Medical Management Considerations to Reduce Reliance on Parenteral Nutrition in Adult SBS



Reducing dependence on PN is a primary therapeutic goal in adults with SBS. Advances in hormonal therapy, individualized nutrition management, and multidisciplinary care have made PN weaning increasingly achievable, improving both safety and QoL.

Why Reducing PN Reliance Matters

Long-term PN is lifesaving but carries significant risks and burdens

Medical Risks

- Central line infections
- Thrombosis
- Metabolic disturbances
- PN-associated liver disease

Lifestyle Impact

- Restricted mobility
- Disrupted sleep
- Social limitations
- Reduced independence

Clinical Value

Even modest PN reduction (eg, fewer infusion days) can enhance QoL and reduce complications



Hormonal Therapies to Reduce PN Dependence

GLP-2 in SBS



Intestinotrophic actions

- ✓ ↑ Cytoprotection and proliferation
- ✓ ↑ Elongation of the enterocytes
- ✓ ↑ Epithelial surface expansion

Gastrointestinal properties

- ✓ ↓ Gastric acid secretion
- ↓ Gastric emptying
- ✓ ↑ Intestinal and portal blood flow
- ✓ ↑ Intestinal barrier function
- ↓ Intestinal permeability
- ✓ ↑ Nutrient absorption

INCREASES

Intestinal crypt cell formation
Villus height
Fluid absorption

DECREASES

Enterocyte apoptosis
Gastric acid secretion
Intestinal motility

In SBS, not enough GLP-2 is expressed, and intestinal function is impaired

Pharmacologic therapies that enhance intestinal adaptation and absorption can reduce reliance on PN and, in some cases, help patients achieve enteral autonomy.

	Teduglutide (GLP-2 analog)	Somatropin (rHGH)
Mechanism	GLP-2 receptor agonist that stimulates mucosal growth, increases absorption, and slows motility	rHGH that increases IGF-1, promoting mucosal growth and absorption
Clinical evidence	**STEPS trials:** ↓ PN volume and infusion days; some achieved enteral autonomy; benefits sustained long-term	**Adult trials:** transient ↑ absorption and lean body mass; limited sustained benefit after discontinuation
Indication	FDA approved for adults and children ≥1 yr on PN	FDA-approved short-term (≤4 weeks) adjunct in adults
Administration	Once-daily, weight-based subcutaneous injection	Daily subcutaneous injection, often combined with glutamine and diet optimization
Safety/tolerability	Abdominal pain, nausea, injection-site reactions, fluid retention; monitor for GI obstruction or biliary/pancreatic effects	Edema, arthralgia, hyperglycemia, carpal tunnel; avoid long-term use due to safety/cost concerns

Emerging GLP-2 Analogs (Investigational for Adults)

	Apraglutide	Glepaglutide
Mechanism	Long-acting GLP-2 analog designed for once-weekly dosing	Long-acting GLP-2 analog with sustained exposure
Key adult trial data	STARS trials show clinically meaningful reductions in PN volume and infusion days with favorable tolerability (GI AEs, fluid retention)	EASE trials demonstrate improved intestinal absorption and PN reduction versus placebo, with safety consistent with GLP-2 class

Key Takeaways

Reducing PN reliance is critical for improving safety, metabolic stability, and quality of life in adults with SBS

Teduglutide remains the cornerstone therapy for promoting intestinal adaptation and PN reduction

Somatropin use is limited by transient effects and safety concerns

Next-generation GLP-2 analogs (eg, apraglutide, glepaglutide) may offer longer dosing intervals and additional options in the near future

Comprehensive management, including nutrition optimization, monitoring, and psychosocial support, is essential for successful PN weaning

Abbreviations

AE: adverse effect
GLP-2: glucagon-like peptide-2
IGF-1: insulin-like growth factor 1
PN: parenteral nutrition
QoL: quality of life
rHGH: recombinant human growth hormone
SBS: short bowel syndrome

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