

TABLE 344-2 COMMON INDICATIONS FOR ENDOSCOPY

Upper Endoscopy	Colonoscopy	Endoscopic Retrograde Cholangiopancreatography	Endoscopic Ultrasound	Capsule Endoscopy	Double-Balloon Endoscopy
Dyspepsia despite treatment	Cancer screening	Jaundice	Staging of malignancy	Obscure gastrointestinal (GI) bleeding	Ablation of small-intestinal bleeding sources
Dyspepsia with signs of organic disease	Lower GI bleeding	Postbiliary surgery complaints	Characterize and biopsy submucosal mass	Suspected Crohn's disease of the small intestine	Biopsy of suspicious small-intestinal masses/ulcers
Refractory vomiting	Anemia	Cholangitis			
Dysphagia	Diarrhea	Gallstone pancreatitis			
Upper GI bleeding	Polypectomy	Pancreatic/biliary/ampullary tumor	Bile duct stones		
Anemia	Obstruction	Unexplained pancreatitis	Chronic pancreatitis		
Weight loss	Biopsy radiologic abnormality	Pancreatitis with unremitting pain	Drain pseudocyst		
Malabsorption	Cancer surveillance: family history prior polyp/cancer, colitis	Fistulas	Anal continuity		
Biopsy radiologic abnormality	Palliate neoplasm	Biopsy radiologic abnormality			
Polypectomy	Remove foreign body	Pancreaticobiliary drainage			
Place gastrostomy	Place stent across stenosis	Sample bile			
Barrett's surveillance		Sphincter of Oddi manometry			
Palliate neoplasm					
Sample duodenal tissue/fluid					
Remove foreign body					
Endoscopic mucosal resection or ablation of dysplastic Barrett's mucosa					
Place stent across stenosis					

biopsy is indicated in cases with abnormal liver chemistries, in unexplained jaundice, following liver transplant to exclude rejection, and to characterize the degree of inflammation in patients with chronic viral hepatitis prior to initiating antiviral therapy. Biopsies obtained during CT or ultrasound can evaluate for other intraabdominal conditions not accessible by endoscopy.

**Functional Testing** Tests of gut function provide important data when structural testing is nondiagnostic. In addition to gastric acid and pancreatic function testing, functional testing of motor activity is provided by manometric techniques. Esophageal manometry is useful for suspected achalasia, whereas small-intestinal manometry tests for pseudoobstruction. A wireless motility capsule is now available to measure transit and contractile activity in the stomach, small intestine, and colon in a single test. Anorectal manometry with balloon expulsion testing is used for unexplained incontinence or constipation from outlet dysfunction. Anorectal manometry and electromyography also assess anal function in fecal incontinence. Biliary manometry tests for sphincter of Oddi dysfunction with unexplained biliary pain. Measurement of breath hydrogen while fasting and after oral mono- or oligosaccharide challenge can screen for carbohydrate intolerance and small-intestinal bacterial overgrowth.

## TREATMENT GASTROINTESTINAL DISEASE

Management options for the patient with GI disease depend on the cause of symptoms. Available treatments include modifications in dietary intake, medications, interventional endoscopy or radiology techniques, surgery, and therapies directed to external influences.

### NUTRITIONAL MANIPULATION

Dietary modifications for GI disease include treatments that only reduce symptoms, therapies that correct pathologic defects, and measures that replace normal food intake with enteral or parenteral formulations. Changes that improve symptoms but do not reverse an organic abnormality include lactose restriction for lactase deficiency, liquid meals in gastroparesis, carbohydrate restrictions

with dumping syndrome, and low-FODMAP (fermentable oligo-di-monosaccharides and polyols) diets in irritable bowel syndrome. The gluten-free diet for celiac disease exemplifies a modification that serves as primary therapy to reduce mucosal inflammation. Enteral medium-chain triglycerides replace normal fats in short-gut syndrome or severe ileal disease. Perfusion of liquid meals through a gastrostomy is performed in those who cannot swallow safely. Enteral feeding through a jejunostomy is considered for gastric dysmotility syndromes that preclude feeding into the stomach. Intravenous hyperalimentation is used for individuals with generalized gut malfunction who cannot tolerate or who cannot be sustained with enteral nutrition.

### PHARMACOTHERAPY

Several medications are available to treat GI diseases. Considerable health care resources are expended on over-the-counter remedies. Many prescription drug classes are offered as short-term or continuous therapy of GI illness. A plethora of alternative treatments have gained popularity in GI conditions for which traditional therapies provide incomplete relief.

**Over-the-Counter Agents** Over-the-counter agents are reserved for mild GI symptoms. Antacids and histamine H<sub>2</sub> antagonists decrease symptoms in gastroesophageal reflux and dyspepsia, whereas antiflatulents and adsorbents reduce gaseous symptoms. More potent acid inhibitors such as proton pump inhibitors are now available over the counter for treatment of chronic gastroesophageal reflux disease (GERD). Fiber supplements, stool softeners, enemas, and laxatives are used for constipation. Laxatives are categorized as stimulants, osmotic agents (including isotonic preparations containing polyethylene glycol), and poorly absorbed sugars. Nonprescription antidiarrheal agents include bismuth subsalicylate, kaolin-pectin combinations, and loperamide. Supplemental enzymes include lactase pills for lactose intolerance and bacterial  $\alpha$ -galactosidase to treat excess gas. In general, use of a nonprescription preparation for more than a short time for chronic persistent symptoms should be supervised by a health care provider.