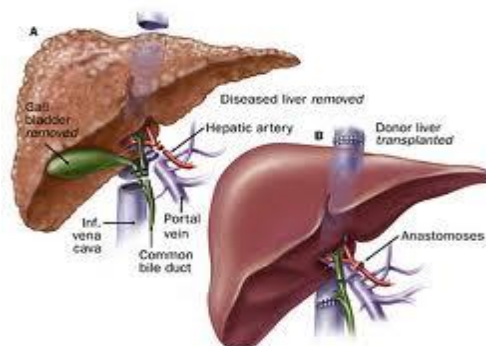
Evaluation for transplant	Patients who may be candidates for transplant need to be assessed by a number of specialists, known as the transplantation team, to determine if a transplant is appropriate. This assessment includes a number of medical tests and review of the case as a whole. During this time, the candidate will also be assessed on how critical their need is.
The Waiting List	In Australia, there are around two thousand patients on the liver transplant waiting list at any one time. There are a number of factors which determine a patient's position on the transplant waiting list. These include blood type and body size, and a priority score based on blood tests which show how sick they are, with the most ill being pushed further up the list.
The Donor	As described above, the liver may be a whole liver from a deceased donor or part of a liver from a living donor. If the transplant is a partial liver, it only takes a few weeks for the liver to grow back to ordinary size in the donor and in the recipient. All living donors are given rigorous medical and psychological checks prior to the procedure. If the donor is deceased, they are usually in the intensive care unit being kept alive until the transplant procedure begins. The donor's heart is still beating, however they have no viable brain functioning. Another method involves the removal of the liver from the deceased donor, which is then kept viable in appropriate conditions and transported to another location. Donors and recipients are matched according to blood type and body size. Age, race and gender are not considered.
When there is a possible match	The potential recipient is contacted immediately and goes into hospital for more tests to check that the donor liver is suitable and then surgery is commenced.

The Transplant Operation

The operation is carried out at a specialist transplant centre. In Brisbane, there is the Princess Alexandra Hospital which is a world class transplant centre with specialist surgeons, hepatologists, psychiatrists and many ancillary staff performing around fifty transplants per year. There is close communication with other transplant units nationwide and organs from one state may occasionally be used in another state.

A liver transplant operation is understandably complicated and takes between six and twelve hours, depending on the surgeon and their experience. A large incision is cut into the patient's abdomen in the shape of an upside down 'Y' and then the surgery commences. There are three main stages to the operation:

- ❖ Hepatectomy Phase – the liver is removed. During this stage, the liver is detached from all ligamentous connections and detached from the common bile duct, hepatic artery, hepatic vein and portal vein.
- ❖ Anhepatic Phase – the body is without a liver. After the hepatectomy is accomplished, the donor liver is implanted. This involves connections of the inferior vena cava, portal vein, and hepatic artery. After blood flow is restored to the new liver, the bile duct is constructed, either to the recipient's own bile duct or to the small intestine.
- ❖ Post Implantation Phase – this is the phase after the implantation.



Post Operation

After the operation, the patient is taken to the intensive care unit. The patient is monitored very closely and put on a respirator until they have woken up and can breathe on their own. They will undergo further tests and stay in intensive care for several days. The overall hospital admission is approximately three weeks.

Complications

The immune system destroys foreign objects in the body and it cannot distinguish between a transplanted liver, and foreign invaders such as viruses and bacteria. When the body attacks the transplanted liver, this is called organ rejection and this occurs in about 70% of all liver transplant patients. Anti rejection medications called immunosuppressants are given to help prevent the immune attack and most liver transplant patients will be on this medication for life. Due to the anti rejection medication, the patient is at increased risk of infection. This side effect decreases with time. Not all patients have problems with infections, and most infections can be treated successfully as they occur.

Prognosis

Failure of the new liver occurs in 10% to 15% of all cases. Failure of the liver transplant can be due to many different complications. Successful liver transplant survival rates are up to 90% one year after the operation and between 75% and 80% after the first five years.

LexiMed Consultants

- ❖ **Dr Andrew Renaut**
Colorectal & General Surgeon