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Long Term Morbidity in Persons with Neuropathic Bowel

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Abstract :

Life expectancy and survival following Spinal Cord Injury (SCI) has improved over the past few decades due to better management of life threatening complications and efficient rehabilitation. Concomitant problems like bladder and bowel incontinence are now being addressed to improve the quality of life of the spinal cord injured persons. Despite similarities between pathways of innervation of the bladder and the distal bowel, functional disturbances of the latter have received less attention.[1]

In this study we evaluated the bowel evacuation practices of a group of SCI patients who had been rehabilitated from our centre to assess the effectiveness of our bowel training programme and the long term bowel problems faced by our patients .

Materials and Methods

Patients with SCI lesions who were rehabilitated from our department and who had come for their annual medical follow up were examined to evaluate their long term morbidity due to bowel dysfunction. Patients were interviewed by the medical team regarding the frequency, method of bowel evacuation and problems relating to their bowel function. Fifty three SCI patients were evaluated in the study. There were 49 males and 4 females and their age ranged from 20 - 60 years. Twenty seven patients had been disabled for more than 5 years and 26 patients for the period of less than five years. There were 5 cervical, 27 thoracic, 20 lumbar and 1 sacral cord injuries. Patients were described to be doing "digital stimulation" (DS) if they were able to trigger defaecation by inserting their finger and performing circular movements in the anal canal to stimulate contraction of the rectum and evacuation of the bowel whereas "Digital evacuation" (DE) implied manual removal of the faeces with a finger. If a patient was following neither of the above techniques and was able to empty his bowel by straining alone this was denoted as "straining". In addition to ascertaining their bowel history, their general health status was reviewed by clinical examination. This was followed by a rectal and sigmoid colon examination by the second author.

Patients were considered to have flaccid bowel (lower motor neuron lesion) or spastic bowel (upper motor neuron lesion) depending on the absence or presence of the anal wink and bulbocavernosus reflexes.[2] Patients were considered socially continent if they had not more than one bowel accident per month. Bowels were considered to be constipated if they had less than three bowel actions per week (Connel et al[3]). Those who had hard stools but had bowel movements every day were classified separately. No patients were on medications for bowel mobility or on suppositories or enemas.

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Results

Of the 53 patients, 21 had flaccid and 32 patients had spastic bowel. The method of bowel evacuation followed by the patients was as follows - 20 (40%) of the patients were doing DS, 16 (30%) were doing DE and 17 (30%) were straining to pass stools. Among the 53 patients evaluated, 25 had no complaints regarding their bowel function, while 28 patients had complaints which included constipation, bleeding per rectum, hard stools, and diarrhoea. The relationship between the type of bowel, the method of bowel evacuation and the symptoms is given in Table 1.

The frequency of bowel evacuation was once a day in 37 patients (70%), on alternate days in 10 patients (20%), once in 3-4 days in 2 patients (4%) and twice daily in 4 patients (8%). Fourteen patients reported the consistency of the stool as hard whereas only 6 patients complained of constipation.

Anal tags were observed in 20 cases and haemorrhoids in 37 cases. Among the patients with anal tags, 15 had spastic bowel and 5 had flaccid bowel. Of the 37 patients with haemorrhoids, 17 of them had flaccid and 20 had spastic bowel. The relationship of these pathologies to the method of bowel evacuation is given in Table 2.

TABLE 1.

Distribution of Evacuation Technique, Bowel Type & Lower Gastrointestinal Symptoms

Symptoms	DS		DE		Straining	
	UMN n=17	LMN n=3	UMN n=6	LMN n=10	UMN n=9	LMN n=8
Bleeding	7	3	5	3	5	5
Hard Stools	2	2	2	3	2	3
Constipation	-	-	-	-	4	2
Diarrhoea	1	-	-	3	-	-

DS: digital stimulation, DE: digital evacuation, UMN: upper motor neuron, LMN: lower motor neuron.

TABLE 2.

Distribution of Evacuation Technique Vs Lower Gastrointestinal signs.

Signs	DS		DE		Straining	
	UMN n=17	LMN n=3	UMN n=6	LMN n=10	UMN n=9	LMN n=8
Haemorrhoids	10	3	3	10	7	4
Anal tags	8	1	3	3	4	1

DS: digital stimulation, DE: digital evacuation, UMN: upper motor neuron, LMN: lower motor neuron.

Among the 25 patients who did not have any complaints regarding their bowel functioning, examination revealed 18 cases of haemorrhoids, 11 anal tags, 1 mucosal tear, 1 prolapse and 2 fissures (some cases had more than one finding). Only three of the patients who had no complaints had normal sigmoidoscopy findings.

26 patients reported bowel accidents. 3 patients (6%) had bowel accidents once a week, 9 patients (17%) once a month, 9 patients (17%) once in every 2 months and 5 patients (9%) once in 3-6 months.

Discussion

Management of neuropathic bowel following spinal cord injury continues to be a challenging problem. While restoring normal bowel evacuation and volitional control over bowel movements is not possible, social continence can be achieved so that persons can be restored to a useful role in their families and in society.

SCI affects the physiology of the GI tract. Problems include delayed gastric emptying, altered gastric acid secretion caused by autonomic dysfunction, abnormal colonic myoenteric activity[1] and delayed oro-anal transit time[2]. The absence of post prandial colonic myoelectrical and motor activity in the colon is thought to be due to lack of parasympathetic neural continuity to the descending colon and rectum via the 2nd, 3rd and 4th anterior sacral roots. Hence the colonic and rectal stasis has been shown to be the main causes of delay in the gastrointestinal transit time in SCI. The frequency of defaecation is reduced in spinal cord injury patients and the commonest bowel problem is considered to be intractable constipation.[2]

Neuropathic bowel caused by spinal cord injury has been reported to frequently require a bowel programme with stimulant suppositories for effective defaecation.[5] The bowel training programme at this centre involves the use of stimulant suppositories and digital evacuation in the initial stages of rehabilitation. Once a regular bowel pattern has been established, the patient is gradually weaned off suppositories. Thereafter, bowel movement are triggered by digital stimulation at a specified time in those with spastic bowel and by digital evacuation in those with flaccid bowel. Patients are advised a high fibre diet and some of them needed bulking agents in the initial stages of bowel training. However, at discharge every attempt is made to minimize medication as most of the patients cannot afford to buy them on a long term basis.

The methods of bowel evacuation taught to patients while they are undergoing rehabilitation are either DS or DE. Those with spastic bowel use digital stimulation to initiate reflex peristalsis and those with flaccid bowel are taught to do a manual digital evacuation. Some patients are able to clear their bowel by straining though this method is not routinely recommended for bowel training.

As expected, this study has shown that the technique of bowel evacuation most favoured by patients with spastic bowel is DS (53%). 28% pass stools by straining and the rest 19% do DE. 48% of patients with flaccid bowel do DE , 38% pass by straining and 14% by DS.

Most patients (69.8%) had daily bowel evacuation. This is in contrast to the frequency quoted in literature - Han et al[4] quotes a frequency of 2.85 +/- 1.96 days and Gulati et al[6] found that only 33% of their patients had daily bowel evacuation. 67% of their patients used medication and 79% of them used a suppository. However, none of the patients in this study were on oral laxatives, rectal stimulant suppositories or enemas.

Social bowel continence has been defined by King et al[7] as one or fewer accidents (ie defaecations not on the toilet at the desired time) per month. According to this definition 77% of our patients had social continence. 22.6% were incontinent and had bowel accidents occurring at least once a month.

A high incidence of haemorrhoids (74%) in chronic spinal cord injury has been reported earlier.[8] In this study the incidence of haemorrhoids is high (70%), but only 53% of the patients complained of bleeding per rectum. Haemorrhoids were found to be more prevalent in patients with flaccid bowel doing DE (81%). Since haemorrhoids develop as a result of frequent high pressures in the anorectal marginal veins[9] it was surprising that despite the raised intra abdominal pressure in patients who were straining to empty their bowel, the prevalence of haemorrhoids among them was relatively less.

Anal tags, a marker of chronic fissuring was also observed to be widely prevalent (38%). Anal tags were found more commonly in patients with spastic bowel doing DS (45%). Patients who were straining for bowel evacuation had a low prevalence of anal tags and also had high continence (82%) rate in our study. These findings suggest that straining, whenever possible, as a method of bowel evacuation, may result in decreased long term morbidity compared to other methods.

As reported by Han et al[4], we found that there was no significantly increased prevalence of bowel problems or anorectal abnormalities in relation to the duration of spinal cord injury. Among those who had been injured for less than 5 years, 69% showed abnormalities and of those who had been injured for more than 5 years, 77% cases showed abnormalities. However Stone et al[6] had reported that chronic GI problems were rare in the first five years after injury suggesting that chronic gastrointestinal problems were acquired later and therefore may be avoided. It needs to be mentioned that this was a survery or study conducted on persons who came for the followup and therefore does not represent all the persons rehabilitated into the community.

Although about half the patients (28) had no complaints regarding their bowel function, only three patients had normal findings. 75% of the 28 persons without symptoms had haemorrhoids and 45% had anal tags. These complications would have gone unnoticed if one were to rely on the patient's history alone and therefore examination of the lower gastrointestinal tract is mandatory during review of persons with spinal cord injuiry.

Conclusion

We conclude that anorectal pathology is common in patients with neuropathic bowel and many of them may remain asymptomatic. Regular local examination is essential to detect these complications early, more so as many of them may not have any complaints regarding their bowel function. It is also reassuring to record that it is possible to train most of the patients with neuropathic bowel to be continent and have regular bowel evacuation without the use of medications. This is of particular significance in the developing country where most patients would find life time medications unaffordable. Inspite of these patients being not on any medications for the bowel the distal bowel complications rates were similar to those quoted in literature.

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