

# Neurogenic Bowel Rehabilitation in Patients with Spinal Cord Injury

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## ABSTRACT

**Background:** Neurogenic bowel is a dysfunction resulting from a lack of central nervous control. It is a condition commonly observed in persons with spinal cord injury (SCI).

**Material and Method:** we considered 15 SCI patients enrolled to anal irrigator training. At the onset and at the end of the rehabilitative program patients completed a specific questionnaire. The answers concerning the influence of adequate management of neurological bowel on personal autonomy and quality of life. Nurse-care was fundamental for anal irrigator training.

**Results:** Faecal incontinence, constipation, abdominal pain improved with the constant use of anal irrigator.

**Conclusion:** anal irrigator is one promising techniques that contributes to improving the autonomy and quality of life of the SCI persons.

## Keywords

Neurogenic bowel management, Spinal Cord Injury, Anal irrigator, Nurse-care.

## Introduction

Neurogenic bowel is common following spinal cord injury (SCI); persons with SCI frequently lose rectal sensation and the ability to defecate normally [1].

The objectives of bowel rehabilitation are mainly three: to achieve a balance between constipation and incontinence, to obtain a regular evacuation rhythm (3 times a week), to avoid complications. A bowel rehabilitation program includes: learning of evacuation maneuvers, the assumption of an adequate diet, which also includes proper hydration, the intake of suitable drugs, teaching correct behavior, the assumption of postures facilitating the evacuation, the use of specific aids. The site of the lesion can determine two types of neurological intestine, with the relative methods of management and rehabilitation: the areflexic intestine and the flaccid intestine.

Control of the defecation reflex is located in the sacral center of defecation, in the S2-S4 tract. If the injurious event is located above the sacral center of defecation we will have the areflexic or spastic intestine; and the patient will report constipation. If the injurious event involves the cauda equina or the sacral center of defecation, we will have a flaccid intestine and consequently a clinical picture of fecal incontinence. Anal irrigator is a safe and effective method for individuals with SCI who develop impactions or do not have an effective bowel routine. Nurse approaches to patient care and training the process. The aim of the present study was to evaluate the effect of transanal irrigation on bowel function in a prospective cohort of SCI patients. Bowel dysfunction has detrimental effects on patients' psychological, physical and social functioning, including embarrassment, social isolation, stopping sexual activity and a sense of loss of autonomy [2,3].

## Material and Method

We considered 15 patients affected by paraplegia 11 males and 4 females with a mean age of 41.03. The etiologies were different:

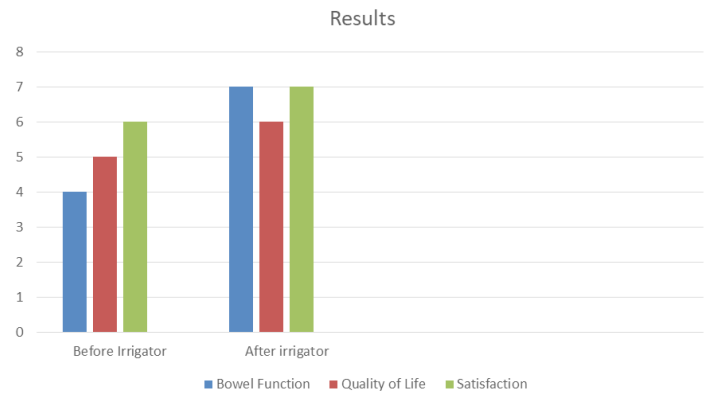
11 post-trauma, 1 post-myelitis, 1 intramedullary tumor, 1 narrow canal and 1 cauda equina. Patients were recruited consecutively from January 2019 to January 2020. Spinal cord injuries were classified as complete and incomplete by the American Spinal Injury Association (ASIA) classification [4]. The ASIA scale grades patients based on their functional impairment from A to E, where A represents the greatest impairment and E represents the normal condition. 9 patients were classified in group A, 4 in group B and 2 in group C. For intestinal rehabilitation, we used the transanal irrigator that is a promising technique to reduce constipation and fecal incontinence [5]. This device has been designed SPINA BIFIBA and built for SCI person. At the onset of the program all patients, completed a questionnaire concerning the influence of adequate management of neurological bowel on personal autonomy and quality of life. After the short period of training in the use of the intestinal irrigator, the patients filled out the same questionnaire again.

On a scale of 0 (for no perceived problem) to 10 (maximum perceived problem) patients rated their bowel management, personal autonomy and quality of life.

Nurse was responsible of individual bowel rehabilitation program and declared the difficulties encountered during the training. Patient with SCI must have good trunk control in order to use the irrigator. It is important to make transfers from and to the toilet. The precautions to be taken are related to: inflammatory bowel diseases, (Crohn's, ulcerative colitis) irradiation therapy of the pelvic or abdominal region, recent operations in the abdominal or anal area, autonomic dysreflexia, irregular intake of anticoagulant drugs with Vit K antagonists, diarrhea. Absolute contraindications are represented by the acute phase of the spinal cord injury, a known obstruction of the large intestine, an acute inflammatory bowel disease, diverticulitis and pregnancy if anal irrigation has never been used. In case of severe constipation, a bowel cleansing would be necessary before starting the procedure. The balloon is introduced into the rectum, then the air is pumped up to 5 pumps. Then you can get enough water into the rectum for the colon. The balloon is then deflated and the probe is removed. Intestinal emptying occurs spontaneously after a short time. Otherwise, stimulate emptying with movements of the upper body with coughing. The emptying time is personal, usually within 30 minutes.

## Results

The use of the intestinal irrigator take improvement in the values concerning the following items: faecal incontinence, constipation, abdominal pain and manual evacuation. We reported 1 wash-out for autonomic dysreflexic symptoms triggered by the maneuvers needed for evacuation phase. Patient experience was very important to the nurses. They were well educated in the reasoning behind provision of bowel care and understood the need for the bowel care and the comfort good bowel mobility could provide. The negative patient experience was equally important. The experience of the patient had a direct impact on the working of the nurses (Figure 1).



## Discussion

Results evidenced an improvement of bowel management, personal autonomy and quality of life of SCI persons. Anal irrigator is a safe and effective method for SCI person who has not an effective bowel routine. Glickman S, Kamm MA [6] showed that anal irrigation reduces time spent on bowel management, dependency on caregiver, and the frequency of defecation related symptoms: abdominal pain, nausea, incontinence. Bowel function can be a source of distress in 54% of patients and this was significantly associated with the time required for bowel management and frequency of incontinence. Promotion of continence through good care was seen as an empowering factor for patients that allowed rehabilitation and improved quality of life. Nurses described bowel care as unpleasant but accepted its physiologic need and importance. The nurses in our study accepted the unpleasant nature of bowel care but they separated it from other nursing practices. Training took a lot of time so the operator devoted himself only to that task. Achieving a successful outcome with anal irrigation involves selecting appropriate patients, and requires motivation from both patients and health professionals to work through any initial problems. In front of opposite patient the nurse explains the importance of a comprehensive, individualised continence assessment, as well as the fact that bowel dysfunction can cause a spectrum of symptoms, both urinary and faecal. Bowel care may be seen as more acceptable when provided by someone with a long-term relationship with the person living with SCI.

The invasive nature of the care can made the participants feel embarrassed, in our study patient and the nurse remain alone in the room to overcome this problem and maintaining privacy during anal irrigator training.

The standardization of bowel care training and increasing the numbers of nurses trained in bowel care can make training easier and became a multidisciplinary tool.

Spinelli et al evidenced that the cross-talk between bladder and bowel should always be considered during routine clinical practice to assess, diagnose, treat, and follow SCI people with neurogenic low urinary tract (LUT). and bowel dysfunctions. One of the most important risk factors for recurrent UTIs is represented by bowel dysfunction. All clinicians should be aware of this relationship

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to investigate properly bowel function in each case of recurrent UTIs, especially when urine cultures reveal microorganisms being part of the intestinal microflora, i.e. *E. coli*. In these cases, the re-establishment of a physiological bowel function may determine the definitive treatment of recurrent UTIs [8].

Limitation of this paper is represented by the number of SCI participants was 15, therefore, caution is needed when generalizing findings about this group.

However, Christensen P, et al. evidenced that there is a small risk of bowel perforation at one per 50,000 irrigations [7]; and it is prudent to counsel patients about this risk [9].

### Conclusion

Anal irrigator is one promising techniques to reduce constipation and fecal incontinence; that contributes to improving the autonomy and quality of life of the SCI persons. Good nurse-patient relationship is important for positive training outcome. Individual rehabilitation program in SCI people must include bowel mangement.

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