

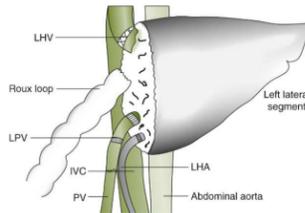
Impact of Transplantation in Children

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Pediatric Liver Transplantation

- Common reasons for liver transplantation (LT):
 - Biliary atresia - obstruction of bile flow
 - Genetic and metabolic disorders
 - Acute liver failure
 - Liver tumors
- About 600 each year in North America
 - Most are deceased donor
 - 60-70 are living donor
- May receive a whole liver or a smaller piece



1-year patient survival 91%
5-year patient survival 85%
10-year patient survival 81%

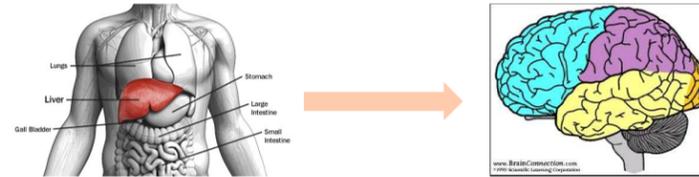
What is a Successful Outcome?

- Healthy liver
- No medication complications
- Normal growth and development
 - School and peer activities
- Psychological adaptation
- Maintain healthy family life

Post-Transplant Complications

- 25% of patients have 1 episode of acute rejection in the 1st year; 66% by 10 years
- 15% have biliary complications

How are the Liver and Brain Connected?



- A main job of the liver is to clean the blood
 - When the liver doesn't work, the blood is no longer "clean" and toxins travel to the brain
 - This can lead to hepatic encephalopathy (brain swelling) which can:
 - Range from subtle cognitive changes (slowed thinking, inattention) to coma
 - Be episodic, persistent, or minimal in chronic liver disease
- The liver also helps with metabolism (processing nutrients)
 - When the liver doesn't work, important nutrients are not absorbed
 - This can lead to malnutrition of body and brain and growth delays

Comorbidities Related to Immunosuppression

- Post-transplantation lymphoproliferative disease (5%)
- Kidney dysfunction (9%)
- Impaired linear growth (23%) associated with on-going steroid therapy
- Up to 25% with elevated lipids

Cognitive Outcomes

- 1/3 of children have below average IQ and receive special educational support (2x expected rate)
- 1/4 of children have attention and executive deficits (3x expected rate)

Risk Factors

- Diagnosis: it's unclear which diagnoses fare better but diseases with direct impact on the brain like metabolic disorders seem to do worse
- Early age at disease onset/transplant: young brain is vulnerable to injury
- Malnutrition/growth delays: early malnutrition can affect the brain as well as the body

Long-Term Outcomes

- Most children achieve normal growth and pubertal development
 - Women can have successful pregnancies
- At 10 years post-transplant:
 - 23% of patients had repeated a grade or been held back in school
 - Most patients (63%) on single immunosuppressive therapy
 - Chronic rejection in 9%
 - Re-transplantation in 12%

Future Goals:

Optimize outcomes for long-term survivors and minimize complications