



International Foundation for Functional Gastrointestinal Disorders

IFFGD
700 W. Virginia St., #201
Milwaukee, WI 53204

Phone: 414-964-1799
Toll-Free (In the U.S.): 888-964-2001
Fax: 414-964-7176
Internet: www.iffgd.org

Lower GI Disorders (158) © Copyright 2000-2012 by the International Foundation for Functional Gastrointestinal Disorders

The Lower GI Tract and its Common Functional Disorders IBS, Chronic Functional Abdominal Pain, Bloating and Gas, Constipation, Diarrhea

By: David S. Greenbaum, MD, FACP, Professor Emeritus, Department of Medicine, Michigan State University

What is a functional disorder?

The lower GI tract consists of the colon, rectum and anus. (Anal problems are usually considered separately and will not be covered in this article.) The term “functional” as used in medicine, generally is taken to mean symptoms not accompanied by demonstrable abnormalities on physical examination, blood tests, x-rays, biopsies, endoscopies or other procedures.

Unfortunately the expression has been widely used to imply that the symptoms are psychological or exaggerated. A “disorder” to some indicates a less serious, more transient aberration from normal physical or mental health than a “disease” but obviously this distinction is vague, arbitrary, and not generalizable.

What are the functions of the Lower GI Tract?

The colon’s major functions are to solidify the liquid entering from the small intestine and store it until the appropriate time and place for defecation. About 90% of the one quart or so of liquid presented to the colon in a 24 hour period is absorbed. This yields formed stools containing 60–80% water and weighing between 1.5 and 8.0 ounces for most adults eating a “typical” western type diet. It takes about 35 hours for contents to travel through the colon and about 2–3 hours for contents to pass through the small intestine.

The colon seems designed to normally retard transit. This facilitates absorption that occurs predominately in the right and mid (transverse) colon where kneading action drives the contents back and forth. Powerful propulsive contractions sweep solidified stool into the lower (sigmoid) colon and rectum several times a day. Defecation ultimately occurs as a result of complex interactions between sensory and motor nerves within the gut wall and the central nervous system. This interaction generates coordinated reciprocal contractions and relaxations of pelvic, rectal, and anal sphincter muscles. In general, stool weights are greater and colonic transit times are shorter in men than in women.

Do Lower GI Symptoms Indicate a Disorder?

By and large the answer is no but combinations of symptoms in appropriate settings may suggest a disorder.

The lower GI tract, as other organ systems, responds with a limited number of symptoms. Most are nonspecific and occur in response to many situations. The most common are abdominal pain or distress, bloating, passage of gas (flatulence), diarrhea, and constipation. These symptoms are normal responses but are increased in frequency and intensity in functional lower GI disorders.

Other causes of symptoms include anxiety, thyroid hyperfunction (diarrhea) or hypofunction (constipation), complications of diabetes, use of certain medications, or other outside stressors. They may originate in the GI tract, as when digestion and absorption in the small intestine is disrupted by inadequate pancreatic enzyme secretion or celiac sprue (where constituents of wheat, rye, barley and oats damage the small bowel lining). Infections of the small or large bowel, as well as inflammation not directly from infection such as Crohn’s disease or ulcerative colitis, often give rise to similar but usually more severe symptoms.

Irritable Bowel Syndrome

Traditionally irritable bowel syndrome (IBS) has been considered the standard of functional lower GI disorders. Details have been covered in earlier issues of *Participate*. It has been considered a “diagnosis of exclusion” (of demonstrable disease) since there are no specific features found on usual testing. However, the Rome criteria for IBS, developed by an international group of gastroenterologists, based on symptoms appear to be quite accurate although their validity is not yet proved.

IBS presents as abdominal pain or bloating, often relieved by a bowel movement, usually with altered defecation, and with diarrhea or constipation predominating. Motility aberrations may, at least in part, be responsible for IBS’s symptoms.

Much recent research has focused on increased sensitivity of the large and small bowel as an additional explanation of the symptoms. This may be due to abnormalities somewhere along the course of the nerves connecting the GI tract to the brain. Widely recognized personal and research observations that emotional factors play an intrinsic role in the perception of chronic pain are supported by data.

Chronic Functional Abdominal Pain

Chronic functional abdominal pain may be a variant of IBS. Rome criteria have been devised for it; they require that pain be present for at least six months, be unrelated to normal events, such as eating, defecation or menses, and not explained by “organic disease” (demonstrable abnormality on physical examination or diagnostic tests).

Frequently there are significant accompanying psychological problems, especially in individuals whose pain has been prolonged and severe. However, this does not indicate that these problems cause the pain.

Studies suggest that individuals with psychological stress are more likely to seek health care, regardless of the type of symptoms. A distressingly high frequency of childhood physical and sexual abuse history has been found in patients with this complaint.

Bloating and Gas – Are they the same?

The sensation of bloating is common, especially in women. Although sufferers usually attribute it to excessive gas, many studies have shown this is rarely so. A recent study showed abdominal distension, but not increased gas. Symptoms appear to be related to diminished propulsion of small bowel and probably colonic contents as well as heightened gut sensitivity to distension.

In situations where gas generation is actually excessive it is almost always from incomplete digestion and absorption of carbohydrates in the small bowel. They enter the colon in extravagant amounts where myriads of ravenous bacteria metabolize them generating gas and water which gives rise to the feeling of bloating, flatulence and sometimes to diarrhea. A number of carbohydrates are indigestible—such as those in Navy and related beans, high fiber foods, lactulose, and “bulking” agents used for treatment and prevention of constipation. This is because humans lack the appropriate enzymes to prepare them for absorption.

Constipation

Constipation has been variously defined as infrequent bowel movements (less than 3 per week), hard stools, recurrent straining and/or a sense of incomplete rectal emptying. Sometimes it is a misperception of normal defecation based on unrealistic beliefs.

Faulty colonic propulsion, disordered anorectal function or both are broad physiological explanations of functional constipation but their causes are often obscure. Rarely, colonic “inertia” is from bowel nerve or muscle damage. Inability to defecate at times appears to be from non-relaxation of the external anal sphincter muscle which is under conscious control. It is uncertain whether this disorder is the result of learned behavior or from intrinsic inappropriate muscle contraction.

After organic causes have been ruled out, the type of constipation can often be assessed by simple tests, a

colonic transit time marker study and a rectal balloon expulsion test. If either are abnormal, more extensive and definitive testing may be in order.

Diarrhea

Diarrhea can be defined, perhaps somewhat rigidly, as increased stool fluidity and frequency. Dysentery is bloody diarrhea, usually from infection. Numerous small formed stools have been termed “pseudodiarrhea.” Diarrhea results when the colon’s water absorbing capacity is reduced and/or from excessive small bowel secretion.

It is unclear whether rapid propulsion of bowel contents alone without increased fluid volume can cause diarrhea since the two are so closely linked. Peristalsis (propulsion of intestinal contents by alternating muscle contraction and relaxation) is usually increased and kneading contractions decreased in diarrhea.

There are many ways of categorizing diarrhea; a common classification is secretory where the bowel secretes fluid in a volume that overcomes absorption. In osmotic diarrhea ingested substances, often indigestible sugars, draw large amounts of fluid into the small bowel. On arrival in the colon these substances involve the same mechanisms relating to indigestible carbohydrates.

Summary

It appears that a common denominator of functional lower GI disorders is heightened gut sensitivity to normally unfelt physiological events. This probably is influenced by psychosocial circumstances because of the close integration of the central nervous system with the GI tract.

As we learn more about functioning of the normal gut and gain information about the processing of pain and other sensations we shall gain a better understanding of these disorders. More successful therapy should be the dividend.

Opinions expressed are an author’s own and not necessarily those of the International Foundation for Functional Gastrointestinal Disorders (IFFGD). IFFGD does not guarantee or endorse any product in this publication nor any claim made by an author and disclaims all liability relating thereto.

This article is in no way intended to replace the knowledge or diagnosis of your doctor. We advise seeing a physician whenever a health problem arises requiring an expert’s care.

IFFGD is a nonprofit education and research organization. Our mission is to inform, assist, and support people affected by gastrointestinal disorders. For more information, or permission to reprint this article, write to IFFGD, 700 W. Virginia St., #201, Milwaukee, WI 53204. Toll free: 888-964-2001. Visit our websites at: www.iffgd.org or www.aboutibs.org.