

TELE-REHABILITATION GUIDELINE

Neurogenic Bowel

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I. Definition, assessment, and diagnosis

A. Definition

1. Impairment of gastrointestinal and anorectal function resulting from impaired input from the central nervous system as the result of a spinal cord injury (SCI) (Abrams & Wakasa, 2012; Consortium, 1998; Krassioukov, et al., 2010).
 - a. Complications include but are not limited to ileus, gastric ulcers, gastroesophageal reflux disease (GERD), autonomic dysreflexia (AD), hemorrhoids, abdominal distention, diverticulosis, nausea, appetite loss, bowel impaction, constipation, delayed evacuation and unplanned evacuation.
 - b. Twenty-three percent of SCI individuals are hospitalized in their lifetime for one or more of these complications.
 - c. These complications cause major physical and psychological problems in SCI persons (Abrams & Wakasa, 2012; Consortium, 1998).
2. Neurogenic bowel can be classified as Upper Motor Neuron (UMN) or Lower Motor Neuron (LMN) bowel dysfunction.
 - a. UMN: Injury above the conus medullaris
 - 1) Hyperreflexic bowel characterized by increased colonic wall and anal tones
 - 2) Voluntary control of the external anal sphincter is disrupted, and the sphincter remains tight, thus promoting retention of stool. However, nerve connection between the spinal cord and colon remain intact, with preserved reflex coordination and stool propulsion.
 - 3) Stool evacuation can be achieved by eliciting reflex activity from introducing a stimulus into the rectum, such as an irritant or digital stimulation.
 - 4) The goal is to maintain soft yet firm stool, evacuate on a routine basis (at least 3 times per week) and prevent accidents.
 - b. LMN: Injury at the conus medullaris and cauda equina
 - 1) Areflexic bowel characterized by loss of centrally mediated spinal cord peristalsis and slow stool propulsion
 - 2) Damage at or below T12 will inhibit the spinal cord mediated reflex defecation and will not respond to stimulation.
 - 3) Commonly associated with constipation and significant risk of incontinence because of the atonic external anal sphincter and lack of control over the levator ani muscle
 - 4) The goal is to maintain well-formed stool, maintain clear rectal vault and prevent accidents (Abrams & Wakasa, 2012; Consortium 1998; Krassioukov, et al., 2010; Kiser, 2013).
3. Neurogenic bowel can be classified by complete vs. incomplete SCI.
 - a. Those with incomplete injury may retain the sensation of rectal fullness and the ability to evacuate bowels, so no specific bowel program may be required.

- b. Those with a complete injury may or may not function in a similar pattern in regards to constipation and incontinence to those with an incomplete injury. This depends on whether or not the reflex arc is maintained (Abrams & Wakasa, 2012).
- B. Assessment and diagnosis
 1. A systemic, comprehensive evaluation of bowel function, impairment, and possible problems should be completed at the onset of SCI and at least annually.
 2. Patient history should include:
 - a. Premorbid gastrointestinal function and general medical conditions
 - b. Current bowel program
 - c. Current symptoms including abdominal distention, respiratory compromise, early satiety, nausea, evacuation difficulty, unplanned evacuations, rectal bleeding, diarrhea, constipation and pain
 - d. Defecation or bowel care frequency, duration and characteristics of stool (Abrams & Wakasa, 2012; Consortium, 1998; Kiser, 2013).
 3. A physical examination should be completed at onset of SCI and annually throughout care and should include:
 - a. Complete abdominal assessment including palpation along the colon
 - b. Rectal examination
 - c. Assessment of anal sphincter tone
 - d. Testing for anocutaneous and bulbocavernous reflexes to differentiate UMN vs. LMN bowel
 - e. Stool testing for occult blood beginning at age 50 (Abrams & Wakasa, 2012; Consortium, 1998; Kiser, 2013)
 4. Assessment of knowledge, cognition, function and performance should be conducted in order to determine an individual's ability to independently perform bowel program or direct a caregiver safely and effectively. This assessment should include the patient's:
 - a. Ability to learn
 - b. Ability to direct others
 - c. Sitting tolerance, angle and balance
 - d. Upper extremity strength and proprioception
 - e. Hand and arm function
 - f. Spasticity
 - g. Transfer capabilities
 - h. Actual and potential risks to skin
 - i. Home accessibility and equipment needs (Abrams & Wakasa, 2012; Consortium, 1998)

II. Management and treatment recommendations

- A. Management/treatment
 1. Designing a good bowel program requires appropriate hydration, diet, activity, and choice of rectal stimulant to trigger defecation. Bowel program is initially daily but can be changed to every other day or 3x a week. It is important to individualize programs to find the optimal schedule, body position (in the bed, on the toilet, or over a bedside commode) and appropriate assistive techniques. Evaluate medications for adverse effects on the bowels (Abrams & Wakasa, 2012; Consortium, 1998).
 2. Two methods of rectal stimulation may be necessary and can be used either individually or in combination.

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- a. Mechanical methods
 - 1) Digital stimulation: Increases peristalsis and relaxes the external anal sphincter in UMN bowel. It is done by inserting a lubricated gloved finger into the rectum and rotating in a circular manner. Should be done for 15-20 seconds, with stimulation longer than 1 minute usually being unnecessary.
 - 2) Manual evacuation involves the insertion of one or two lubricated gloved fingers into the rectum to unhook stool and is the method of choice for patients with LMN bowel.
- b. Chemical methods
 - 1) Glycerin suppositories act as a mild local stimulant and lubricating agent. Use in patients who experience adverse reactions to bisacodyl suppositories, fast reactions to bisacodyl or are attempting to make a transition from suppository to mechanical stimulation.
 - 2) Bisacodyl suppository is a contact irritant, acting directly on the mucosa and elicits peristalsis along the entire colon.
 - 3) Mini-enemas are a 4 mL liquid suppository composed of liquid docusate and glycerin. They trigger reflex mediated peristalsis by acting as a mucosal stimulant and by providing lubrication (Abrams & Wakasa, 2012; Consortium, 1998; Kiser, 2013).
- c. The goal of the bowel program is to minimize or avoid unplanned bowel evacuations. Thus, the program should be predictable, scheduled and provide effective elimination to avoid colonic distention and fecal impaction (Abrams & Wakasa; 2012 Consortium, 1998).
- d. A bowel program will require frequent adjustments throughout an individual's lifetime. During the acute phase of care, the spinal cord is in shock with impairment of the reflex arcs. There will be a need for more vigorous rectal stimulation and/or manual evacuation during the first few days of injury. As the individual's activity level increases and they experiment with different positioning, fluid amounts and diet, the patient will need to make further adjustments. In an incomplete SCI full recovery of bowel function may return and the necessity of the bowel program will resolve (Abrams & Wakasa, 2012; Consortium, 1998).
- e. Consider also the use of assistive techniques that increase abdominal pressure, such as push-ups, abdominal massage in a clockwise manner up the ascending colon, the Valsalva maneuver, deep breathing, ingestion of warm fluids or a seated or forward leaning position to aid in bowel emptying (Abrams & Wakasa, 2012; Consortium, 1998).
- f. Knowledge of complications due to inadequate bowel program are necessary for prompt diagnosis as patients with SCI often have diminished visceral sensations and other clinical/physical signs usually relied on for diagnosis. For instance, individuals with injuries above T6 may present with vague non-localized discomfort, increased spasticity and a rigid abdomen. Keep in mind that the most common complaint in SCI patients with abdominal pathology is anorexia +/- pain (Abrams & Wakasa, 2012; Consortium, 1998).
- g. Constipation in patients with SCI manifests with unusually long bowel care periods, abdominal distention, increased belching and small amounts of hard and dry stools. Management of chronic constipation begins with investigation of diet, fluid and fiber intake, daily activity and minimization of medications that can

contribute to constipation. If proper evacuation is not obtained in 24 hours after a regular bowel program then a trial of one or more of lubricants, osmotic laxatives and stimulant cathartics should be attempted (Abrams & Wakasa, 2012; Consortium, 1998).

- h. Colostomies should not be considered as a failure of bowel program, but rather viewed as a safe, effective method at managing severe and chronic gastrointestinal problems. Colostomies have been shown to reduce the number of hours spent on a bowel program, simplify bowel care, reduce the number of hospitalizations as a result of bowel care complaints, and to improve the quality of life. If colostomy is decided upon, a permanent stoma is the best option (Abrams & Wakasa, 2012; Consortium, 1998; Kiser, 2013; Krassioukov, et al., 2010).

B. Restrictions

1. Caution should be used to avoid AD with digital stimulation (a pain stimulating maneuver) in patients with spinal cord lesions at or above T6. In individuals who experience AD with a bowel program, consider using a topical anesthetic gel or ointment when conducting the digital stimulation to reduce this risk or premedicate with sublingual or topical nitroglycerin (avoid in patients who are using PDE5 inhibitors medication, such as Viagra) prior to the digital stimulation to avoid the hypertension associated with AD.
2. Due to loss of sensation, use of bedpans should be strictly prohibited due to significant risks of skin breakdown and pressure ulcer formation. If bowel care on a commode or toilet is not possible, the patient should be placed in bed with appropriate padding under his/her buttocks.
3. Colorectal cancer must be ruled out in patients with positive fecal occult blood testing or in patients who are over the age of 50 and experience a change in bowel function that does not respond to corrective measures.
4. Major outcomes: An adequate bowel program in acute care should be designed so that the patient can easily replicate it at home to minimize unplanned evacuations. (Abrams & Wakasa, 2012; Consortium 1998; Kiser, 2013)

III. Prevention and education

- A. Prevention: Diet plays a large role in a successful bowel program. Certain foods make stool hard/soft, make stool loose or produce flatulence. Monitor accordingly and consider consult with a nutritionist/dietician.
 1. Caution must be taken when adding fiber to the diet as fiber alone does not necessarily improve bowel function. Patient's previous fiber intake should be taken into consideration. The recommended starting dose is 15 g fiber/day (Abrams & Wakasa, 2012; Consortium, 1998; Krassioukov, et al., 2010).
 2. The amount of fluid needed to promote optimal stool consistency must balance the amount needed for appropriate bladder management.
 - a. Recommended fluid intake is 500 ml/day greater than the general public.
 - b. Calculated as 40 ml/kg body weight + 500 ml/day (Abrams & Wakasa, 2012; Consortium 1998; Kiser, 2013)
- B. Education
 1. Educational programs for bowel management should be structured and comprehensive. Education should be directed at all health care providers, patients and caregivers. Program timing and content will depend on medical stability, readiness to learn, safety

- awareness and other related factors. Educational training should include information on:
- a. Anatomy
 - b. Process of defecation
 - c. Effect of SCI on bowel function
 - d. Description, goals and rationale of successful bowel programs
 - e. Factors that promote successful bowel programs
 - f. Role of regularity, timing and positioning in successful programs
 - g. Safe and effective use of assistive devices and adaptive equipment
 - h. Techniques for manual evacuation, digital stimulation and suppository insert
 - i. Effect of prescription and non-prescription medications on bowel function
 - j. Prevention and treatment of common bowel problems, including constipation, impaction, diarrhea, hemorrhoids, incontinence and autonomic dysreflexia
 - k. When/how to make changes in medications and medication schedules to optimize the bowel program
 - l. Management of unplanned bowel movements and how to prepare for/adjust bowel programs for natural disasters and emergencies.
2. Patient and caregiver knowledge of bowel program management should be assessed at each of the follow-up visits (Abrams & Wakasa, 2012; Consortium, 1998).

This guideline was developed to improve health care access in Arkansas and to aid health care providers in making decisions about appropriate patient care. The needs of the individual patient, resources available, and limitations unique to the institution or type of practice may warrant variations.

Guideline Developers

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