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ORIGINAL ARTICLE

APPLICATION OF GLASGOW, BRADEN AND RANKING SCALES IN PATIENTS AFFECTED BY CEREBROVASCULAR ACCIDENT

APLICAÇÃO DAS ESCALAS DE GLASGOW, BRADEN E RANKIN EM PACIENTES ACOMETIDOS POR ACIDENTE VASCULAR ENCEFÁLICO

APLICACIÓN DE LAS ESCALAS DE GLASGOW, BRADEN Y RANKIN EN PACIENTES ACOMETIDOS POR ACCIDENTE VASCULAR ENCEFÁLICO

Luara Abreu Vieira[1], Maria Vilani Cavalcante Guedes[2], Ariane Alves Barros[3]

ABSTRACT

Objective: to assess the level of consciousness, risk of pressure ulcers (UPP) and functional dependency of patients affected by Cerebrovascular Accident (CVA) using the scales of Glasgow, Braden and Rankin modified. ***Method***: a Cross-sectional analytical study with a quantitative approach, held in Fortaleza, Ceará, Brazil, with 40 patients affected by CVA in the months of September and October 2015. Data were tabulated and submitted to statistical analysis by (SPSS) version 20.0 presenting them in tables and descriptively. ***Results***: most patients were aged> 60 years old, male, mulatto, an average hospital stay of 9 days and stay in the CVA unit for 7 days. Oriented in time and space, they had a low risk for UPP and functional dependence level from moderate to severe. ***Conclusion***: the application of the scales showed how the patients were suffering from CVA and the need for individualized nursing care to promote rehabilitation. ***Descriptors***: Stroke; Scales; Nursing.

RESUMO

***Objetivo*:** averiguar nível de consciência, risco de úlceras por pressão (UPP) e dependência funcional de pacientes acometidos por Acidente Vascular Encefálico (AVE) utilizando as escalas de Glasgow, Braden e Rankin modificada. ***Método*:** estudo transversal e analítico, de abordagem quantitativa, realizado em Fortaleza-Ceará-Brasil, com 40 pacientes acometidos por AVE, nos meses de setembro e outubro de 2015. Os dados foram tabulados e submetidos à análise estatística pelo (SPSS) versão 20.0, apresentados em tabelas e de forma descritiva. ***Resultados*:** a maioria dos pacientes tinha idade >60 anos, sexo masculino, mulatos, média de internação de 9 dias e de permanência na unidade de AVE de sete dias. Orientados no tempo e espaço, apresentavam baixo risco para UPP e nível de dependência funcional de moderado a grave. ***Conclusão*:** a aplicação das escalas visualizou como se encontravam os pacientes acometidos por AVE e a necessidade de cuidados de enfermagem individualizados que promovam a reabilitação. ***Descritores*:** Acidente Vascular Cerebral; Escalas; Enfermagem.

RESUMEN

Objetivo*:** averiguar el nivel de conciencia, riesgo de úlceras por presión (UPP) y dependencia funcional de pacientes acometidos por Acidente Vascular Encefálico (AVE) utilizando las escalas de Glasgow, Braden y Rankin modificada. ***Método*:** estudio transversal y analítico, de enfoque cuantitativo, realizado en Fortaleza-Ceará-Brasil, con 40 pacientes acometidos por AVE, en los meses de septiembre y octubre de 2015. Los datos fueron tabulados y sometidos al análisis esdatístico por el (SPSS) versión 20.0 presentándoos en cuadros y de forma descriptiva. ***Resultados*:** la mayoría de los pacientes tenían edad >60 años, sexo masculino, mulatos, media de internación de 9 días y de permanencia en la unidad de AVE de 7 días. Orientados en el tiempo y espacio, presentaban bajo riesgo para UPP y nivel de dependencia funcional de moderado a grave. ***Conclusión*:** la aplicación de las escalas visualizó como se encontraban los pacientes acometidos por AVE y la necesidad de cuidados de enfermería individualizados que promueban la rehabilitación. ***Descriptores: bAccidente Cerebrovascular; Escalas; Enfermeira.

[1,3]Nurses, Masters´s degree, Graduate Program in Health and Nursing Clinical Care/PPCCLIS, State University of Ceará/UECE. Fortaleza (CE), Brazil. E-mails: luaraabreu@hotmail.com; arianealvesbarros@hotmail.com; [2]Nurse, Ph.D. Professor in Nursing, Graduate Program in Health and Nursing Clinical Care, State University of Ceará/UECE. Fortaleza (CE), Brazil. E-mail: vilani.guedes@globo.com

INTRODUCTION

As science, Nursing seeks increasingly to renew and increase its areas of expertise. Therefore, research is used as a tool that promotes an approach to reality to allow the pursuit of understanding of social phenomena and diseases that are affecting society and are responsible for much of public spending.

Among the several health involvements that permeate society, there are the Cerebrovascular Accident (CVA) which is a neurological syndrome responsible for high morbidity and mortality worldwide and in Brazil, it is responsible for 13.8% to 20.6% of deaths generated by this involvement in this disease over 60 years old and result in high costs, also leading to disabilities that interfere with daily activities.[1-2]

The CVA afflicts the central nervous system (CNS), which depending on the location and size of the lesion, it causes sequels that can generate functional, psychological and social dependence to the individual affected.[3]

Given the appearance of the motor and sensory deficits resulting from CVA, nurses in the care provided to these patients use different scales that allow the visualization of clinical conditions and identify possible risks and limitations that hinder rehabilitation. Among these scales, there are the Glasgow Coma Scale, Braden, and modified Rankin.

Aimed at assessing the level of consciousness in patients suffering from neurological damage through identification of motor and sensory responses, the Glasgow Coma Scale (GCS) created by Teasdale and Jennett in 1974, is used for the observation and verification stimuli including eye-opening (need for stimulation or not), best verbal response (orientation in time and space and enunciation of words) and best motor response (obeys simple commands, response to stimuli, pushups and abnormal extensions). Each observed response lists a score, eye-opening (up to 4 scores), verbal response (up to 5 scores) and motor response (up to 6 scores) in patients with a sum of equal or less than 8 scores resulting in a comatose picture.[4]

The Braden Scale developed by Bergstrom and Braden in 1987 and validated for Portuguese by Paranhos and Santos in 1999, facilitating its application in Brazil, is widely used and is among the different risk assessment scales for development pressure ulcers (UPP) that have been developed and validated.[5]

This scale is divided into subscales that comprise critical to the appearance of skin lesions, which are: perception (ability to report discomfort); humidity (moisture in the skin is exposed); mobility and activity (frequency and duration of changes in position and activities); nutrition (acceptance of power reflecting the degree of nutrition); and friction and shear (ability to move in contact with a surface).[5]

In each subscale scores of 1-4 is attributed, except for the last, with a total score of 6-23 scores. As the risk, it is considered: low (between 15 and 18 scores); moderate (13 to 14 scores); high (between 10 and 12 scores); and very high (less than or equal to 9 scores).[6]

Widely used in the evaluation of patients affected by CVA and studies, the Rankin Scale, scientifically published in 1957 and adapted to modified Rankin Scale in 1988, quantifies disabilities using ordinal and hierarchical levels ranging from 0 (no symptoms) to 5 (severe disability grade) and 6 (death).[7] This scale was developed based on studies developed by Rankin not initially conceived for clinical trials, but it has been established as a clinical use tool adapted to practice.[8]

Thus, being part of the reality of nurses in the care of patients who have suffered CVA, applying these scales through an attention individually and according to the conditions and clinical disability resulting from deficits neurological, it is questioned what is the level of awareness, risk for developing UPP and functional dependence of patients affected by CVA?

The knowledge produced in this study will help nurses to see the clinical profile of these patients provide them the best nursing care. The knowledge produced will benefit society contributing to the rehabilitation of people undergoing rehabilitation according to their actual needs. Also, there will be an increase in the databases regarding the joint application of these three scales to this type of patient.

This study aims to assess the level of consciousness, the risk of pressure ulcers (UPP) and functional dependency of patients affected by cerebrovascular accident (CVA) using the scales of Glasgow, Braden, and modified Rankin.

METHOD

This is an analytical cross-sectional study with a quantitative approach, in which the required information is obtained in an appropriate period to describe the state of particular phenomena.[9] It was held in a public hospital belonging to the Health Care Tertiary

in Fortaleza/CE - Brazil reference in serving people affected by CVA, with emergency care, neurological ward, and CVA unit, known by the population as CVA unit. The population consisted of patients suffering from CVA and admitted to the CVA unit of this hospital during September and October 2015.

The sample was obtained by convenience, with the patients who were admitted to the unit composed of 40 individuals admitted according to the following inclusion criteria: have a diagnosis of CVA confirmed clinically and by imaging studies (CT or MRI). The exclusion criteria were having the previous diagnosis of other vascular, neurological disorders or that could lead to cognitive consequences beyond those caused by CVA, such as Central Venous Thrombosis, Parkinson's and Alzheimer's. Patients on mechanical ventilation in use of sedation and analgesia and without companions were also avoided.

Data were collected from 1 to 4 days after the onset. To general data collection of patients, it was used an instrument consisting of demographic data (age, gender, and color), date of hospitalization, date of admission in the unit under study and type of CVA. There was also the application of three scales already validated for the Portuguese to evaluate the level of awareness, the risk of developing pressure ulcers and post-CVA functional dependence, respectively, Glasgow Coma Scale (GCS), Braden and Rankin modified. The instruments were applied by a single researcher with each study participant. The collection was given weekly for a single day.

Data were tabulated and submitted to statistical analysis by (SPSS) version 20.0, license number 10101131007. Descriptive (frequency, mean and standard deviation) and inferential statistics (considering p <0 05 and using the chi-square test of Pearson) were applied to characterize the sample studied presenting them in tables and descriptively.

The study was approved by the Research Ethics Committee (CEP) of the State University of Ceará (UECE) Opinion Nº 1,082,121, CAAE Nº 41493015.8.3001.5040, according to Resolution 466/2012.[10]

Before applying the data collection instrument, there was an initial contact with patients and caregivers who were invited to participate in the study and received information clarifying their goals, risks and benefits and those who accepted the invitation signed a consent form (TCLE), confirming their voluntary participation.

RESULTS

The socio-demographic data (age, gender, and color) and the type of CVA obtained in the study to better display all variables were organized in Table 1.

Table 1. Socio-demographic characterization and CVA type. Fortaleza-Ceará, Brazil, 2015.

Variables	n=40	%	average	SD
Age				
18-30	3	7.5		
31-60	5	12.5	59.8	±
>60	32	80.0		15.5
Gender				
Male	26	65.0		
Female	14	35.0		
Skin color				
White	12	30.0		
Mullato	21	52.5		
Brown	7	17.5		
Type of CVA				
Ischemic	37	92.5		
Ischemic with hemorrhagic transformation	3	7.5		

Regarding the type of CVA, it was found in the patients (37; 92.5%) affected by ischemic type and occurrence of ischemia with hemorrhagic transformation (3, 7.5%).

The hospital stay was approximately 9 days on average and stay in the CVA unit of about 7 days on average, both checked against the date of data collection.

The Glasgow Coma Scale consists of three types of expected responses (eye opening, verbal and motor response), and its findings are shown in Table 2.

Table 2. Distribution of simple frequencies and percentages of responses expected from the Glasgow Coma Scale.Fortaleza-Ceará-Brazil, 2015.

Responnses	n=40	%
Eye opening		
Spontaneous	37	92.5
To the voice	2	5.0
To the pain	1	2.5
None	-	-
Verbal response		
Guided	28	70
Confused	8	20
Inappropriate words	1	2.5
Incomprehensible words	1	2.5
None	2	5
Motor response		
Obeying the command	37	92.5
Locating the pain	3	7.5
Removal motion	-	-
Abnormal bending	-	-
Abnormal extension	-	-
None	-	-

According to the proposed objective for the application of this scale, it was observed that the sum of the scores on average was 14 scores, with standard deviation (SD) of ±1.2, the smallest and the largest sum was 10 and 15 scores respectively.

The patients were characterized by spontaneous opening (37; 92.5%) guided (28; 70%) and obeying requested commands (37; 92.5%). In this data, it should be noted that the neurological damage caused by injury can influence the expected responses.

Table 3 presents the results obtained by the Braden scale in each item.

Table 3. Distribution of simple and relative frequencies of the items of the Braden Scale. Fortaleza-Ceará-Brazil, 2015.

Variables	n=40	%
Sensory perception		
Totally limited	-	-
Very limited	2	5.0
Slightly limited	8	20.0
No limitation	30	75.0
Humidity		
Completely wet	-	-
Very wet	8	20.0
Occasionally wet	11	27.5
Rarely wet	-	-
Activity		
Beddriden	4	10.0
Confined to a chair	10	25.0
Walking occasionally	17	42.5
Walking frequently	9	22.5
Mobility		
Totally still	2	5.0
Very limited	15	37.5
Walking occasionally	12	30.0
No limitations	-	-
Nutrition		
Very poor	-	-
Probably inadequate	6	15.0
Adequate	10	25.0
Excellent	24	60.0
Friction and shear		
Problem	12	30.0
Problem in potential	20	50.0
No problem	8	20.0

The risk assessment for the emergence of UPP through the Braden Scale found an average of 18 scores, with ±3.5 SD. The scale items of the sum of the results met the classification of the sample and the risk of pressure ulcers. Of these patients (23; 57.5%) had a risk of developing UPP, of which (18; 78.3%) were low risk (1; 4.38%) moderate risk, and (4, 17.4%) high risk.

Table 4 described the classification, definition, and frequencies obtained in the application of the modified Rankin Scale.

Table 4. Variable definition and distribution of simple and relative frequencies of the modified Rankin Scale.Fortaleza-Ceará-Brazil, 2015.

Variable	Definition	n=40	%
Asymptomatic	Regression of symptoms	-	-
No disability symptoms	Able to perform their tasks and current prior activities	7	17.5
Mild disability	Unable to perform all their previous usual activities, but able to carry out their personal needs without help	9	22.5
Moderate disability	Requiring some help for his activities, but able to walk without help from others	3	7.5
Moderate to severe disability	Inability to walk unaided, inability to carry out their activities without help	12	30.0
Severe disability	Limited to bed, incontinence, requiring nurses care and constant attention.	9	22.5
Death	-	-	-

The data obtained using the modified Rankin Scale showed that the patients with moderate to severe disability (12; 30%), need help to carry out their usual activities and walking, followed by mild disability (9, 22, 5%) and severe (9, 22.5%).

Table 5 below shows the relationship between the risk for UPP and functional dependency through Braden and Rankin scale.

Table 5. The risk for pressure ulcers and degree of disability of patients affected by CVA. Fortaleza-Ce-Brazil, 2015.

		Modified Rankin Scale					
Braden Scale	High	-	-	-	-	4	
	Moderate	-	-	-	-	1	
	Low	-	4	-	10	4	
	No Risk	7	5	3	2	0	
	Total	7	9	3	12	9	p=0.000*

*p<0.05

It was observed that many patients had disabilities considered moderate to severe by the modified Rankin scale and low or no risk for the development of UPP. The two scales showed statistical significance considering p <0.05, this fact is explained by the difficulty of ambulation and performing self-care activities without assistance, generating carrying functional dependence.

DISCUSSION

The findings of this study allowed to visualize a sample of men representing (26; 65%) of the sample and how to age showed a mean of 59.8 ± 15.5 years, although the larger viewing age has been people over 60 years old, so the elderly.

In a study conducted in Rio Grande do Norte in 2011 found a sample of 45 patients with an average age of individuals 65.6 years old (±10.6) and predominantly female (55.6%). Although the findings due to age are different from this study, it brings ages over 60 years old as most recurrent among the study. The demographic profile of the different states must also be considered.[11]

Self-reported skin color most representative were mulatto, but a study in Rio Grande do Sul showed an increased occurrence of CVA in white patients (69.23%) compared to non-whites (30.76%). It must be noted that because it is the opinion of respondents, the color depends on how they see others and, also, the geographic location of patients should be taken into consideration. The Brazilian Northeast has greater miscegenation and influence of the black race, and the south of Brazil has many German colonies.[12]

The most common type of CVA found was ischemic, which is an obstruction of brain blood flow. This CVA etiology was also found with greater representation in 86.7% of affected patients who were conducting rehabilitation after hospitalization for CVA.[11]

The hospitalization and length of stay in the unit with special care for the disease under study was less than 10 days on average, a fact that diverges from the study conducted in 2014 in Rio Grande do Sul with an average of 12.4 days, that is greater than this study. This should consider the accessibility of diagnostic tests in the unit under study, which facilitates proper treatment and the presence of a multidisciplinary team specialized in the treatment and early discharge.[2,13]

Regarding the application of the Glasgow Coma Scale, it is used as a way of assessing the level of awareness recommended by the Ministry of Health. In this study, it was observed that most of the patients were oriented as to time and space. It is important to pay attention to the sensorial loss among these patients, and it should be observed when initiating appropriate action to investigate a possible worsening of neurological deficits and/or increase in injuries.[14]

The risk of developing UPP found that most had a low risk when performed the sum of the items of the subscales. This risk should be noted that changes in the conditions of mobility, activity, nutrition and friction and shear forces contributed to its incidence among these patients.

In a study conducted in 2014 in Alagoas with the hospitalized elderly, subscales showed that more changes were related to mobility, activity, and nutrition, corroborating this study showing these subscales as the most incidents.[15]

When assessing the functional dependence of these patients, it was shown that they had moderate to severe disabilities, mild and severe. In a study conducted in Los Angeles in 2010, the slight disabilities were present in half of the sample, which corroborates in part with the findings. About moderate to severe disability and severe, in that study with 50 patients using the scale pairs, 22 (44%) showed that these degrees of disability corroborate to this study. Changes in subscales dealing activity and mobility affect both the risk of developing UPP as the presence of disabilities, resulting in impaired ambulation and independent practice of daily activities. In a study conducted in Porto Alegre in 2013, it was observed that any reduction in the level of activity and mobility was associated with significantly increased the risk of skin lesions. Furthermore, bedridden patient is conducive to this type of clinical complication that interferes with the functional performance and development activities of daily life.[16-18]

Neurological deficits caused by CVA can be responsible for motor and sensory disabilities able to hinder the independent and previous activities of self-care and daily life locomotion, enabling increased risk of pressure ulcers and also a higher level of functional disability. This must call the attention to a clinical nursing assessment that goes beyond the application of these scales and seeks solutions to promote prevention or better recovery/rehabilitation of patients affected by CVA.

CONCLUSION

The implementation of the three scales of assessment of awareness, risk of pressure ulcers and post-CVA functional dependence enabled the visualization of how are patients affected by CVA in a unit of specific care to this type of health problem.

Given the damage that pressure ulcers can generate, and the functional dependencies can cause interference in the autonomy of patients to perform their activities because of the presence of neurological deficits, they should be identified to be prevented the grievances by nurses. Thus, it should be noted the need to alert nurses to neurological and medical conditions of their patients to promote clinical care of individualized nursing.

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Corresponding Address

Luara Abreu Vieira
Conjunto Polar
Rua 23, n. 410
Bairro Vila Velha
CEP 60347-690 – Fortaleza (CE), Brazil