

Management of SHORT BOWEL SYNDROME

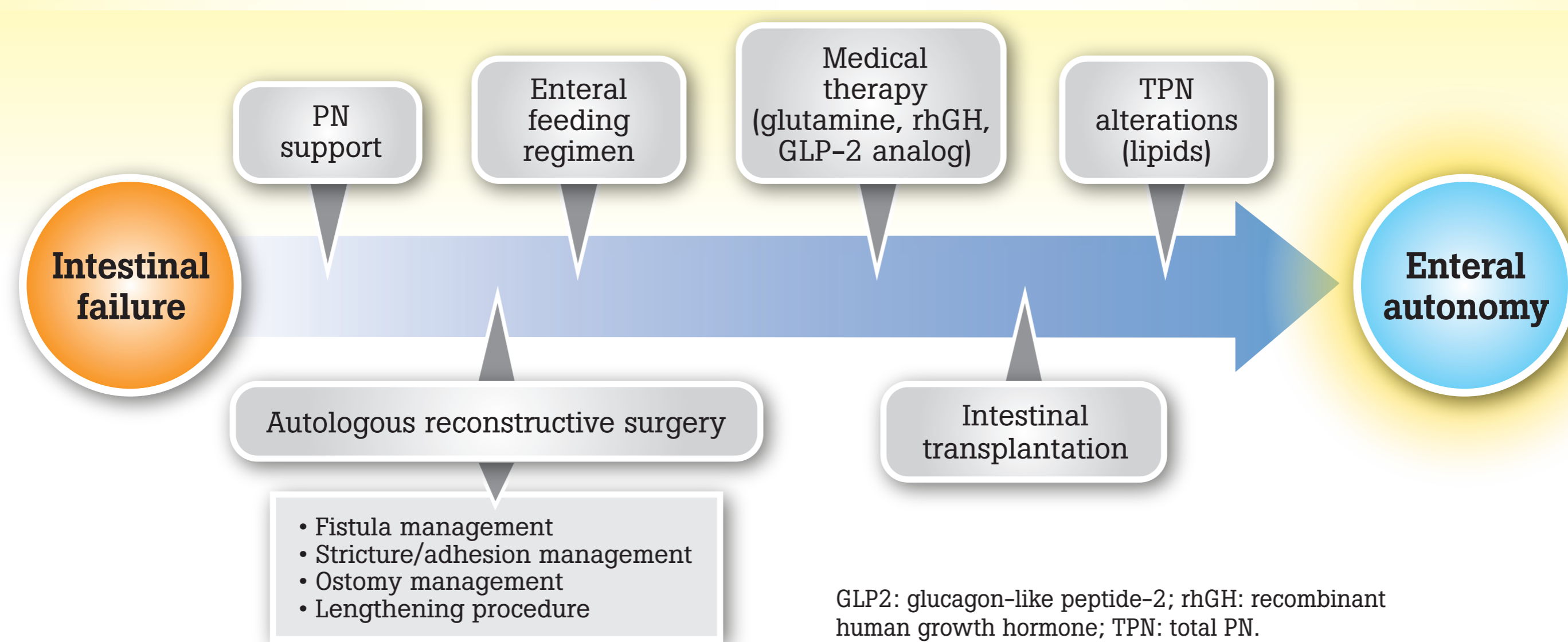
The management of patients with short bowel syndrome (SBS) is challenging. Intestinal adaptation is a key factor in the successful management of patients with SBS. This is the process by which the remnant bowel attempts to optimize its absorption capacity and function. Successful intestinal adaptation is the ultimate goal of intestinal rehabilitation.

GOALS OF INTESTINAL REHABILITATION

- Intestinal adaptation/enteral autonomy
- Avoidance of parental nutrition (PN)-related complications such as central-line-associated bloodstream infection and intestinal failure-associated liver disease

Intestinal Adaptation: The Journey

The order of these treatment options may vary from patient to patient.



MANAGEMENT OPTIONS FOR SBS FALL INTO 3 CATEGORIES:

1

Nutritional Therapy

Nutritional therapy and dietary recommendations must be tailored to the patient's age, body mass index, biological sex, lifestyle, eating habits, food preferences, health status, and bowel condition. Nutritional therapy for intestinal rehabilitation includes the following:

- Oral rehydration
- PN
- Enteral nutrition
- Vitamin and mineral supplements
- Tailored diet
- Small, frequent meals
- A high-fat formula/diet

Medications

Treatment of SBS varies among children and adults and is tailored to the individual. Some of the medications that may be part of treatment plans include:

- Antibiotics
- Histamine receptor blockers
- Proton pump inhibitors
- Choleric agents
- Bile salt binders
- Anti-secretin agents
- Anti-diarrheal agents
- rhGH
- GLP-2 analogs

Newer hormone-based medications for SBS are intended to reduce reliance on PN. These medications include:

DRUG	STRUCTURE AND PROBABLE MOA	APPROVED INDICATIONS, DOSAGE, AND ADMINISTRATION
Somatropin	An hGH produced by rDNA technology. Direct and indirect MOAs via binding to GH and insulin-like growth factor-1 receptors on the intestinal mucosa. Enhances transmucosal transport of water, electrolytes, and nutrients.	This medication is indicated for adults with SBS receiving specialized nutritional support. The recommended dosage is 0.1 mg/kg subcutaneously once daily to a maximum daily dose of 8 mg for 4 weeks.
Teduglutide	A GLP-2 analog that regulates mucosal epithelium and enterocytes proliferation, increases intestinal absorption, and inhibits gastric motility and secretion.	This medication is indicated for adults and pediatric patients aged 1 year or older with SBS who are dependent on PN. The recommended dose for pediatric and adult patients is 0.05 mg/kg subcutaneously once daily. Self-administration by pediatric patients who weigh less than 10 kg is not recommended.

MOA: mechanism of action; rDNA: recombinant DNA.

3

Surgery

Surgery may also be an option for some patients with SBS.

- **Autologous gastrointestinal reconstruction:** This type of surgery occurs in the setting of bowel dilatation, which may have led to vomiting, bacterial translocation, and enteral intolerance.
- **Intestinal transplantation:** This procedure is a surgical replacement of the small intestine. Patients who have this surgery will require life-long immunosuppressive therapy.

CLINICAL PEARLS

The goal of intestinal rehabilitation is for the patient to obtain enteral autonomy. Nutrition, whether enteral or via the oral route, plays a critical role in intestinal adaptation.

Treatment plans for patients with SBS should be tailored based on the individual's presentation, remnant intestinal length and location, and response to treatment. These plans may incorporate nutritional therapy, medications, and surgery.

References/Resources

- Austin K et al. Controversy in nutrition recommendations for short bowel syndrome: how type of SBS impacts response. *Curr Gastroenterol Rep.* 2019; 21:64.
- Coletta R, Morabito A. Non-transplant surgical management of short bowel syndrome in children: an overview. *Curr Pediatr Rev.* 2019; 15:106-110.
- Jeppesen PB, Fuglsang KA. Nutritional therapy in adult short bowel syndrome patients with chronic intestinal failure. *Gastroenterol Clin North Am.* 2018; 47:61-75.
- Kochar B, Herfarth HH. Teduglutide for the treatment of short bowel syndrome – a safety evaluation. *Expert Opin Drug Saf.* 2018; 17:733-739.
- Lauro A, Lacaille F. Short bowel syndrome in children and adults: from rehabilitation to transplantation. *Expert Rev Gastroenterol Hepatol.* 2019; 13:55-70.
- National Institutes of Health. National Institute of Diabetes and Digestive and Kidney Diseases. Short bowel syndrome. Accessed June 22, 2021. <https://www.niddk.nih.gov/health-information/digestive-diseases/short-bowel-syndrome#symptoms>.
- Somatropin. Prescribing information. EMD Serono, Inc.; 2017. Accessed July 8, 2021. https://www.accessdata.fda.gov/drugsatfda_docs/label/2017/020604s074lbl.pdf.
- Teduglutide. Prescribing information. Takeda Pharmaceutical Company Limited; 2021. Accessed July 8, 2021. https://www.shirecontent.com/PI/PDFS/Gattex_USA_ENG.pdf.