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Revised and Updated by Author, 2009

Bowel Problems Associated with Neurologic Diseases

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The main functions of the colon and anorectum (collectively known as the large intestine) are to mix and absorb water from ingested material, to store fecal wastes, and to eliminate them voluntarily at a suitable time. A wide variety of neurologic diseases (disorders involving the nervous system) can affect colonic and anorectal function and are associated with constipation and or fecal incontinence (Table 1).

TABLE 1
Some Neurologic Diseases Associated with Constipation and or Fecal Incontinence

Multiple Sclerosis
Diabetes Mellitus
Spinal Cord Lesions
Parkinson's Disease

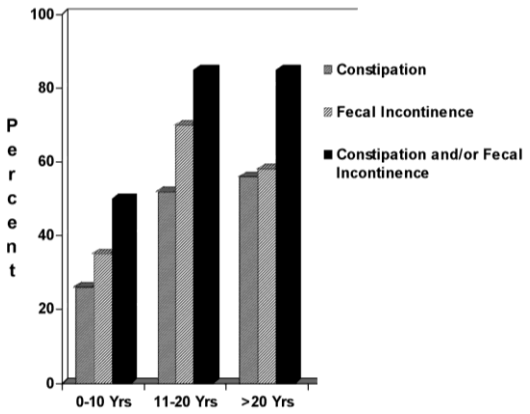
Neurological diseases can affect nerve pathways to the large intestine. They can also affect the nerve network within the bowel wall that regulates intestinal smooth muscle, a type of muscle that functions automatically without direct voluntary control. This article summarizes what is known about these conditions and how best to manage constipation and incontinence associated with these disorders.

Multiple Sclerosis

Multiple sclerosis is a common neurological disease that affects approximately 250,000 Americans. Both constipation and fecal incontinence are common in multiple sclerosis; in one large survey, approximately two-thirds of randomly selected patients had constipation and/or fecal incontinence. Both occurred more frequently in patients with moderate or severe disability, but about one-quarter of those with mild disease had constipation and a similar percentage experienced at least one episode of fecal incontinence during the preceding three months. The frequency of these symptoms increased in relationship to the duration of the disease (Figure 1).

Alterations of rectal sensation and anal sphincter muscles occur frequently in multiple sclerosis patients. Injury to the pudendal nerves, which supply the external anal sphincter muscles, or occult (unseen) anal sphincter injury during childbirth may have a combined effect in some women with multiple sclerosis and fecal incontinence. In addition, the chronic use of medications such as baclofen (a muscle relaxant) theoretically could alter responses to rectal distension or filling and, therefore, change the threshold of conscious rectal sensation – feeling the urge to have a bowel movement – which serves to warn the patient that defecation is imminent.

FIGURE 1 Duration of MS



Even patients with multiple sclerosis who remain continent often exhibit some weakness of the external anal sphincter. However, these changes are not as frequent or as severe as in patients with incontinence. Because the low incidence of diarrhea in multiple sclerosis provides a degree of protection from fecal incontinence, constipation should not be vigorously treated in these patients.

There is some information available concerning why severe constipation may occur in patients with multiple sclerosis. Studies in small numbers of multiple sclerosis patients have shown dysfunction of both the large intestine and the anorectal region. These findings suggest that some multiple sclerosis patients are constipated because colonic motor activity (the way muscles contract and relax to

move contents through the colon) is impaired whereas others have problems with elimination because of poor coordination of rectal and anal muscles. Diagnostic testing may be necessary in some constipated multiple sclerosis patients who do not respond to standard constipation medications.

Because constipation is preferable to fecal incontinence, I often advise patients to accept mild constipation with as few as 2 to 3 bowel movements per week. A modest amount of dietary fiber is fine and if necessary, stimulant laxatives such as senna or bisacodyl may be taken if spontaneous bowel movements are not forthcoming. These can be given orally at bedtime or bisacodyl or glycerine may be administered as a suppository for prompt effect within one hour. I discourage the use of laxatives such as polyethylene glycol (PEG), sorbitol, and Lactulose, which may loosen the stool and make incontinence more likely.

Spinal cord Injury

In patients with sacral (lower spinal) cord lesions, there is poor sensation of rectal filling, poor rectal tone, and loss of voluntary contraction of the external anal sphincter. Warnings of impending defecation are also absent. Fecal incontinence can be prevented by evacuation of the rectum on a regular basis, and the use of stimulant laxative suppositories to promote evacuation.

In contrast to sacral injuries, when lesions occur in the suprasacral (high spinal) area, reflex defecation (the normal response to stool in the rectum) and warning signals of impending defecation usually remain intact. Despite the absence of rectal sensation and loss of muscle control in these patients, incontinence is often prevented by using rectal stimulation with a finger or a suppository to promote defecation at planned intervals.

Despite the profound changes in anorectal functions in patients with spinal cord injuries, fecal incontinence is an uncommon cause of chronic disability. This is due, in large part, to the presence of constipation that may counteract the impairment of continence mechanisms. Thus, good bowel management programs can help minimize fecal incontinence.

Diabetes Mellitus

About 4 to 5% of insulin-dependent patients with diabetes have fecal incontinence, and most have diarrhea associated with nerve damage (peripheral and autonomic neuropathy). The prevalence of fecal incontinence in patients with diabetes has been underestimated because patients often do not volunteer this symptom because of embarrassment at their loss of bowel control. Nonetheless, considerable progress has been made in characterizing the anorectal abnormalities that occur in this disorder.

Contrary to earlier teaching, it is unusual that large volume diarrheal stools overwhelm normal bowel control mechanisms in patients with diabetes. Most patients with diabetes who experience fecal incontinence have stool volumes within the normal range or which are only moderately increased. Rather, multiple abnormalities of anorectal function are present in the vast majority of incontinent patients with diabetes. Interestingly, continent patients with diabetes often exhibit normal anorectal function.

The relative importance of anorectal abnormalities versus the consistency of diarrheal stools to the development of fecal incontinence is unclear. However, because liquid stools are more difficult to perceive and retain, there is undoubtedly a combined effect and both should be addressed if possible.

There is some evidence that rectal sensory thresholds and the responsiveness of the external anal sphincter to rectal filling can be improved with biofeedback techniques. Biofeedback therapy is a risk-free treatment, useful for patients with diabetes with fecal incontinence who show evidence of abnormal anorectal function by appropriate diagnostic studies. This approach uses special sensors and a computer to improve the detection of rectal filling and to coordinate anal sphincter responses. The painless process should be supervised by a professional who is skilled and experienced with these techniques.

In contrast to fecal incontinence, there is little information available concerning causes of constipation in patients with diabetes. Although some studies report that constipation is frequent in patients with diabetes, others have found it not to be significantly different from that of nondiabetic populations. Many patients with diabetes with

severe constipation have an autonomic (involuntary) nerve dysfunction, which is presumed to cause colonic dysmotility (abnormal intestinal contractions) in these patients. Often, they will respond to available laxatives and other bowel aids.

Parkinson's Disease

Patients with this disease may have disorders of motility throughout the gastrointestinal tract. Constipation is common in Parkinson's disease and may be associated with colonic and anorectal dysmotility or it may occur with various medications used to treat this disorder. Indeed, megacolon (a large and widened colon) has been described and may rarely lead to sigmoid volvulus, a condition where the colon twists to produce an obstruction. It is hypothesized that colonic dysmotility exists because degenerative changes associated with Parkinson's disease have been identified in nerve cells within the wall of the colon (myenteric ganglion cells) of these patients.

Some reports describe a defecation disorder in small numbers of patients with Parkinson's. Patients with this condition are unable to initiate or complete defecation and may have to resort to manual disimpaction, or laxatives and enemas.

At present, many issues concerning the concept of defecation disorders remain unclear. It may arise as a learned behavior in response to avoiding the discomfort associated with defecating large hard stools. In these patients, biofeedback to normalize defecation patterns is superior to treatment with laxatives and enemas.

Conclusions

Lower bowel symptoms such as constipation and fecal incontinence are not uncommon in patients with neurologic diseases and can have a profoundly negative impact on quality of life. Understanding the causes can assist in planning effective management strategies. Informing health care providers about the presence of symptoms is a necessary first step to obtaining medical care. Many patients can be treated effectively with management programs, which deal with underlying causes.

Suggested Reading

Plummer, MK, Tries, J. *Biofeedback & Bowel Disorders: Teaching Yourself to Live without the Problem*. IFFGD Fact Sheet No. 112.

Thompson, WG. *Chronic Diarrhea: Could it Have an Everyday Cause?* IFFGD Fact Sheet No. 150.

Madoff, RD. *Chronic Constipation: From Evaluation to Treatment.* IFFGD Fact Sheet No. 192.

Norton, N., Pribek, L. *Living With and Managing Fecal Incontinence.* IFFGD Publication No. 301.

Plummer, M. *Strategies for Establishing Bowel Control*. IFFGD Publication No. 302.

Lowry, AC. *Medical Management of Fecal Incontinence*. IFFGD Fact Sheet No. 306.

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