Journal of Advanced Medical and Dental Sciences Research
@Society of Scientific Research and Studies
Journal home page: www.jamdsr.com doi: 10.21276/jamdsr UGC approved journal no. 63854
(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805 Index Copernicus value 2016 = 76.77

Original Article

Retrospective Assessment of Physiotherapy Rehabilitation for people with Spinal Cord Injuries

Usha Baghel[1], Arvind Baghel[2]

[1]BPT, MPT (Ortho) Apex Hospital and Research Centre, Jabalpur, (M.P), India
[2]Associate Professor, department of Surgery, NSCB Medical College Jabalpur, (M.P), India

ABSTRACT
Background: Spinal cord injury (SCI) is the injury of the spinal cord from the foramen magnum to the caudaequina which happens because of compulsion, incision or contusion. Physical therapy (PT) interventions potentially have targets across body functions/structures, activities, and participation.Hence; we planned the present retrospective study for assessing role of physiotherapy in rehabilitation of people with spinal cord injuries. **Materials & methods:** Data records of total of 20 patients with spinal cord injuries were included in the present study. Treadmill test (TMT) was given to all the patients for a time period of three months. In all the cases, half an hour session of TMT was given; five days per week. Outcome variable were assessed in terms of satisfaction score ranging from 0 (major regret) to 10 (extremely satisfied). **Results: Conclusion:** Physiotherapy plays a significant role in improving the quality of life of patients with spinal cord injuries.
Key words: Injuries, Spinal cord, Physiotherapy.

Received: 2 November 2018 Revised: 27 December 2018 Accepted: 28 December 2018

Corresponding Author: Dr. Arvind Baghel, Associate Professor, department of Surgery, NSCB Medical College Jabalpur, (M.P), India

This article may be cited as: Baghel U, Baghel A. Retrospective Assessment of Physiotherapy Rehabilitation for people with Spinal Cord Injuries. J Adv Med Dent Scie Res 2019;7(1):58-60.

INTRODUCTION

Spinal cord injury (SCI) is the injury of the spinal cord from the foramen magnum to the caudaequina which happens because of compulsion, incision or contusion. The most common etiologic factors responsible for SCI in the world are traffic accidents, gunshot injuries, knife injuries, falls and sports injuries.[1-3]

Current experimental studies and clinical situations provide us with a better understanding of the complex interaction of pathophysiologic events after SCI. Physical therapy (PT) interventions potentially have targets across body functions/structures, activities, and participation.[4,5] Modifying specific body impairments such as strength, cardiovascular fitness, joint mobility, muscle extensibility, bone loss, pain, and spasticity may improve the ability to perform activities without assistance from a caregiver, or to perform tasks using compensatory methods with or without equipment.[6, 7]

Hence; we planned the present retrospective study for assessing role of physiotherapy in rehabilitation of people with spinal cord injuries.

MATERIALS & METHODS

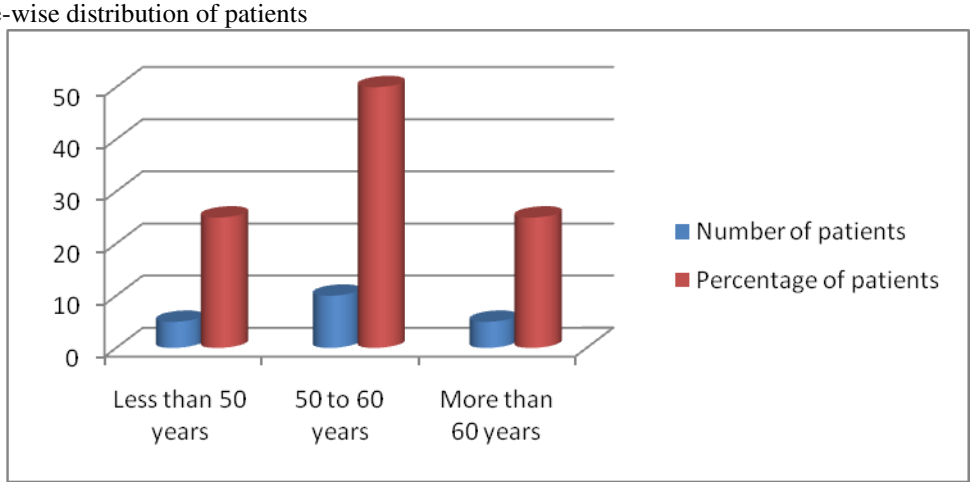
The present study included assessment of role of physiotherapy in rehabilitation of people with spinal cord injuries. Data records of total of 20 patients with spinal cord injuries were included in the present study. Treadmill test (TMT) was given to all the patients for a time period of three months. In all the cases, half an hour session of TMT was given; five days per week. Outcome variable were assessed in terms of satisfaction score ranging from 0 (major regret) to 10 (extremely satisfied). All the results were analysed by SPSS software. Chi-square test was used for assessment of level of significance. P- value of less than 0.05 was taken as significant.

RESULTS

In the present study, analysis of data records of a total of 20 patients was done. 25 percent of the patents belonged to the age group of less than 50 years of age, while 50 percent of the patients belonged to the age group of 50 to 60 years. Remaining 2 percent of the patients belonged to the age group of more than 60 years.Among these 20 patients, 60 percent were males, while the remaining 40 percent were females. Mean age of the male and female

patients were 52.3 and 54.2 years respectively. Overall, the mean age of the patients was 53.8 years.
Mean pre-treatment satisfaction score of the patients of the present study was 3.5 while mean post-treatment satisfaction score of the patients of the present study was 7.3. Significant results were obtained while comparing the pre-treatment and post-treatment satisfaction score among patients of the present study.

Graph 1: Age-wise distribution of patients



Graph 2: Gender-wise distribution of patients

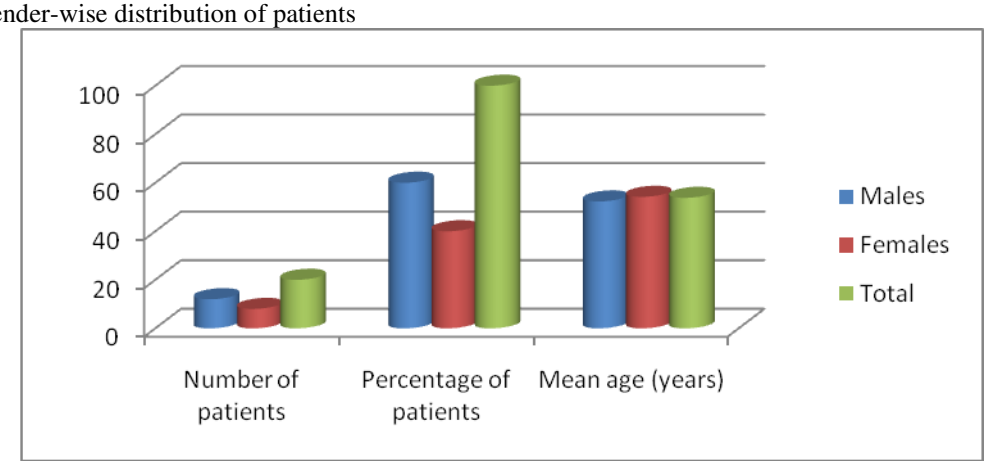


Table 1: Satisfaction score pre-treatment and post-treatment

Satisfaction score	Pre-treatment	Post-treatment	p- value
Mean	3.5	7.3	0.03*
SD	2.5	3.8	

*: Significant

DISCUSSION

Spinal cord injury (SCI) is not as common as many other injuries, yet its physical and psychosocial consequences are devastating. Very few people experience complete neurologic recovery after SCI. A significant proportion of SCIs result in neurologically complete and tetraplegic deficits. Lifetime costs of managing SCI and related secondary conditions are staggering and pose a significant burden to individuals with SCI, their families, and society. Hence, given the immense personal and financial burdens of SCI, prevention is critical.[8, 9]
In the present study, 25 percent of the patents belonged to the age group of less than 50 years of age, while 50 percent of the patients belonged to the age group of 50 to 60 years. Remaining 2 percent of the patients belonged to the age group of more than 60 years. Among these 20 patients, 60 percent were males, while the remaining 40 percent were females. Mean age of the male and female patients were 52.3 and 54.2 years respectively. Overall, the mean age of the patients was 53.8 years. Silver et al. have identified barriers to community reintegration encountered by individuals with SCI during the first year after discharge from inpatient rehabilitation. The major categories of self-reported barriers were mobility issues (e.g. problems with transfers, balance), spasticity, lack of support transitioning to another living situation (e.g. acquiring the personal care assistance needed), poor skills needed for wheelchair maintenance, and access to wheelchair accessible transportation.

Many of the barriers are issues that PTs address in their interventions and are included in the taxonomy.[10]

Mean pre-treatment satisfaction score of the patients of the present study was 3.5 while mean post-treatment satisfaction score of the patients of the present study was 7.3. Significant results were obtained while comparing the pre-treatment and post-treatment satisfaction score among patients of the present study.Gómara-Toldrà N et al assessed the extent, content, and outcomes of physical therapy (PT) interventions focused on improving the participation of individuals with SCI. A search was conducted in Medline, Embase, CENTRAL, CINAHL, PEDro, and PsycINFO. They included studies, of all designs, focused on improving the participation of individuals with SCI using PT interventions.The primary author and a reviewer independently selected articles for inclusion, assessed articles quality, and extracted the data. Five studies met the inclusion criteria. The interventions applied were 9- and 12-month body weight-supported treadmill training in two studies, a supervised 9-month exercise program, a 12-week home exercise program, and a 10-week multidisciplinary cognitive behavioral program for coping with chronic neuropathic pain. Four of five PT interventions positively impacted the individual's perceived participation and satisfaction with participation. The body of research by PTs on interventions to improve participation is limited. PTs must document the effects of interventions with a valid outcome tool to enable more research that examines participation.[11]

Morawietz C et al provided an overview of, and evaluate the current evidence on, locomotor training approaches for gait rehabilitation in individuals with incomplete spinal cord injury to identify the most effective therapies. The following electronic databases were searched systematically from first date of publication until May 2013: Allied and Complementary Medicine Database, Cumulative Index to Nursing and Allied Health Literature, Cochrane Database of Systematic Reviews, MEDLINE, Physiotherapy Evidence Database, and PubMed. References of relevant clinical trials and systematic reviews were also hand searched.Eight articles were included in this review. Five compared body-weight-supported treadmill training (BWSTT) or robotic-assisted BWSTT with conventional gait training in acute/subacute subjects (≤1y postinjury). The remaining studies each compared 3 or 4 different locomotor interventions in chronic participants (>1y post injury). Sample sizes were small, and study designs differed considerably impeding comparison. Only minor differences in outcomes measures were found between groups. Gait parameters improved slightly more after BWSTT and robotic gait training for acute participants. For chronic participants, improvements were greater after BWSTT with functional electrical stimulation and overground training with functional electrical stimulation/body-weight support compared with BWSTT with manual assistance, robotic gait training, or conventional physiotherapy. Evidence on the effectiveness of locomotor therapy is limited. All approaches show some potential for improvement of ambulatory function without superiority of 1 approach over another.[12]

CONCLUSION

From the above obtained results, the authors conclude that physiotherapy plays a significant role in improving the quality of life of patients with spinal cord injuries. However; further longitudinal studies are recommended for better exploration of this field of health care.

REFERENCES

1. World Health Organization. International classification of functioning, disability and health. Geneva: World Health Organization; 2001
2. Wee J An international comparative study assessing impairment, activities, and participation in spinal cord injury rehabilitation – a pilot study. Asia Pac DisabilRehabil 2004;15(2):43.
3. Fries JM. Critical rehabilitation of the patient with spinal cord injury. Crit Care Nurs Q. 2005;28:179–187.
4. Barbin JM, Ninot G. Outcomes of a skiing program on level and stability of self-esteem and physical self in adults with spinal cord injury. Int J Rehabil Res. 2008;31:59–64.
5. Kumru H, Kofler M. Effect of spinal cord injury and of intrathecal baclofen on brainstem reflexes. ClinNeurophysiol. 2012;123(1):45–53.
6. Hitzig SL, Tonack M, Campbell KA, McGillivray CF, Boschen KA, Richards K, Craven BC. Secondary health complications in an aging Canadian spinal cord injury sample. Am J Phys Med Rehabil. 2008;87:545–555.
7. Gensel JC, Tovar CA, Bresnahan JC, Beattie MS. Topiramate treatment is neuroprotective and reduces oligodendrocyte loss after cervical spinal cord injury. PLoS ONE. 2012;7(3):e33519.
8. Chen SC, Lai CH, Chan WP, Huang MH, Tsai HW, Chen JJ. Increases in bone mineral density after functional electrical stimulation cycling exercises in spinal cord injured patients. DisabilRehabil. 2005;27:1337–1341.
9. Wu KL, Hsu C, Chan JY. Nitric oxide and superoxide anion differentially activate poly(ADP-ribose) polymerase-1 and Bax to induce nuclear translocation of apoptosis-inducing factor and mitochondrial release of cytochrome c after spinal cord injury. J Neurotrauma. 2009;26(7):965–977.
10. Silver J, Ljungberg I, Libin A, Groah S. Barriers for individuals with spinal cord injury returning to the community: a preliminary classification. Disabil Health J 2012;5(3):190–6
11. Gómara-Toldrà N, Sliwinski M, Dijkers MP. Physical therapy after spinal cord injury: a systematic review of treatments focused on participation. J Spinal Cord Med. 2014;37(4):371-9.
12. Morawietz C1, Moffat F. Effects of locomotor training after incomplete spinal cord injury: a systematic review. Arch Phys Med Rehabil. 2013 Nov;94(11):2297-308. doi: 10.1016/j.apmr.2013.06.023. Epub 2013 Jul 9.