

## 10) Liver Transplantation – Dr. Muhammad Omar

The outcome following liver transplantation has improved significantly over the last decade and this is now an effective treatment for end-stage liver disease. The number of procedures is limited by cadaveric donor availability and in many parts of the world this had led to living donor transplant programmes. Despite this, 10% of those listed for liver transplantation will die while awaiting a donor liver. The main complications of liver transplantation relate to disease recurrence in the liver graft.

**Indications for liver transplantation for chronic liver disease in the USA in 2000. Many cases of cryptogenic liver disease are now considered to represent non-alcoholic fatty liver disease.**

Currently around 9500 liver transplants per year are undertaken in Europe and the USA. About 10% are performed for acute liver failure, 6% for metabolic diseases, 71% for cirrhosis and 11% for hepatocellular carcinoma. Most patients are under 60 years of age and only 10% are aged between 60 and 70 years. The most common indication in North America is hepatitis C cirrhosis where about 10-20% of transplants are for alcoholic cirrhosis. Patients with alcoholic liver disease need to show a capacity for abstinence.

### INDICATIONS FOR LIVER TRANSPLANT ASSESSMENT FOR CIRRHOSIS

- Complications
  - First episode of bacterial peritonitis
  - Diuretic-resistant ascites
  - Recurrent variceal hemorrhage
  - Hepatocellular carcinoma < 5 cm
  - Persistent hepatic encephalopathy
- Poor liver function
  - Bilirubin > 100 µmol/l (5.8 mg/dl) in primary biliary cirrhosis
  - MELD score > 12
  - Child-Pugh C

Liver transplantation in cirrhosis is considered when the anticipated mortality without transplantation exceeds 50% at 1 year. The main contraindications to transplantation are sepsis, extrahepatic malignancy, active alcohol or other substance misuse, and marked cardiorespiratory dysfunction. In many parts of the world the MELD score is used to identify and prioritise patients for transplantation. Patients are ABO- and size-matched but not HLA-matched with donors.

### Complications

#### Early complications

- Less immunosuppression is needed following liver transplantation than with kidney and heart/lung grafting. Initial immunosuppression is usually with tacrolimus or ciclosporin, prednisolone and azathioprine or mycophenolate. Some patients can eventually be maintained on a single agent.

#### Acute rejection

- This occurs in up to 60% of patients, usually within the first 6 weeks after transplantation, and normally responds to 3 days of high-dose methylprednisolone.

#### Surgical complications

- These include hepatic artery thrombosis which may necessitate retransplantation. Anastomotic biliary strictures can also occur and may respond to balloon dilatation or require surgical reconstruction. Portal vein thrombosis is rare.

## Infections

- Bacterial infections such as pneumonia and wound infections can occur in the first few weeks after transplantation. Cytomegalovirus (primary infection or reactivation) is a common infection in the 3 months after transplantation and can cause a hepatitis. Patients who have never had cytomegalovirus infection but who receive a liver from a donor who has been exposed are at greatest risk of infection and are usually given prophylactic antiviral therapy such as valciclovir. Tuberculous prophylaxis is given to recipients who have had previous exposure to tuberculosis for the first 6 months after transplantation to prevent reactivation.

## Late complications

- These include recurrence of the initial disease in the graft and complications due to the immunosuppressive therapy such as renal impairment from ciclosporin. Chronic vascular rejection is rare occurring in only 5% of cases.

## Outcomes

- The outcome following transplantation for acute liver failure is worse than for chronic liver disease because most patients have multi-organ failure at the time of transplantation. The 1-year survival is 65% but only falls a little to 59% at 5 years. The 1-year survival for patients with cirrhosis is 80-90% falling to 70-75% at 5 years.

## Split liver transplantation

- A cadaveric donor liver can be split into two with the larger right lobe used in an adult and the smaller left lobe used in a child. This practice has led to an increase in donor organs.

## Living donor transplantation

- This is normally performed using the left lateral segment or the right lobe. The donor mortality is significant at 0.5%-1%. Pre-operative assessment includes assessing donor liver size and psychological status.