



ASSESSMENT OF QUALITY OF LIFE AND ITS CHANGE FOLLOWING REHABILITATION AMONG PATIENTS WITH SPINAL CORD INJURY

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ABSTRACT

INTRODUCTION: Spinal cord injury (SCI) is a physically disabling illness which affect all aspects of patient's life including physical, social, behavioral and physiological functioning. The main goal of all rehab programmes is to enable the SCI affected individual to enhance their quality of life(QOL). Therefore it is important to measure the QOL to determine the success of rehab programme in SCI.

OBJECTIVES: The study aims at assessing the QOL among patients with SCI C6 and below, registering at the department of P M & R, Government Medical College, Thiruvananthapuram and to assess the change of QOL following rehabilitation for a period of six months . The ambulatory status pre and post rehabilitation was also assessed.

METHODOLOGY: A prospective observational study of 40 patients aged above 18 years. with SCI, C6 and below was done at the Department of PM & R , Government Medical College ,Thiruvananthapuram in a period of one year . The QOL and its change following six months of rehabilitation was assessed using WHO QOL BREF questionnaire. The association of them with sociodemographic, patient and injury related variables were also assessed. Ambulatory status, pre and post rehab was also assessed using Hoffer Bullock grading system. Appropriate statistical analysis was done.

RESULTS: The initial QOL of all the patients was low. There was an increment of QOL in all domains physical, psychological, social& environmental in all patients who received conventional rehab measures. .

There was an improvement of the ambulatory status after 6 months of rehabilitation in 90% of the patients. 20% had achieved an improvement from bedridden/ wheelchair dependent state to functional ambulation in orthosis.

CONCLUSION- The results suggest that though the initial QOL was low, a well structured rehab programme can definitely enhance it. So there is a definite need for further awareness on what a timely administered rehab can bring for patients with SCI. A predominant increase was noted in physical domain while the social domain changed the least. This emphasizes on the fact that further more efforts are necessary from the part of the rehab team to strengthen the weaker domains as well, to enhance the overall QOL. There was no improvement of the ambulatory status after 6 months

of rehabilitation in 10% of the patients who were tetraplegics, of more than one year duration of injury and with multiple complications. 20 % of the patients who had achieved an improvement from bedridden /wheelchair dependent state to functional ambulation in orthosis, were paraplegics, with no complications and who had received early rehab measures.

KEYWORDS : spinal cord injury, quality of life, WHO BREF Questionnaire

INTRODUCTION

SCI is a physically disabling illness which affects all aspects of patient's life including physical, social, behavioural and physiological functioning. The main goal of all rehab programmes is to enable the SCI affected individual to enhance their QOL. It is important to measure the QOL to determine the success of rehab programme in SCI.

QOL is defined by WHO as person's perception of his/her position in life within the context of culture and value system in which they live and in relation to their goals, expectations, concern and standards. It is a broad ranging concept incorporating in a complex way, the person's psychological state, personal health, level of independence, social relationship and relationship to salient features of environment. The primary goal of all rehab programmes is prevention of secondary complications, maximization of physical functioning and reintegration into the community and thereby enabling the patient to have an enhanced QOL. Thus by measuring the QOL, one can determine the success of rehab programme, the patient had undergone.

The present study attempts to put light into QOL of SCI patients and assess its change following rehabilitation using WHO QOL BREF questionnaire

OBJECTIVES

Primary Objective

To assess the QOL among patients aged above 18 years with SCI C6 and below registering at the Department of P M & R,

Govt. Medical College, Thiruvananthapuram.

Secondary Objectives

1. To assess the change of QOL following rehabilitation for a period of six months among patients aged above 18 years with SCI , C6 and below registering at the Department of PM & R, Govt. Medical College, Thiruvananthapuram.
2. To assess the ambulatory status before and after rehabilitation.

METHODOLOGY

Research design: Prospective observational Study

Study Setting: The Department of PM&R, Govt. Medical College, Thiruvananthapuram

Study Period: From January 2017 for a period of 1 year`

Study Subjects: Patients aged above 18 years with SCI of C6 and below, registering at the Department of PM & R, Govt. Medical College, Thiruvananthapuram.

Exclusion Criteria:

1. With associated brain Injury
2. With psychiatric impairment
3. Not willing

Inclusion criteria

1. Above 18 yrs
2. SCIC6 and below

3. Those who are willing to give consent.

Sample Size: Sample size was calculated using the formula
 $n = [z(1-\alpha/2)]^2 \times \sigma^2$
 $d^2 = 40$

(where σ = standard deviation, d = absolute precision)
 $z(1-\alpha/2) = 1.96$ at 5 % level of significance
 $= 1.962 \times 7.42 \sim 40$

DISCUSSION

Quality of life is a term used to evaluate well-being of individuals in a wide range of contexts. Primary goal of treatment and rehabilitation is achieving a satisfactory QOL for patients with SCI. As such, it should be routinely measured in patients with SCI. One proposed scheme divides QOL instruments into two: objective QOL and subjective QOL. Objective measures assume all individuals within a culture, considering the same domains as important for quality. Subjective measures assume that the assessment of quality lies with the individual, and the individual best determines happiness and satisfaction within a framework of personal expectations and accomplishments. The study was completed through the subjective measurement. The study population comprised of 40 patients.

The study shows that the majority of the patients who had suffered SCI were young males hailing from a lower socioeconomic background and doing labored work, with the most common reason being fall from heights especially at the worksites whereas RTA remains the major cause in Western population. Paraplegics predominated the group with the most common involvement of the lower thoracic segment of the spinal cord (30%) followed by cervical (27.5%), lumbar (22.5%) and upper thoracic (20%).

DISTRIBUTION OF PATIENTS ACCORDING TO CLINICAL DIAGNOSIS

DIAGNOSIS	Frequency	Percent
TRAUMATIC PARAPLEGIA	29	72.5
TRAUMATIC QUADRIPLEGIA	11	27.5
Total	40	100.0

Majority of the study population had incomplete lesion of the spinal cord (55%). 30% of the group had delayed surgical correction of more than 1 month of the injury which shows that the awareness regarding early surgery is still poor among the patients leading to an unfavourable outcome. One half of the population had prolonged ICU stay of more than 2 weeks. Forty percent of the study population had recurrent hospitalizations for the treatment of complications. Pressure sore was the leading complication. Prevention of complications is one among the primary goals of rehabilitation. Majority of the study population had a delayed onset of rehabilitation of more than one year. The delay in getting started with the rehab programme throws light on the fact that most of the patients are unaware of the importance of rehabilitation. The assessment of QOL among these patients was done using the WHO QOL BREF questionnaire. QOL on day one of the assessment in the rehab unit was low in all the patients, most of the patients who had come after 1 year of the initial injury had landed up in one or more complications which could have worsened their QOL also. Assessment of QOL was done in the 4 domains of WHOQOL BREF. Each domain score was expressed in percentage. Overall QOL was expressed as percentages in each of the four domains. Higher the scores, better was QOL. The mean score of the physical domain was 10.73 (SD 3.32), psychological domain 6.8 (SD 3.62), social domain 15.98 (sd 7.37) and environmental domain. 6.5 (SD 3.92). The findings indicate that QOL in SCI is affected seriously by the disease.^{1,2,3,4} QOL was better in males but it had no significant relationship with the sex of the patient

^{5,6,7,8,9} The findings indicate that QOL in SCI is affected seriously by the disease.

Employment is considered an important indicator for good QOL^(10,11)

Tetraplegics had poorer QOL but the relationship was not found significant.^{12,13}

The neurological level of injury was found to be a significant factor. More distal the lesion, better was the QOL^{14, 15}. The initial QOL had statistical significance with the completeness of injury only in the physical domain.^{16, 17}. Physical domain scores were better in incomplete lesions of the cord. Complete lesions may lead to increased likelihood of occurrence of pressure ulcer and other related complication which may contribute to poorer QOL^{18,19}. Delayed surgery and prolonged duration of ICU stay were found to be significant factors for a poorer QOL^(20,21)

Prolonged duration of original injury had a poor impact on QOL.

Older age group, lower educational status, higher neurological level of injuries, delayed surgery, recurrent hospitalization for complications, delayed onset of rehabilitation all were found significantly contributing to a poorer QOL. Conventional rehab measures were administered to the patients according to the level of the injury which was observed by the researcher. After 6 months of rehab, QOL was assessed again. The analysis showed some highly significant differences in their newer QOL scores on all the domains.

Post rehab, QOL was found increased in all the domains and in all patients.

CHANGE OF QOL

Change of QOL	Physical	Psychological	Social	Environmental
N	40	40	40	40
Mean	33.3	27.2	12.2	14.3
Sd	10.7	11.9	5.4	5.2
Minimum	18.0	13.0	0.0	7.0
Maximum	50.0	38.0	19.0	19.0
25th Percentiles	25.0	13.0	12.0	7.0
Median	37.0	37.0	13.0	18.0
75th percentile	37.0	38.0	13.0	19.0

The association of change of QOL with socio-demographic, patient and injury related variables was also assessed. The factors which were found to be significant for a better QOL (prerehab) had significant relationship with the change of QOL also. i.e patients characterized by younger age, higher education, paraplegia, distal neurological level of injuries, early surgeries, lesser ICU stay and no hospitalisations following complications had a significantly better change of QOL post rehabilitation.

ASSOCIATION OF TYPE OF LESION AND CHANGE OF QOL

Type	N	Change of QOL							
		Physical		Psychological		Social		Environmental	
		mean	sd	mean	sd	Mean	sd	Mean	Sd
Incomplete	22	35.68	11.80	31.18	10.84	13.59	4.29	15.73	5.01
Complete	18	30.44	8.72	22.22	11.45	10.56	6.16	12.56	5.10
P		0.126		0.015		0.075		0.055	

The completeness of lesion was found to have a significant relationship with the change of QOL only in the psychological domain. Patients with incomplete injuries had a better improvement in their QOL when compared to those with complete lesions.

The ambulatory status was graded using Hoffer Bullock system at 2 time points, 1st day & at 6th month by observation. There was an improvement of the grades in 6 months following rehabilitation in 90% of the patients.

CONCLUSION

1. The initial Quality of life is decreased in all the domains in all the patients with spinal cord injury before having received adequate rehab measures.
2. Factors like older age, lower educational status, higher neurological level of injuries, delayed surgery, recurrent hospitalization for complication, delayed onset of rehabilitation are found significantly influencing a poorer QOL
3. Post rehabilitation, QOL is increased in all the domains and in all patients. The increased change of QOL in all the domains supports the general improvement of QOL in patients post rehab. So there is a definite need for more information and awareness on what rehab can bring for the patients with SCI.
4. A greater change of QOL was noted in the physical domain while the social domain exhibited the lowest, which indicates that the patient is still unsatisfied with the personal relationships, social support and the sexual life which altogether contributes to the social QOL.
5. Further efforts are necessary from the part of the rehab team to strength the weaker domains as well to enhance the overall QOL
6. The factors significantly contributing to a poorer QOL, equips the rehab team for an efficient execution of the multidisciplinary approach of treatment
7. There was an improvement of the ambulatory status after 6 months of rehabilitation in 90% of the patients. . Rest 10%, who had no improvement at all ,were tetraplegics of more than one year duration of injury and with multiple complications.20 % of the patients who had achieved an improvement from bedridden /wheelchair dependent state to functional walking in orthosis ,were paraplegics ,with no complications and had received early onset of rehab.

STUDY LIMITATIONS

- The study consisted of forty patients only, which is a limited number.
- The study was done in a short time period of six months.
- The study included traumatic and non-traumatic SCI as well, but the latter group of patients could not be studied due to the missed follow ups.

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