

Bowel Management in Spinal Cord Injury Patients

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Abstract

Keywords

- ▶ spinal cord injury
- ▶ neurogenic bowel
- ▶ bowel management program

Spinal cord injuries are common in the United States, affecting approximately 12,000 people per year. Most of these patients lack normal bowel function. The pattern of dysfunction varies with the spinal level involved. Most patients use a bowel management program, and elements of successful programs are discussed. Surgical treatment, when indicated, could include sacral nerve stimulation, Malone antegrade continence enema, and colostomy.

CME Objectives: On completion of this article, the reader should be familiar with the bowel management of spinal cord injury patients.

The annual incidence of spinal cord injury (SCI) is approximately 12,000 new cases per year in the United States. The number of people in the United States who were alive with SCI in 2013 was estimated at between 238,000 and 332,000 persons.¹ Commonly, these patients have issues with controlling the elimination of stool. The lack of normal bowel function is one of the most bothersome problems SCI patients have.² Some surveyed patients rate their bowel dysfunction as a moderate to severe life-limiting problem, causing major restrictions on their social activities and quality of life.^{3,4}

Neurogenic bowel dysfunction is not completely understood. Patients' symptoms differ based on the type and level of SCI. Constipation, obstructive defecation, and fecal incontinence are known to be frequent complications of SCI, but which patients have which symptoms and to what extent can vary. Vallès et al defined the following three different neuropathological patterns in patients with complete SCIs.

Pattern A: Patients with neurological level above T7, when voluntary control of abdominal muscles was absent but spinal sacral reflexes were preserved.

Pattern B: Patients with SCI below T7 with voluntary control of abdominal muscles and preserved sacral reflexes.

Pattern C: Patients with SCI below T7 with voluntary control of abdominal muscles and absent sacral reflexes.

Pattern A patients are characterized by very frequent constipation with significant defecatory difficulty and infrequent incontinence. These result from a moderate delay in colonic transit time (CTT), incapacity to increase intra-abdominal pressure, and absence of anal relaxation during the defecatory maneuver. Pattern B patients are characterized by frequent constipation, significant defecatory difficulty, and not very frequent incontinence. These result from a moderate delay in CTT, capacity to increase intra-abdominal pressure, increased anal resistance during the defecatory maneuver, and presence of external anal sphincter (EAS) contraction when intra-abdominal pressure increases and during rectal distension. Pattern C patients are characterized by frequent constipation with less defecatory difficulty and a greater tendency toward incontinence. These result from severe delay in CTT, capacity to increase intra-abdominal pressure, absence of anal resistance during the defecatory maneuver, and absence of EAS contraction when intra-abdominal pressure increases and during rectal distension.⁵ These findings tend to be similar in patients with incomplete SCI at the same level.⁶

Most patients use bowel management programs. These can vary from patient to patient and may depend on their SCI level and symptoms. Successful bowel management is multi-dimensional; therefore, treatments may be multifaceted, using a mixture of strategies in regard to diet, medicines, electrical stimulation, and/or surgery.⁷ Care providers should always obtain a thorough rehabilitation history, including premorbid history (daily fluid intake, diet, frequency and duration of bowel movements, stool consistency, and

medications); current status (injury level, daily fluid intake, diet, medications, patient's understanding of effect of SCI on elimination, current bowel care regimen, and bowel incontinence); and lifestyle goals (schedules for work or school, availability of assistance if needed, amount of time needed to complete bowel care regimen) before starting appropriate management.⁸

Suppositories are a common component of successful bowel management programs.⁹ Bisacodyl and glycerin tend to be the most common active ingredients in these suppositories. Multiple studies have shown that polyethylene glycol-based bisacodyl suppositories can shorten total bowel care time compared with vegetable oil-based bisacodyl suppositories.^{10–12} Oral laxatives can also be a common component to bowel management programs. These can include peristaltic stimulants, osmotic laxatives, bulk forming agents, and stool softeners. Unfortunately, stimulant laxatives can be associated with unplanned bowel evacuation and an increase in the duration of time it takes to complete and evacuation.¹³ Enemas can also be a vital component to bowel programs. Multiple techniques have been described. Transanal irrigation has been shown to improve constipation, fecal incontinence, and symptom-related quality of life.¹⁴ This involves inserting a balloon catheter into the rectum and slowly administering warm tap water in volumes usually between 500 and 1,000 mL. Unfortunately, other authors have shown that patient compliance with this method can decrease over time.¹⁵ Digital rectal stimulation, another bowel management technique, involves the use of a gloved finger inserted into the anorectal canal. This has been shown to enhance contractions of the descending colon and rectum, contributing to bowel evacuation.¹⁶ Abdominal massage is a simple tactic some patients with neurogenic bowel use. Each massage usually lasts approximately 15 minutes. It begins at the cecum and slowly extends along the length of the colon to the rectum. This technique decreases CTT, reduces abdominal distension, and can increase the frequency of bowel movements per week.¹⁷ Electrical stimulation of the abdominal wall muscles is another technique used. Studies have shown that wearing an abdominal belt with embedded electrodes can decrease CTT and total bowel care time.^{18,19}

Some medications commonly used in patients with gastrointestinal symptoms have been studied in regard to their effect on neurogenic bowel patients. Cisapride reduced CTT in some neurogenic bowel patients with chronic constipation,²⁰ but it has been voluntarily removed from the market due to its side effects. Prucalopride is another medication that can improve neurogenic bowel symptoms.²¹ It has been approved for use in Europe and Canada, but the Food and Drug Administration has not approved it for use in the United States. Intravenous administration of a combination of neostigmine and glycopyrrolate has been shown to induce prompt bowel evacuation in SCI patients, but it can only be used in a monitored setting.²² Given as an intramuscular injection, neostigmine and glycopyrrolate have also been shown to accelerate bowel care time with minimal side effects.²³

When all conservative options have failed, surgical options should be discussed with the patient. Implantation of a sacral

anterior root stimulator can increase the frequency of bowel movements, decrease the amount of time spent dedicated to defecation, and improve constipation in SCI patients.²⁴ Commonly used for fecal incontinence in the general population, the sacral nerve stimulator has been shown to improve incontinence of neurogenic origin, along with increasing quality of life scores.²⁵

The Malone antegrade continence enema (MACE) is a procedure more commonly performed in children, but it has been shown to be efficacious in adults with neurogenic bowel. It involves maturing the appendix or cecum to the abdominal wall and catheterizing the stoma periodically to irrigate the colon and control defecation.²⁶ The MACE can improve bowel incontinence, toileting times, and quality of life in patients with neurogenic bowel symptoms, but proper patient selection and preparation are urged.²⁷

Sometimes seen as a last resort option, ostomies (colostomy or ileostomy) in selected patients have been shown to have equivocal or superior quality of life outcomes compared with conservative bowel management strategies. They can significantly reduce the amount of time required for bowel management.²⁸

Neurogenic bowel can be a difficult problem to manage. There is not a great deal of studies covering the subject and those that do tend to involve a small number of patients. More study of the subject is needed. When trying to help a patient with neurogenic bowel, it is important to listen to all of their symptoms, understand what function they do and do not have, and tailor the bowel program to each patient.

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