30 - FUNCTIONAL INDEPENDENCE IN SPINAL CORD INJURY

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INTRODUCTION

Greve et al. (2001) defines spinal cord injury (SCI) and acute traumatic injury on the spine and its contents nervous, variable motor disabilities and / or sensory . Spinal cord injury can occur for many reasons, occurring as a consequence the loss of spinal cord neurons and axonal connections between brain region and peripheral effectors, leading sensory changes , motor and autonomic (Venturini , 2000). Spinal cord injury is accompanied by functional deficits of locomotion, sensitivity, sexuality, urinary and bowel eliminatio, and autonomic nervous system, which further aggravates these changes because it damages the neural network, affecting the sensory and motor coordination. Spinal cord injury may be possible to return with incomplete sensory and muscle according to the full extent of the injury and which depend on the level of injury and the clinical condition of the patient to functional improvement . The functional consequences and disability after spinal cord injury need to be addressed adequately to prevent secondary complications and disabilities among which are pressure ulcers, bladder and kidney infections, gastrointestinal and cardiovascular diseases (NOGUEIRA et al . ,2002).Treatment should be early , involving a multidisciplinary team that functional goals are achieved : functional independence according to the potential of each patient , prevention of complications and return to living and social occupations (GREVE et al . , 1992) .

In 1983, Granger and colleagues, supported by Congress and the American Academy of Rehabilitation Medicine, gathered a data set to measure disability and to assess outcomes of rehabilitation programs. In this project, we reviewed 36 functional assessment instrument, published and unpublished, in order to identify the most common and useful items for the development of a scale that would be able to evaluate the function at various disabling conditions, such as stroke palsy, multiple sclerosi , spinal cord injury. The scale of the Functional Independence Measure (FIM) is an instrument that assesses the inability of patients with functional restrictions of various origins, having been developed in North America in the 1980s. Its primary objective is to measure quantitatively the burden of care demanded by a person to carry out a series of motor and cognitive tasks of daily living , monitoring functional capacity throughout the rehabilitation process and modifying the treatment strategy if necessary (GRANGER , 1983).

Thus, there arose the scale of the Functional Independence Measure (FIM), an instrument multidisciplinary, consisting of a set of items, fast application and uniform , with consistent and reliable measures . In 1984, studies were initiated pilot scale MIF and at the end of the experimental phase, we obtained the current instrument with 18 items. The MIF is part of the Uniform Data System for Medical Rehabilitation (SUDRM). His nature is multidimensional, and can be used to bring results regarding the treatment as a form of therapy planning, among others. Its advantage is the fact that not only understand the motor activities, but also the cognitive and communication skills, divided into two domains, motor and cognitive. The scale assesses 18 categories scored from one to seven and classified according to the level of dependence to perform the task. The categories are grouped into six dimensions: self-care, sphincter control, transfers, locomotion, communication and social cognition. Each dimension is analyzed by the sum of its related categories, the lower the score, the greater the degree of dependence. Adding to the points of the dimensions of MIF, we obtain a minimum total score of 18 and a maximum of 126 points , which characterize the levels of dependence by subscores (Table 1) . The first studies on the psychometric properties of MIF were performed at the stage of their development and were conducted in populations with different degrees of disability, including individuals with spinal cord injury. However, in this group, the results have been somewhat contradictory. On the other hand , to evaluate the functional potential and record the progress of individuals with spinal cord over time , through a reliable instrument , it is essential in the rehabilitation process (BARBETTA et al . , 2008).

Given the content already addressed this research is primarily to check the level of functional independence of individuals following spinal cord injury.

MATERIALS AND METHODS

This research is characterized by being of the type clinical qualitative and quantitative cross-sectional cause and effect type. Populations used were patients with clinical diagnosis of spinal cord injury. To start will research was authorized by the ethics committee of the institution, and a permit from the Coordination Centre for Rehabilitation of FAG, upon submission of a Letter of Agreement the Institution. The sample consisted of patients who receive care in Physiotherapy Rehabilitation Center FAG between May / August 2013.

To the knowledge of the population the researcher analyzed the records existing in the Rehabilitation Center of FAG , delivered to the patient and / or guardian of the word consent .

The application of the FIM scale was carried out by the researcher individually and directly to the patient or responsible only in a time of the survey , to minimize risk and discomfort to the patient . The way to obtain information derived from observing the performance of the patient and / or the information provided by the patient / family / caregivers / staff .

The inclusion criteria were patients with spinal cord injury who perform physiotherapy ; present the minimum time from injury a month and exclusion criteria were those who did not perform treatment in Physiotherapy Rehabilitation Centre of Assisi School Gurgacz and patients with neurological disorders associated . The uncontrolled variables were the levels of injury cervical, thoracic and lumbar spinal cord injury time , age and sex and controlled patients who have a clinical diagnosis of spinal cord injury and perform physical therapy at the Rehabilitation Centre of Assisi School Gurgacz .

The collected data were analyzed by varying the level of functional independence with the level of the spinal cord: cervical, thoracic or lumbar spine .

Table 1: Rating scale score FIM

Punctuation	Classification FIM
18 points	Dependence complete
19-60 points	Dependence modified (support up to 50% of the task)
61-103 points	Dependence modified (assistance of up to 25% of the task)
104-126 points	Complete independence / modified

RESULTS

After the questionnaire FIM in 13 individuals of which one female and 12 male. The age range of participants between 16-45 years, mean age was 29.08 (max 45, min 16, SD 8.99), the level of injury ranged from C3 will L4-S1, the average was 43 months (max 132, 18 min, 35.21 SD), time to therapy performed (max 45, min 10, DP 10,85), the average was 19.4615.

Regarding the level of spinal cord injury five subjects the level of C3 will T1 can be observed in accordance with the FIM scale score of 41 will be 88, where three of these individuals had a score of 41-60 points in classifying modified dependence (assistance of up to 50% of the task) and two of these individuals had a score of 75 points and 88 ranking within modified dependence (aid up to 25% of the task). Two individuals with spinal cord injury level of T6 T5 will can be observed in accordance with the FIM scale score of 87 will be 103 modified dependence (assistance of up to 25% of the task) and two other individuals with spinal cord injury level of T7 with scores of 124 and 125 ranking in complete independence / modified. Four individuals with spinal cord injury level T10 S1 will score ranged from 107 to 125 will complete independence / modified (Table 2).

Table 2: Characteristics related to individuals

NAME	AGE	SEX	LEVEL OF LESION	TIME OF LESION	TIME THAT HOLDS PHYSIOTHERAPY	SCORE
A.S	20	M	C5/T1	36 months	36 months	88
A. R.S	28	M	T1	19 months	10 months	60
A. D. S.	26	M	L3	18 months	12 months	125
A.S.	41	M	C3/C4	96 months	12 months	75
D. M.	21	M	C4-C5-C6	36 months	24 months	54
E. G.	16	M	T10	60 months	24 months	120
F. F.O.	21	M	L1/L2	21 months	12 months	107
J. R.T.	24	M	C4/C5	36 months	24 months	41
M. B. M	32	M	T7	56 months	45 months	125
M. S. C	34	F	L4/S1	24 months	12 months	124
T. G.	30	M	T5/T6	19 months	12 months	87
W. S.	45	M	T6	132 months	12 months	103
Z. L. C.	40	M	T7	22 months	18 months	124

DISCUSSION

The study sample consisted of 13 participants of which one (01) females and twelve (12) males, demonstrating the prevalence related to male data confirmed the results of the research Buhler (2011) , the author reports clearly that spinal cord injury occurs more frequently in males than in females , and in his research of the 49 participants , 40 were male and 9 female.

When analyzing the age variable was identified the prevalence of impairment in individuals 18 to 35 years old, followed by the age group 16-45 years. This finding corroborates the study by Gonçalves et al. (2007), Custódio et al. (2009) Siscão et al. (2007) who reported higher incidence as the age group between 21 and 40 years of age, comparing this study ranged in age from 16-45 years old.

Analyzing the data from this study with respect to the level of spinal cord injury in C3 will T1 was found three subjects where their scores were 41 - 60pontos (Table 1) , which features modified dependence up to 50 % of the task , thus having a functional impairment due to the high degree of injury and therapy had not started immediately after the injury (Table 2). In study Riberto et al. (2001) , the comparison of motor FIM between these groups showed a statistically significant greater functional dependence in lesions at higher levels (cervical = 34.4 ± 25.2 , chest = 51.6 ± 19.5 , back = 67.5 ± 18.6, $p < 0.001$) , this study was conducted with 93 patients with spinal cord accompanied the Division of Rehabilitation Medicine (DMR) , Hospital das Clinicas, Faculty of Medicine, University of São Paulo, and of 57 patients with spinal cord injury treated at the Rehabilitation Center Umarizal (CRU) . individuals with higher lesions have a lower strength due to have a smaller amount of muscle groups , so their ability to carry out motor activities will be much smaller (Riberto et al. 2001). Therefore , individuals with higher levels of spinal cord injury have a higher reliance on motor tasks and consequently lower scores on the FIM.

Stineman and Middleton (2000) state that patients with higher lesions and complete had worse functional performance. In the present study we can observe the same results , the four individuals with spinal cord injury level between T10 to S1 will score classification was 107 125 which will have complete independence / modified (Table 2) , these participants have greater independence functional compared to participants with high levels as high thoracic and cervical . As for the level of spinal

cord from T5 to T6 in the FIM scale was ranked 87 with a score of 103 will being with modified dependence (aid up to 25 % of the task) and two individuals with injury level T7 where the score was 124 - 125 of these in accordance with the FIM are classified as complete independence / modified . Therefore there is a greater degree of functional independence levels lower lesions, as described by the authors Middleton and Stineman (2000) and M. Riberto and et. (2001) in their research.

Nogueira, Caliri and Haas (2006) found that among injury levels , the thoracic spinal cord was the most prevalent , while the cervical and lumbar levels are represented by a lower frequency . In the present study had the same result, according to the sample of 13 participants may perceive a greater number of individuals thoracic how outnumbered cervical / lumbar .

CONCLUSION

Therefore the analysis of the data allowed the finding of functional independence at lower levels compared with individuals with the highest level of injury, there is a relationship between level of spinal cord injury with a degree of independence.

It is also possible to conclude that the classification of FIM effectively assists the physical therapist to establish the level of functional independence of each patient to subsequently develop a rehabilitation strategy centered on the individual need of each individual, being an important tool for treatment planning and correct prognosis physiotherapy.

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FUNCTIONAL INDEPENDENCE IN SPINAL CORD INJURY

ABSTRACT

Introduction: Spinal cord injury can occur traumatically occurring as a consequence the loss of spinal cord neurons and axonal connections between brain region and peripheral effectors, leading to alterations of sensory, motor, autonomic, and different degrees of functional dependency. The scale of the Functional Independence Measure is one of the most used tools in assessing the functional capacity of individuals with spinal cord injury. Methods: The present research it is characterized by being a research -type clinical qualitative and quantitative, cross-sectional type cause and effect, there were 13 individuals with spinal cord injur, where the data were collected at the rehabilitation center of Assisi School Gurgacz - FAG in the city of Cascavel - PR from May to August of 2013 through interviews , using the scale Functional Independence Measure (FIM). Objective: To assess the level of functional independence of patients after spinal cord injury. Results: There was a predominance of males with 12 individuals and one individual for females. As the functional independence level 5 subjects C3 T1 will scale MIF was ranked modified dependence , two individuals with injury level T5 T6 will be rated modified dependence, 2 and 4 individuals T7 T10 S1 will complete / modified independence . Conclusion: The assessment by the FIM scale allows you to check the level of independence of patients and to quantify the effective gain after rehabilitation. Additionally , you can modify the treatment strategy neurofuncionnal when needed.

KEY WORDS: spinal cord injury, functional independence measure, rehabilitation, physiotherapy.

L'INDÉPENDANCE FONCTIONNELLE DES BLESSURES MÉDULLAIRE
RÉSUMÉ

Introduction: lésion de la moelle épinière peut se produire survenant traumatique comme conséquence la perte de neurones de la moelle épinière et les connexions axonales entre la région du cerveau et les effecteurs périphériques , conduisant à des altérations de degrés sensoriel, moteur , autonome et différent de dépendance fonctionnelle . L'ampleur de la mesure d'indépendance fonctionnelle est l'un des outils les plus utilisés dans l'évaluation de la capacité fonctionnelle des personnes atteintes de lésions de la moelle épinière . Méthodes: La présente recherche se caractérise par être un qualitative de recherche clinique et de type quantitatif , cause de type transversal et l'effet, il y avait 13 personnes souffrant de lésions de la moelle épinière , où les données ont été recueillies au centre de réadaptation d'Assise école Gurgacz - FAG dans la ville de Cascavel - PR de Mai à Août 2013 au moyen d'entrevues, en utilisant la mesure d'indépendance fonctionnelle échelle (FIM). Objectif: évaluer le niveau d' indépendance fonctionnelle des patients après une lésion de la moelle épinière. Résultats: Il y avait une prédominance masculine avec 12 personnes et une personne pour les femmes. Comme le niveau de l'autonomie fonctionnelle 5 sujets C3 T1 sera échelle MIF a été classé dépendance modifié, deux individus avec un niveau blessures T5 T6 sera évalué dépendance modifiée, 2 et 4 personnes T7 T10 S1 achèvera / indépendance modifié. Conclusion: L'évaluation par l'échelle FIM vous permet de vérifier le niveau d'indépendance des patients et de quantifier le gain effectif après la réhabilitation . En outre , vous pouvez modifier le neurofuncionnal stratégie de traitement en cas de besoin.

MOTS CLÉS: lésion de la moelle épinière , la mesure de l'autonomie fonctionnelle , la rééducation, la physiothérapie .

INDEPENDENCIA FUNCIONAL EN LESIONES DE LA MÉDULA ESPINAL
RESUMEN

Introducción: lesión de la médula espinal puede ocurrir que ocurre traumáticamente como consecuencia la pérdida de neuronas de la médula espinal y las conexiones axonales entre región del cerebro y efectores periféricos , que conduce a alteraciones de grados sensoriales , motoras , autonómicas , y diferente de la dependencia funcional . La escala de la medida de la independencia funcional es una de las herramientas más utilizadas en la evaluación de la capacidad funcional de las personas con lesión de la médula espinal.Métodos: El presente trabajo de investigación se caracteriza por ser una clínica de tipo cualitativo y cuantitativo de la investigación , de la sección transversal tipo causa y efecto, había 13 personas con lesiones de la médula espinal, donde se recogieron los datos en el centro de rehabilitación de Asís School Gurgacz - FAG en la ciudad de Cascavel - PR de mayo a agosto de 2013 a través de entrevistas , utilizando la escala de Medida de Independencia Funcional (FIM).Objetivo: Evaluar el nivel de independencia funcional de los pacientes después de lesión de la médula espinal.Resultados: Hubo un predominio del sexo masculino con 12 individuos y un individuo para las hembras . A medida que el nivel de independencia funcional 5 temas C3 T1 escalará FOMIN se clasificó dependencia modificado, dos personas con nivel de daño T5 T6 se calificará la dependencia modificada , 2 y 4 personas T7 T10 S1 completará / modificados independencia.Conclusión: La evaluación de la escala FIM le permite comprobar el nivel de independencia de los pacientes y para cuantificar la ganancia efectiva después de la rehabilitación. Además, puede modificar la estrategia de tratamiento neurofuncionnal cuando sea necesario.

PALABRAS CLAVE: lesión de la médula espinal, medida de independencia funcional , rehabilitación, fisioterapia.

INDEPENDÊNCIA FUNCIONAL NA LESÃO MEDULAR
RESUMO

Introdução: Lesão medular pode ocorrer de forma traumática ocorrendo como conseqüência a perda de neurônios da medula espinhal e das conexões axonais entre a região encefálica e os efetores periféricos, levando a alterações sensitivas, motoras, autonômicas e graus diferentes de dependência funcional. A escala de Medida de Independência Funcional é um dos instrumentos mais utilizados na avaliação da capacidade funcional dos indivíduos com lesão medular. Metodologia: A presente pesquisa trata-se de uma pesquisa caracterizada por ser do tipo clínica qualitativa e quantitativa, corte transversal do tipo causa e efeito, foram 13 indivíduos com lesão medular, onde os dados foram coletados no centro de reabilitação da Faculdade Assis Gurgacz – FAG na cidade de Cascavel – PR no período de maio á agosto de 2013, através de entrevista, utilizando a escala Medida de Independência Funcional (MIF). Objetivo: Verificar o nível de independência funcional de paciente após lesão medular. Resultados: Houve uma predominância para o sexo masculino com 12 individuos e 1 individuo para o sexo feminino. Quanto a independência funcional 5 indivíduos do nível C3 á T1 na escala MIF classificou-se em dependência modificada, 2 indivíduos com nível de lesão T5 á T6 classificou-se dependência modificada, 2 indivíduos T7 e 4 T10 á S1 independência completa/modificada. Conclusão: A avaliação através da escala MIF permite verificar o nível da independência dos pacientes e quantificar o ganho efetivo após uma reabilitação. Além disso, pode modificar a estratégia de tratamento neurofuncional quando necessário.

PALAVRAS CHAVES: lesão medular, medida de independência funcional,reabilitação,fisioterapia.