

Ontario's Paediatric Referral and Listing Criteria for Liver Transplantation

PATIENT REFERRAL CRITERIA

The patient referral criteria are criteria for which a Health Care Provider would utilize to refer a patient to a transplant centre for assessment. The criteria identified below are the agreed upon conditions for which a paediatric patient should be referred for liver combination transplant assessment.

- 1) Liver Disease:** Referral for liver transplantation should be considered for patients with liver disease. Such patients generally will have one or more of the following:
 - End-stage chronic liver disease with hepatic decompensation (ascites, severe jaundice, coagulopathy, recurrent cholangitis, hepatic encephalopathy, hypersplenism, GI bleed, failure to thrive);
 - Liver tumors such as hepatoblastoma and hepatocellular carcinoma (HCC);
 - Fulminant hepatic failure;
 - Hepatopulmonary syndrome (HPS); or,
 - Liver disease with poor quality of life.
- 2) Metabolic Disorders:** Referral for liver transplantation may also be considered for patients with poorly controlled metabolic disease by medical means, early developmental delay or poor quality of life.

Early referral is essential, allowing for pre-transplant problems to be addressed and resolved while the liver disease is relatively well-compensated.

PATIENT LISTING INDICATIONS

Each patient is assessed individually for their suitability for liver transplantation by the liver transplant program. In general, patients with irreversible end stage acute or chronic liver disease, or complications without therapeutic option other than liver transplant and absence of obvious contraindication for transplant are candidates for transplantation. Paediatric listing criteria pertains to those patients < 18 years old (up to but not including their 18th birthday).

The criteria identified below are the agreed conditions for which a patient may be eligible to be waitlisted for paediatric liver transplantation in Ontario.

- 1) End-Stage Chronic Liver Disease:** Patients with end-stage chronic liver disease with the following criteria should be considered for transplantation:

- Persistent cholestasis, uncorrectable coagulopathy, growth failure/severe malnutrition, refractory ascites, recurrent cholangitis, refractory pruritus
- Severe portal hypertension, or signs of intractable portal hypertension with low bilirubin as a result of cirrhosis due to parenteral nutrition induced disease;
- Recurrent encephalopathy;
- Hepato-pulmonary syndrome
- Decreased quality of life as a result of liver disease.

2) Liver Tumours (e.g. hepatoblastoma): Listing for liver transplantation may be considered for patients with liver tumours if they meet the following criteria:

- Tumor deemed unresectable (e.g. PRETEXT IV)
- Vascular invasion and extrahepatic metastases are **not** absolute contraindications, however; the extent of tumor thrombus and extrahepatic disease as well as their response to systemic therapy should inform the decision to proceed with transplantation

3) Fulminant Hepatic Failure: Patients with fulminant hepatic failure may be considered for liver transplantation if they meet the Kings College Criteria or other validated criteria for transplantation.

4) Metabolic Diseases: Liver transplantation can be offered as therapy for patients with certain metabolic diseases (e.g. Urea cycle defects, organic acidemia, hyperoxaluria type I) and who have a limited life expectancy without a transplant. Patients with methylmalonic acidemia (MMA) and hyperoxaluria type I may be considered for combined liver-kidney transplantation.

5) Re-Transplantation Due to Failed Primary Graft or Hepatic Artery Thrombosis: Patient who received a previous liver transplant which has failed may be considered for re-transplantation. Such conditions leading to re-transplantation include:

- Non-function of primary graft within 7 days of transplant,
- Hepatic artery thrombosis within 24 hours to 7 days of transplant

6) Other Conditions: Patients with certain rare conditions can be considered for liver transplantation. Such conditions may include rare tumours and vascular abnormalities.

PATIENT LISTING CONTRAINDICATIONS

The contraindications for liver transplantation identified below are the agreed upon criteria for which a patient may not be eligible to be waitlisted for paediatric liver transplantation in Ontario.

1) Co-Morbidities: Patients with any co-morbidity, including extrahepatic comorbidities (e.g. severe heart or brain abnormalities, mitochondrial diseases), that decreases the likelihood of surviving 5 years post-

transplant to below 60% or whom which the peri-operative risk is deemed unacceptably high, are not candidates for liver transplantation.

- 2) **Infections:** Patients are not candidates for liver transplantation if they display the following:
 - Active extrahepatic infection (including sepsis)
 - Uncontrolled HIV infection (i.e. detectable viral load and/or CD4 count <100) or AIDS.

- 3) **Malignancy:** Patients with extrahepatic primary malignancies are not candidates for liver transplantation. In general, patients must be disease free for 2-5 years after curative therapy but this rule may be discussed on an individual patient basis depending on the type and stage of malignancy.

- 4) **Vascular Abnormalities:** Patients with extensive thrombosis of the portal vein, superior mesenteric vein and splenic vein, or other extensive vascular anomalies or pathologies precluding sufficient revascularization of the graft are not candidates for liver transplantation. These patients can be considered for a multivisceral transplant.

- 5) **Medical instability:** Clinically unstable patients that are unlikely to survive the transplant surgery. These conditions may include situations like – active sepsis, uncontrolled brain edema, uncontrolled GI, CNS or pulmonary hemorrhage, need for high dose pressors and unstable ventilation.

- 6) **Psychosocial Considerations:** Patients must undergo a complete psychosocial evaluation prior to listing for transplant. Patients who display the following are not candidates for liver transplantation:
 - Unstable psychiatric disorder, especially one likely to interfere with compliance;
 - Unwillingness or inability to follow the advice of health professionals;
 - Social support/compliance issues prohibiting adherence to post-operative medications and/or follow-up care.

- 7) **Blood Transfusions:** Patients who are unwilling to accept transfusions of blood or blood products are not candidates for liver transplantation.

Version Control

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