



TETRAPLEGIC SPINAL CORD INJURED PATIENT;

TASK SPECIFIC TRAINING FOR IMPROVING FUNCTIONAL INDEPENDENCE

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ABSTRACT: Spinal cord injury is a very disabling condition that significantly impairs the ability of a person to perform his activities of daily living on his own. This not only increases burden on family but on the community as well. Among spinal cord injured patients, tetraplegics are most obvious ones to suffer due to marked disability. Subject of current case report is C6 incomplete tetraplegic who showed marked impairments in activities of daily living thus compromising functional independence. Task specific training for 50 minutes per day for 3 days per week was provided for 3 month. After which patient was given home exercise plan and was again re evaluated after 6 months. Marked improvements were noted in her all activities of daily living including self care, mobility and respiratory and sphincter management.

Key words: Spinal Cord Injury, Task Specific Training.

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INTRODUCTION

Out of total 17000 spinal cord injuries per year, incomplete tetraplegia is the most common one. In tetraplegics, functional independence depends upon the residual strength of muscles. In tetraplegics, only a minor improvement in upper-extremity strength provides dramatic difference in activities of daily living like self care (feeding, washing, grooming etc). In this way quality of life of a tetraplegic patient is improved¹ After spinal cord injury, goals for paraplegic and tetraplegic differ widely with tetraplegics more concerned for upper limb and paraplegics, more for lower limb. Task specific training includes massed practice of a task that involves many repetitions of a specific task till patient learns it and perform it with minor errors. Basically task specific focuses on learning whole movement not individual joint movements required to accomplish it.² Nowadays the continuum of rehabilitation shifted from traditional treatment approaches to task specific training all over the world due to active participation of patient in treatment protocols increasing their level of motivation and thus increasing functional independence.

CASE DESCRIPTION

A 35 years old lady who received incomplete spinal cord injury 3 months back in a road traffic accident presented to private rehab centre, chambeli for her treatment. According to American spinal cord injury association she has C6 level of injury and fall in C category on ASIA impairment scale. According to the reports of MRI and clinical examination patient suffered from central cord syndrome. Her upper limbs were more involved than her lower limbs. She was a very active motivated lady, gynecologist by profession. She is a resident of Faisalabad and stayed at her sister's home for treatment. Her motor scores on ASIA were 16 in upperlimb and 11 in lower limb while sensory scores were 24 for light touch and 28 for pinprick. Patient has sensations in sacral segments S4-S5. Patient showed grade 2 spasticity in lower limb and 1+ in upper limb on modified Ashworth scale.

Patient was receiving conventional therapy like stretchings and range of motion exercises. Proper positions were taught to family members so as to prevent contractures and pressure sores that are additional complications after Spinal cord injury.

In addition to this conventional treatment, specific task specific exercises were performed for upper limb that included different exercises performed daily for 30 minutes. These exercises include, catch and throw a ball, throwing towel off the table, doing dusting of the table, and supination over foam roll, later these exercises were progressed to include throwing cup with wrist, exercises with puttey and putting glasses on top of each other. When finger movements improved then exercises for fingers were initiated these include switching, needling a macroni, turning and lifting cards off the table. These exercises were carried out 3 times /week on alternate days. Similarly for lower limb, although traditional exercises including strengthening, stretching and range of motion were carried out but along with them static cycling

and body weight supported treadmill training for 20 minutes 3 days/week. After 6 weeks again assessment was carried out then after 3 months and last assessment was carried out after 6 months.

For measuring the improvements in the overall function of the patient, spinal cord independence measure (SCIM) was used along with Clinical outcome variable scale or COV scale. All items of SCIM including self care, respiratory and sphincter management and mobility both indoor and outdoor was checked at baseline then after 6 weeks, after 3 months and then after 6 months. There were obvious improvements in her functional independence, details of which are shown in Table-I.

Variables scores	Baseline	After 6 weeks	After 3 months	After 6 months
SCIM total	12	16	29	63
Self Care of SCIM	2	4	9	15
Respiratory And Sphincter Management of SCIM	10	10	16	36
Mobility (indoor and outdoor) of SCIM	0	2	4	12
COV Scale	17	25	37	53

Table-I. Scores of spinal cord independence measure, subscales of spinal cord independence measure and clinical outcome variable scale

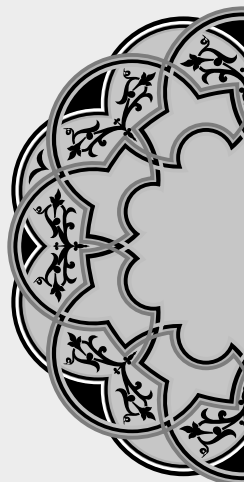
DISCUSSION

According to the outcomes of current case report, marked improvement has occurred with task specific training in all aspects of daily living activities promoting functional independence. Improvement is noted in self care, respiratory and sphincter management and in mobility both indoors and outdoors. Similarly improvements were also noted in COV scale. Similar improvements have been shown in a case report with bimanual training and sensory stimulation supporting the results of current case report.² A brief report also reported the positive effects of assisted grasp training however they applied with electrical stimulation.³ Functional and Corticomotor Changes were also observed in tetraplegics with massed practice training provided with somatosensory stimulation thus supporting the results of current study.⁴ Further studies should be conducted with large sample size and with advance technologies for task specific activities to explore their utility for spinal cord injured patients.

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*“Winners never quit and
quitters never win.”*

Vince Lombardi

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Misbah Marryam	Conceived designed did data collection and report writing, also did agreement disclaimer	
2	Muhammad Umar	Did statistical analysis and editing of manuscript, reviewed and did final approval	