

Management of neurogenic bowel dysfunction in patients with spinal cord injury

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ABSTRACT

The number of individuals vulnerable to bowel and bladder dysfunction is ever-increasing. Spinal cord injury (SCI), both traumatic and non-traumatic, has an estimated prevalence of over 2.5 million worldwide. Learning how to manage patients who exhibit such pathology is of the essence in order to ameliorate the patient's quality of life. This review strives to present the most important aspects of the management process. It is very important to examine all the aspects of the management process in order to have a more holistic view of the patient's needs. The key to a successful treatment is communication. By enhancing and supporting the exchange of information between doctors, care-givers, nurses and patients the management process is rendered easier for all parts involved.

Key Words: SCI, Neurogenic Bowel, Management

Introduction

The number of individuals vulnerable to bowel and bladder dysfunction is ever-increasing. Spinal cord injury (SCI), both traumatic and non-traumatic, has an estimated prevalence of over 2.5 million worldwide. Amongst those suffering from central nervous system injury or disease, bowel symptoms are experienced commonly. Of those with SCI, up to 95% report constipation and 75% have experienced episodes of fecal incontinence.

The symptoms of NBD have a substantial negative

impact on quality of life, social integration, and personal independence. Only 6% of SCI patients require no intervention to support their bowel function. As many as 65% need to employ intrusive options such as digital stimulation or evacuation of the anorectum, and one-third require assistance with bowel care [1].

For all the reasons mentioned above, the author deems that a review of the current literature concerning NBD is of great importance, since it is a matter that requires clinical (doctoral and psychological), nursing and even surgical interventions (in some cases). Learn-

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Discussion

The Neurogenic Bowel

Following spinal cord injury, neurogenic bowel dysfunction (NBD) is defined as a colonic dysfunction due to a lack of central control based on an upper motoneuron (UMN) or lower motoneuron (LMN) lesion with reflexive or areflexive bowel, respectively. It constitutes a major physical and psychological problem in individuals with spinal cord injury (SCI) with a high impact on quality of life and restriction of social activities [2].

Patients with sensorimotor complete SCI, classified by the American Spinal Injury Association Impairment Scale (AIS) as AIS-grade A (AIS-A), lose the sensation of rectal filling, anal sensibility, and the ability to evacuate their bowels, resulting in impaired defecation [3]. The improvement of bowel function is considered amongst the highest priorities in spinal cord injury patients. All patients with complete SCI suffer from bowel-related symptoms and the frequency of gastrointestinal problems increases in individuals who had been spinal cord injured for more than 5 years.

The Bowel Management Program

To prevent such gastrointestinal complications, a specific bowel management program during rehabilitation is required to achieve efficient, effective, and consistent stool evacuation to avoid chronic overdistension of the colon. Whereas normal individuals have synergistic activity between rectal smooth muscle and pelvic striated muscles, it is hypothesized that SCI patients have dyssynergic pelvic floor movements, contributing to outlet obstruction [4].

This constitutes one of the key factors interfering with regular bowel function. Sphincter electromyography findings indicate involuntary external as well as internal

anal sphincter activity supporting the notion that outlet obstruction may be due to persistent external anal sphincter contractions (although results of anorectal manometry did not reveal a clear correlation with

clinical bowel dysfunction). Overall, the exact pathophysiological process of outlet obstruction involving the pelvic floor and anorectum of SCI patients has yet to be examined.

Management

In 22% of individuals with SCI, bowel management takes up to an hour on every occasion, and in 14%, it takes over 60 minutes [5]. The consequences of all this are loss of independence and dignity, embarrassment, anxiety, depression, social isolation, and loss of sexual activity [6]. In fact, the burden of NBD is so great that SCI patients report bowel dysfunction as more problematic than any bladder dysfunction, sexual dysfunction, pain, fatigue, or perception of body image.

While urological sequelae and their treatment are well documented, neurogenic bowel dysfunction (NBD) is among the least discussed topics in the literature, perhaps because of the misperception that there is little serious morbidity or mortality associated with NBD [7].

Management of NBD has often involved diet, mild laxatives combined with sporadic enemas, or digital maneuvers. In most patients, regular conservative bowel management is not effective, and during the last decade, several new therapeutic modalities were suggested: prokinetic agents, biofeedback, enema continence catheter, the Malone antegrade continence enema administered through an appendicectomy and sacral nerve stimulation.

To date, there is limited literature evidence supporting any bowel management program for NBD. However, a recent randomized controlled trial found that patients treated with the Peristeen Anal Irrigation System (Coloplast A/S, Kokkedal, Denmark) had fewer complaints of constipation, less fecal incontinence, improved symptom-related quality of life, and reduced time consumption on bowel management procedures, compared with patients treated by conservative bowel management techniques.

Malone antegrade continence enemas are used in the management of neurogenic bowel to prevent fecal continence. Several different irrigation solutions have been described but glycerin, an osmotic laxative that promotes peristalsis, has rarely been mentioned or studied. Chu et al assessed clinical outcomes in

patients with a Malone antegrade continence enema using glycerin-based irrigation [8]. Of the 23 patients with follow-up greater than 6 months, 19 used glycerin-based irrigation. The average age at surgery was 8.8 years. Patients using glycerin instilled a median of 30 ml (mean 29) glycerin and 50 ml (131) tap water.

The fecal continence rate was 95% and stoma leakage rate was 16% and only 16% of patients required daily irrigation.

Glycerin is a viable and effective alternative irrigant for antegrade enemas of neurogenic bowel, with an excellent fecal continence rate. The volume of irrigant needed is typically less than 90 ml, which is much less than in published reports using tap water alone.

The Aspect of Nursing

Nursing is recognized as the main branch of the interdisciplinary team, which provides nursing rehabilitation for people with Spinal Cord Injury.

Rehabilitation Nurses perform many types of interventions, including in-patient care, patient and caregiver education, care management, and psychosocial support for patients and their families. Nursing interventions have perhaps the most significant impact in the areas of functional independence, social reintegration, and quality of life in the long run.

On the part of patients and their families, the areas of greatest interest to them, according to a study, include motor function, bowel and urination control, sexual function, and pain management. Patients require comprehensive care and assistance, so time should be properly planned to accommodate a range of activities. Nurses should develop a therapeutic relationship that will provide a better understanding of their role by the patient.

Through in-patient education programs, the person with Spinal Cord Injury learns to understand and monitor their own physical, emotional and social well-being. Improvements in knowledge do not necessarily translate into problem-solving ability, even for important issues. This may indicate the need to incorporate more active lifelong learning strategies or training programs to facilitate knowledge transfer through life situations).

Several studies show that the degree of active involvement of the patient in rehabilitation has a pos-

itive correlation with the improvement of functional capacity and outcome, which is why it is preferred in every treatment model.

An individualized rehabilitation program reflects the needs and expectations of people with Spinal Cord Injury as part of their family and professional life, intending to return to the community. Rehabilitation Unit staff needs to understand how patients experience rehabilitation and the process of adapting to the new situation.

Rehabilitation Nurses devote significant time to patient education and psychosocial support and empowerment for themselves and their families. Usually, this is not included in traditional documentation systems. Quantifying these interventions will allow researchers to discern if there is a correlation between time spent on training activities and patient outcomes. Additionally, professionals working in Rehabilitation centers should utilize patients' expectations, desires, and experiences to develop better Rehabilitation programs [9].

Examining Mortality

A history of chronic pressure ulcers, amputations, depressive disorders, symptoms of infections hospitalization within the past year were all predictive of mortality. LE estimates were generated using the example of a man with a non-cervical, non-ambulatory SCI. Using 3 age examples (20, 40, 60y), the greatest estimated lost LE was associated with chronic pressure ulcers (50.3%), followed by amputations (35.4%), 1 or more recent hospitalizations (18.5%), and the diagnosis of probable major depression (18%). Symptoms of infections were associated with a 6.7% reduction in LE for a 1 SD increase in infectious symptoms [10].


Clinical Implications

As expressed by Krause, there are many ways the current findings can be translated into clinical practices. The identification of the predictors will allow clinicians from multiple disciplines to assess risk for mortality quickly and efficiently. A minimum intervention for any clinician is to share information with the individual who has an SCI. Clinicians may use the information on the specific risk factors to develop interventions in their own area of expertise. For instance, rehabilitation psychologists should ensure assessments for

depression on outpatient visits and those at high risk for depression should be identified and appropriate follow-up should be implemented. Reviewing the history of infections on outpatient visits is also important. Other types of assessment, such as skin integrity, are almost considered to be a matter of routine. Interventions need to be developed targeting stakeholders more directly by disseminating information to them, which may be used to promote self-health. Those with SCI certainly know chronic Pus (pressure ulcers) lead to declining health, but knowing the extent to which they result in diminished Life Expectancy may be more likely to lead to changes in health behaviors [11].

Communication is key

Communication is all about trust. The patient de-

mands to be treated as an equal and will not trust his/hers health-workers completely, until said trust is established. Clinicians have to understand that achieving and creating an effective communication regime takes time. But making the patient feel comfortable with his condition and his/her helpers is of the essence. Subjects such as NBD usually are a taboo issue, even through the scope of confidentiality between a doctor and his/her patient. The people responsible for the management of NBD should work in the context of the notion of emancipation. The person needs to be reminded that he/she can still be a productive individual. 

Conflict of Interest

The author declares no conflict of interest

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