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GASTROENTEROLOGY BOARD REVIEW MANUAL

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Short Bowel Syndrome

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Cover Illustration by Christine Armstrong

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Short Bowel Syndrome

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INTRODUCTION

Short bowel syndrome refers to the malabsorption syndrome that often develops in patients who have had more than half of their small intestine removed. A decreased amount of intestinal surface area can lead to malabsorption of macronutrients, micronutrients, water, and electrolytes. The severity of the malabsorption depends on which portions of the intestine were removed. For example, tissue within the proximal jejunum absorbs fat, protein, carbohydrate, minerals (eg, iron, calcium, magnesium), vitamins (ie, A, B, C, D, E, K, and folate), and other micronutrients (eg, zinc, copper). The tissue of the ileum absorbs vitamin B₁₂ and bile acids. Water and electrolytes are absorbed throughout the small and large intestines.

In addition to malabsorption and malnutrition, symptoms of short bowel syndrome include severe diarrhea, which can complicate malabsorption problems and lead to dehydration. Malabsorption of calcium or vitamin D can have the consequence of weakening the bones and causing osteopenia, osteomalacia, or osteoporosis. Hepatic complications ranging from fatty liver to cirrhosis also can occur, although the etiology is unclear and probably is multifactorial.¹

In the United States, short bowel syndrome is estimated to occur in 10,000 to 20,000 people who are receiving total parenteral nutrition at home (HPN).² That number may increase because more patients are surviving intestinal resection as a result of surgical advances, better management of nutritional needs, and improved outcomes on long-term HPN.³ Although the prevalence can be estimated, the incidence is hard to pinpoint because of a lack of prospective studies on patients who have had more than half of their small intestine removed.³

Patients may develop short bowel syndrome as a consequence of Crohn's disease of the small intestine. Crohn's disease is the most common reason that patients have a portion of their small intestine removed.³ Patients with Crohn's disease can experience inflammation anywhere along the digestive tract, but the ileum is most often affected. Inflammation extends through the lining of the digestive tract, causing pain and rapid emptying of

the intestines. Crohn's disease can affect the lining of the intestine to the point where perforation or abscesses occur. Diarrhea is a common symptom, as is rectal bleeding, abdominal pain, and weight loss. Complications include anemia, intestinal blockages, nutritional deficiencies due to malabsorption, and fistulas that can become infected. A variety of medications may be prescribed for patients with Crohn's disease, including antibiotics, immunosuppressive agents (6-mercaptopurine or azathioprine), the anti-tumor necrosis factor agent infliximab, mesalamine substances, or corticosteroids. However, many patients require corrective surgery that often involves bowel resection or colectomy and can result in short bowel syndrome. Other problems that occur more frequently in Crohn's disease patients include arthritis, dermatologic problems, and liver or biliary diseases (eg, kidney stones, gallstones). Crohn's disease affects men and women equally and appears to have a genetic component; approximately 20% of Crohn's disease patients have a first-degree relative with an inflammatory bowel disease.⁴

Ulcerative colitis is a chronic disease characterized by ulcerations along the mucosa of the colon and, by itself, does not result in short bowel syndrome. Although the etiology of ulcerative colitis is unknown, the inflammation leading to the ulcerations may be attributed to genetic factors, infection, certain drugs (eg, contraceptives), food allergies, or abnormal immune system responses.⁵ Ulcerative colitis can occur at any age but primarily affects people within two age-groups: young adults (most commonly) and older adults (age 60 years or older). Although a variety of medications can be given to alleviate symptoms and achieve remission, surgery remains the only curative therapy. Proctocolectomy performed to remove the diseased tissue cures patients with ulcerative colitis.

Two of the more serious consequences of short bowel syndrome are osteopenia and chronic liver disease. Some patients with these complications have progressive disease warranting consideration for small bowel and liver transplantation. This manual explores clinical issues in the management of patients who develop short bowel syndrome and its complications. The case scenarios are based on actual patients from the author's clinical