

SMALL BOWEL TRANSPLANT

Indications

- Usual indications include short bowel syndrome caused by extensive resection of bowel, motility disorders, and congenital mucosal epithelial mucosal disease.
- Despite some success with small bowel transplant, TPN therapy must be considered as first line treatment for short gut syndrome.
- Patients with significant small bowel disease who receive TPN at home have 94% 1 year and 80% 4 year survival rates.
- Patients who cannot maintain TPN therapy should be referred for transplant. TPN failure either due to overt or impending liver failure, recurrent sepsis, impending loss of central access, and/or frequent severe dehydration require more immediate referral.
- Congenital disorders warrant transplant consideration earlier in the course of the disease, as do extensive resections of small bowel with little chance of successful supplemental therapy (e.g. desmoid tumors).

INDICATIONS FOR SMALL INTESTINE TRANSPLANTATION	
Pediatric	Adult
Aganglioneosis (Hirschsprung disease)	Crohn's disease
Congenital epithelial mucosal disease	Desmoid tumors
Microvillus inclusion disease	
Tufting enteropathy	
Gastroschisis	Gardner syndrome/familial polyposis
Intestinal atresia	Ischemia
Necrotizing enterocolitis	Trauma
Pseudo-obstruction	Volvulus
Volvulus	

Outcomes

- Clinical results of three different procedures: small intestine transplantation alone; liver transplantation with small intestine transplantation; and multivisceral grafts, which include the stomach, pancreas, liver, and small intestine.

Graft and Patient Survival Rates in Small Intestine Transplant Recipients				
Transplant Type	Patient Survival (%)		Graft Survival (%)	
	<i>1 year</i>	<i>5 year</i>	<i>1 year</i>	<i>5 year</i>
Small intestine only	71	45	60	37
Small intestine/liver	62	37	55	30
Multivisceral ^a	45	40	48	30

- Liver/small intestine transplantation is generally performed in patients with TPN-related liver failure who are believed to have irreversible small bowel damage. Patients with complete GI dysmotility or extensive splanchnic venous thrombosis should be considered for a multivisceral transplantation.

Management

- lifelong immunosuppression: tacrolimus (20-30 ng/mL) and prednisone generally included in regimen
- multivisceral go to ICU postop, isolated intestine can go to non-IC unit bed
- 1 week postop: GI contrast for leak → if negative, then start enteric feeds (tube feeds if not PO), TPN weaned
- rejection MCC of graft loss: no reliable biochemical marker, so SB endoscopy should be done initially postop biweekly with 6 biopsies/scope and/or nuclear med scan (high correlation with acute rejection)
- if rejection diagnosed → IV methylprednisone 500 mg qd x 3d, if steroid-resistant → Ab Rx x 14d
- CMV prophylaxis (gancyclovir) for prolonged period after transplant
- EBV load titers (lymphoproliferative disorders account for 14% of post-transplant deaths).

Complications

- . Rejection and graft-versus-host disease (GVHD) are substantial problems -- incidence of acute rejection in small bowel transplantation is approximately 85%, and 20% of patients have refractory rejection that requires graft removal. GVHD/rejection complicates gram negative sepsis from translocation
- *AGA guideline: Short bowel syndrome and intestinal transplantation Gastroenterology 2003; 124:1105-1110*
- *AGA technical review: Short bowel syndrome and intestinal transplantation: Part 1 Gastroenterology 2003; 124:1111-1134*

Crohn's Disease Recurrence in a Small Bowel Transplant

- *Kaila B , Grant D, et al. Crohn's Disease Recurrence in a Small Bowel Transplant American Journal of Gastroenterology 2004 1:158-161*
- Case report of patient with short bowel syndrome secondary to recurrent surgeries for Crohn's → SB transplant in '94 → eight years s/p transplant developed recurrent Crohn's disease despite adequate treatment on tacrolimus
- Confirmed by biopsy. Recurrence responsive to prednisone
- Authors suggest intestine-specific antigens may be more important than classic MHC for Crohn's

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