



CIGNA MEDICAL COVERAGE POLICY

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Subject Intestinal Rehabilitation Programs

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Hyperlink to Related Coverage Policies

Intestinal and Multivisceral Transplantation
 Nutritional Counseling
 Nutritional Support
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Coverage Policy

CIGNA covers an intestinal rehabilitation program as medically necessary for an intestinal or multivisceral transplantation candidate, when the program is administered by a multidisciplinary team affiliated with a transplant center.

General Background

Intestinal rehabilitation refers to the process of restoring enteral autonomy and decreasing dependence on parenteral nutrition in individuals with intestinal failure. A number of methods are used to achieve this goal, including dietary, pharmacological and surgical interventions. The most common cause of intestinal failure is short-bowel syndrome (SBS), which usually results from massive intestinal resection. The need for such resection is often due to necrotizing enterocolitis or congenital intestinal anomalies in children and to Crohn's disease, mesenteric vascular insult, or trauma in adults. Massive resection of the small intestines compromises digestive and absorptive processes. Proper nutritional status cannot be maintained without supportive care if digestion and absorption are inadequate. Potential treatment options for SBS patients include long-term home total parenteral nutrition (TPN), intestinal rehabilitation, and/or intestinal transplantation.

Clinical manifestations of SBS include malabsorption, diarrhea, dehydration, electrolyte and metabolic disturbances, and progressive malnourishment. Also, dependence on parenteral nutrition is associated with a

high incidence of liver disease. SBS occurs in the presence of less than 200 cm of residual, functional small intestine. The normal length of intestine in an adult is considered to be 300–800 cm. In infants, the diagnosis of SBS relies less on an anatomical definition and more on a functional one, as the amount of resection required to produce malabsorption varies with factors such as age, presence or absence of an ileocecal valve, and length of residual colon (Brown and DiBaise, 2004). In general, the removal of 50% or more of the small intestine places an individual at risk for developing SBS. The level of difficulty experienced by a patient with SBS is often determined by which sections are affected. One-half of the small-bowel can be removed without significant disability resulting, especially if the ileum (the final three-fifths of the small bowel) is not involved and there is continuity with the colon. In patients with SBS, the colon becomes an important digestive organ (American Gastroenterological Association [AGA], 2003).

Following extensive intestinal resection, a process known as intestinal adaptation occurs, in which the remaining bowel undergoes a variety of macroscopic and microscopic changes to increase its ability to absorb fluid and nutrients. The degree of bowel adaptation is dependent on the residual bowel anatomy and enteral nutrition. Intestinal adaptation plays a key role in the successful management of patients with SBS (DiBaise, et al., 2004). In an effort to rehabilitate SBS patients so they may achieve enteral autonomy, investigators have attempted to stimulate the adaptive response following extensive small-bowel resection. Several factors are thought to be important in enhancing adaptation due to a trophic, or regenerative, effect on the intestine (Scolapio, et al., 1997). These include luminal nutrients (e.g., glutamine), intestinal hormones (e.g., growth hormone) and a high-carbohydrate, low-fat diet. Adverse effects of increased extracellular fluid and peripheral edema have been associated with the use of growth hormone and glutamine in patients with SBS (AGA, 2002). Several non-transplant surgical procedures, such as those that optimize function (e.g., lengthening or tapering), or slow transit (e.g., reversed segment), have been devised to maximize the function of the SBS patient's existing intestine. For some SBS patients, intestinal transplantation holds the greatest promise as a surgical intervention. Prior to transplantation, the best practical method to assess the functional capacity and reserve of the gastrointestinal tract is the outcome of several TPN weaning attempts utilizing pharmacological manipulation (Matarese, et al., 2005). All methods for augmenting the adaptation process should be exhausted before transplantation is considered.

Inpatient and outpatient programs have been developed to provide specialized regimens of diet modifications, glutamine and growth hormone therapy to patients with SBS. These programs usually involve physical and nutritional evaluation, as well as parenteral nutrition management and weaning; education; psychosocial support; pharmacological and surgical options. The goal of these programs is to reduce or eliminate the need for TPN. The inpatient model typically requires a facility stay of two to four weeks. Outpatient clinics provide services from a multidisciplinary team of clinicians, as well as consultation to primary care providers and specialist physicians who are caring for complex patients with intestinal failure.

Literature Review

Studies conducted on the safety and effectiveness of intestinal rehabilitation programs have been primarily in the form of case series with patient populations ranging from 45–389. Outcomes measures have included enteral feeding advancement, improved liver function, and increased body weight and lean body mass. A number of studies have reported that a high-carbohydrate, low-fat diet, with the amino acid glutamine and growth hormone administered alone or in combination with the other therapies may be associated with a decreased dependence on TPN and decreased bilirubin levels in adults and children with SBS (Cowles, et al., 2010; Javid, et al., 2010; Modi, et al., 2008; Nucci, et al., 2008; Torres, et al., 2007; Seguy, et al., 2003; Wilmore, et al., 1997; Byrne, et al., 1995). Other studies have found little to no improvement in the absorption of macronutrients when SBS patients were given a treatment regimen of growth hormone, glutamine and a high-carbohydrate, low-fat diet (Scolapio, et al., 1997) or a regimen of growth hormone, glutamine and no change in diet (Szkudlarek, et al., 2000).

A double-blind, randomized placebo-controlled clinical trial (n=41) by Byrne et al. (2005) studied the effect of growth hormone with or without glutamine on TPN requirements in patients with SBS. Study results indicated that those patients who received growth hormone had significantly greater reductions in the need for intravenous support than the patients who received only glutamine and diet modification. The greatest change was reported in the group receiving the combination of all three interventions, and only this group was able to maintain this effect at three months' follow-up.

Matarese et al. (2004) conducted a systematic review of the literature on the use of some combination of growth hormone, glutamine and/or modified diet to enhance bowel absorption. The authors reported finding a limited amount of clinical data, with studies demonstrating conflicting results. It was concluded that the analysis suggested that a treatment regimen of growth hormone alone with or without glutamine and a modified diet may be of benefit when appropriate patients are selected for treatment. However, many unanswered questions remain regarding intestinal adaptation in humans as well as the role of intestinal rehabilitation therapy (Matarese, et al., 2004).

Although not robust, the bulk of the available evidence in the published peer-reviewed medical literature is supportive of intestinal rehabilitation used to improve bowel absorption and decrease TPN dependence in a subset of patients with intestinal failure.

Professional Societies/Organizations

No medical position statements or guidelines for intestinal rehabilitation have been identified.

Summary

Much of the evidence in the peer-reviewed scientific literature regarding intestinal rehabilitation exists in the form of retrospective case series and uncontrolled studies. Although outcomes are variable, these data suggest that some patients with short bowel syndrome (SBS) have benefited from receiving growth hormone with or without glutamine and a high-carbohydrate, low-fat diet, as evidenced by a reduced need for total parenteral nutrition (TPN). The available randomized, controlled trials have not shown conclusively that the routine use of an intestinal rehabilitation program consistently improves intestinal absorption and leads to improved clinical outcomes. It is difficult to determine the relative contribution of each component of a comprehensive program that includes patient education and counseling, in addition to trophic factors such as glutamine and/or growth hormone, either alone or in combination with a high-carbohydrate, low-fat diet. However, in a subset of patients, such a program may be warranted as part of an evaluation for intestinal or multivisceral transplantation. Additional randomized, controlled studies are needed to more clearly define the role of intestinal rehabilitation programs in the care of SBS patients.

Coding/Billing Information

Note: This list of codes may not be all-inclusive.

Covered when medically necessary:

CPT [®] * Codes	Description
44799	Unlisted procedure, intestine

ICD-9-CM Diagnosis Codes	Description
579.3	Intestinal malabsorption; other and unspecified postsurgical non absorption
V49.83	Awaiting organ transplant status

*Current Procedural Terminology (CPT[®]) © 2010 American Medical Association: Chicago, IL.

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Policy History

<u>Pre-Merger Organizations</u>	<u>Last Review Date</u>	<u>Policy Number</u>	<u>Title</u>
CIGNA HealthCare	03/15/2007	0318	Intestinal Rehabilitation Programs

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