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ARTIGO ORIGINAL

THE EFFECTS OF NURSING TRAINING ON THE EVALUATION OF PATIENTS WITH CEREBROVASCULAR ACCIDENT

OS EFEITOS DA CAPACITAÇÃO DE ENFERMEIROS SOBRE AVALIAÇÃO DE PACIENTES COM ACIDENTE VASCULAR CEREBRAL

LOS EFECTOS DE LA CAPACITACIÓN DE ENFERMEROS EN LA EVALUACIÓN DE PACIENTES CON ACCIDENTE CEREBROVASCULAR

Johnny Vitor Sbampato dos Santos[1], Elaine Aparecida de Melo[1], Jaime Lopes da Silveira Junior[1], Nathália Nascimento Vasconcelos[2], Maira de Castro Lima[3], Laila Cristina Moreira Damázio[4]

ABSTRACT

Objective: to evaluate the effects of training of emergency service nurses on the recognition of signs and symptoms of cerebrovascular accident, and application of the National Institutes of Health Stroke Scale (NIHSS). ***Method:*** descriptive cross-sectional study with a quantitative approach. Twenty nurses of an emergency medical unit were trained and assessed regarding the recognition of signs and symptoms of patients with cerebrovascular accident. A pre-test and a post-test were applied to assess the nurses' knowledge before and after the training. ***Results:*** the improvement of knowledge about cerebrovascular accident was 68.5 to 85.26% after training. ***Conclusion:*** The training of nurses responsible for evaluating patients with suspected cerebrovascular accident should be promoted to optimize the care and treatment provided to these patients. ***Descritores*:** Cerebrovascular Accident; Nurses; In-Service Training.

RESUMO

Objetivo: avaliar os efeitos da capacitação dos enfermeiros do serviço de emergência no reconhecimento dos sinais e sintomas do acidente vascular cerebral e aplicação da escala *National Institutes of Health Stroke Scale* (NIHSS). ***Método*:** estudo descritivo, transversal, com abordagem quantitativa. Foram capacitados e avaliados 20 enfermeiros do serviço de emergência de uma unidade de pronto atendimento sobre o reconhecimento dos sinais e sintomas dos pacientes com acidente vascular cerebral. Utilizaram-se para avaliação do conhecimento dos enfermeiros um pré-teste e um pós-teste, que foram aplicados antes e após a capacitação. ***Resultados:*** houve uma melhora do conhecimento sobre acidente vascular cerebral de 68,5% a 85,26% após a capacitação. ***Conclusão:*** a capacitação dos enfermeiros responsáveis pela triagem dos pacientes com suspeita de acidente vascular cerebral deve ser estimulada para otimizar o atendimento e o tratamento desses pacientes. ***Descritores*:** Acidente Vascular Cerebral; Enfermeiros; Capacitação em Serviço.

RESUMEN

Objetivo: evaluar los efectos de la capacitación de enfermeros del servicio de emergencia en el reconocimiento de signos y síntomas de accidente cerebrovascular y aplicación de la escala *National Institutes of Health Stroke Scale* (NIHSS). ***Método:*** estudio transversal descriptivo con enfoque cuantitativo. Fueron capacitados y evaluados veinte enfermeros del servicio de emergencia de una unidad de atención de emergencias cuanto al reconocimiento de signos y síntomas de pacientes con accidente cerebrovascular. Fueron utilizados un pre-test y un post-test para evaluar el conocimiento de los enfermeros antes y después de la capacitación. ***Resultados:*** hubo una mejora del conocimiento del 68,5 al 85,26% sobre accidente cerebrovascular después de la capacitación. ***Conclusión:*** la capacitación de los enfermeros responsables de la evaluación de pacientes con sospecha de accidente cerebrovascular debe ser estimulada para optimizar la atención y el tratamiento proporcionados a estos pacientes. ***Descrpitores:*** Accidente Cerebrovascular; Enfermeros; Capacitación en Servicio.

[1,2,3]Students, School of Medicine, Federal University of São João del-Rei (UFSJ/CCO). Divinópolis, (MG), Brazil. E-mails: johnnyxavierx@hotmail.com; elaineaparecidademelo@gmail.com; jaimejrmedufsj@yahoo.com.br; [2]Laboratory technician, School of Medicine, Federal University of São João del-Rei (UFSJ/DEMED). São João del-Rei (MG), Brazil. E-mail: nath_nv@ufsj.edu.br; [3]Professor of Anatomy and Neuronatomy, School of Nursing, Federal University of São João del-Rei (UFSJ/CCO). Divinópolis, MG, Brazil. E-mail: mairalima77@gmail.com; [4]Professor of Anatomy and Neuroanatomy, School of Medicine, Federal University of São João del-Rei (UFSJ/DEMED). São João del-Rei (MG), Brazil. E-mail: lailacmdamazio@gmail.com

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INTRODUCTION

Cerebrovascular accidents (CVA) are the second leading cause of death in the world and the first leading cause of permanent disability in adults.[1-2] In 2005, there were 5.7 million of deaths caused by CVAs in the world, and the estimates for 2015 and 2030 are 6.5 and 7.8 million, respectively.[3-4] In 2010, there were about 99,732 deaths caused by CVAs (ICD-10 criteria between I60 and I69), and, in 2011, there were 100,751 deaths.[5-6] In Brazil, CVAs are the leading cause of death, surpassing coronary heart disease and, although there is a tendency of decreased mortality rate, the country still has the worst indices when compared to developed countries and South American countries.[5-7]

CVAs cause health damage, in addition to psychosocial and financial problems.[1-2] The expenses of the Brazilian Unified Health System (SUS) are around six to thirty-two million reais with these patients.[8,9] In addition, the disability caused by the disease generates great suffering for the patients and their families. The symptoms can be debilitating, causing paralysis, paresis, hypoesthesia, anesthesia, bilateral blindness, limb ataxia, hemianopsia, expressive aphasias, spatial disorientation, and amnesia, among others.[10]

There are two types of CVA, ischemic and hemorrhagic. The first represents 85% of the cases and the second 15%. In ischemic CVA—or cerebral ischemia—vessel obstruction with necrosis of the brain tissue occurs in minutes. There is a central area of tissue necrosis, and another area around it called penumbra. In the penumbra area, the metabolism is reduced and the cells are still viable up to three hours if the reperfusion is re-established within that period.[2,11] The more time passes since the onset of CVA, the more neurons die in the penumbra area, and this is exactly the area to be saved through appropriate and timely treatment.[12]

In order to provide proper treatment to patients with CVA, it is necessary to evaluate the their prognosis. The National Institutes of Health Stroke Scale (NIHSS) is accepted as the final clinical examination to indicate the severity of the CVA.[4,13] Emergency units do not have a standardization, evaluation program, or protocol that allow health professionals to recognize and diagnose early CVA, so that the time between the admission of the victim and care provided by the neurologist is not too long, thus reducing the consequences of this disease. In practice, it is observed that the vast majority of patients with CVA are stabilized, so that the chances of recurrence of the disease can be reduced through the use of heparin.[3,15] Subsequently, the patients remain under observation before hospital discharge, given that the time between the *ictus* and the care provided is almost always over three to four and a half hours, as recommended for thrombolytic treatment.[7,16]

According to the prognosis of patients with CVA, 23% die within seven days after the event, 31% within three weeks, and 48% before the end of the first year, i.e., one third of this population dies and most of these patients die early. The recovery follows an upward curve between three and six months after the event, and reaches 90% of the possible recovery between 12 and 18 months after the event.[17]

This way, the goal of the present study were to evaluate the effects of the training of emergency nurses on the recognition of signs and symptoms of CVA, and the application of the NIHSS scale.

METHOD

This is a descriptive cross-sectional study with a quantitative approach conducted from January 2013 to October 2014 at an emergency medical unit (EMU) of a city in the central-west region of the State of Minas Gerais, Brazil.

A pre-test and a post-test were applied to 20 nurses from the emergency service of the EMU before and after the training. The disclosure of the training program was carried out through posters and meetings with the coordination of the medical emergency team. The training was carried out in January and February 2014, in order to include all the nurses who applied for the training.

The pre-test applied before the training consisted of nine closed questions, and number two, seven, and nine were multiple-choice questions, totaling 39 alternatives evaluable as correct or incorrect for each questionnaire. This way, there were 624 questions in 16 questionnaires. The results of question one were not assessed as correct or incorrect, since it assessed the prior knowledge of the professionals about the scale.

The post-test consisted of 11 questions. The questions from one to nine were the same as those of the pre-test. The results of questions 10 and 11 were not assessed as correct or incorrect, given that they represented the perception of the healthcare professionals regarding the quality of the

training and the increase or not of knowledge about the NIHSS scale and/or CVA.

The nurses of the emergency service of the EMU were also trained on the application of the NIHSS scale, which is considered an important tool for the evaluation and identification of the prognosis of patients with CVA. This scale is used after the stabilization of the patients to confirm the degree of sequels, the prognosis, and the progression of the disease. The results of the pre-test and the post-test were analyzed and compared using the chi-squared test and the Statistical Package for the Social Sciences (SPSS 20.0), considering a 0.05 significance level.

The research project of the present study was approved by the Research Ethics Committee of the Federal University of São João del-Rei (UFSJ), Dona Lindu Central-West Campus (CAAE: 14411413.0.0000.5545). The participants signed an informed consent in accordance with the ethical standards established by Resolution No. 466/12.

RESULTS

Twenty nurses of the EMU of a city in the central-west region of the State of Minas Gerais, Brazil, were trained. The tests applied to four nurses were excluded from the analysis due to inadequate or incomplete filling. This way, 16 questionnaires were considered for the analysis of the results.

Considering the overall result of the questionnaires, we observed a prior success rate of 68.5% (429 correct questions), and the success in the post-test was 85.26% (532 correct questions). The increase in the success rate was 16.5% (p <0.001). Among the 39 questions, 71.79% (28 questions) showed better results in the post-test in comparison to the questions of the pre-test. The questions three and six showed better results in the post-test in comparison to the questions of the pre-test (p <0.05), as shown in Table 1.

In the present study, we observed that 31.25% of the evaluated participants reported prior knowledge about the NIHSS scale. The questions 2D, 3, 6, 7A, 7K, 8C, and 8J showed a success rate of 25% in the post-test in comparison to the rate of the pre-test. In the question 8J of the post-test, the increase was 18.75%.

In the post-test, the worst responses observed were for questions 2A, 7H, and 8A (p >0.05), and there were no changes in 20.51% of the answers (8 questions).

The results showed that 15 of the 16 nurses reported increased knowledge about the NIHSS scale and CVA after training. Only one respondent reported knowledge increase regarding the NIHSS scale.

Table 1. Answers in the pre-test and post-test of the nurses' training. City of the central-west region of the State of Minas Gerais, Brazil, 2014.

Questions	Correct answers (n)	Correct answers (n)	Correct answers (n)	Correct answers (%)	Variation (%)	Cochran's Q test	Significance
	Pre-test	Post-test	Pre-test	Post-test			
Question 2							
A	14	13	87.5	81.25	-6.25	1.000	0.317
B	14	15	87.5	93.75	6.25	1.000	0.317
C	9	13	56.25	81.25	25	2.667	0.102
D	9	13	56.25	81.25	25	4.000	0.046
E	7	9	43.75	56.25	12.5	3.571	0.059
F	11	16	68.75	100	31.25	3.571	0.059
Question 3	0	15	0	93.75	93.75	9.000	0.003
Question 4	13	16	81.25	100	18.75	3.000	0.083
Question 5	13	13	81.25	81.25	0	3.000	0.083
Question 6	2	15	12.5	93.75	81.25	13.000	<0.001
Question 7							
A	12	16	75	100	25	4.000	0.046
B	12	14	75	87.5	12.5	1.000	0.317
C	6	7	37.5	43.75	6.25	0.333	0.567
D	14	15	87.5	93.75	6.25	1.000	0.317
E	11	14	68.75	87.5	18.75	1.800	0.180
F	11	14	68.75	87.5	18.75	1.800	0.180
G	10	12	62.5	75	12.5	2.000	0.157
H	16	15	100	93.75	-6.25	1.000	0.317
I	7	9	43.75	56.25	12.5	3.000	0.083
J	15	16	93.75	100	6.25	1.000	0.717
K	6	13	37.5	81.25	43.75	7.000	0.008
Question 8							
A	13	11	81.25	68.75	-12.5	0.667	0.414
B	10	14	62.5	87.5	25	1.000	0.317
C	9	14	56.25	87.5	31.25	5.000	0.025
D	13	16	81.25	100	18.75	3.000	0.083
E	11	15	68.75	93.75	25	3.000	0.083
F	16	16	100	100	0	0.000	1.000
G	7	7	43.75	43.75	0	0.000	1.000
H	15	15	93.75	93.75	0	0.000	1.000
I	16	16	100	100	0	0.000	1.000
J	10	13	62.5	81.25	18.75	5.000	0.025
Question 9							
A	9	14	56.25	87.5	31.25	3.571	0.590
B	6	7	37.5	43.75	6.25	0.200	0.655
C	16	16	100	100	0	0.000	1.000
D	11	14	68.75	87.5	18.75	3.000	0.083
E	12	15	75	93.75	18.75	3.000	0.083
F	15	15	93.75	93.75	0	0.333	0.564
G	12	15	75	93.75	18.75	3.000	0.084
H	16	16	100	100	0	0.000	1.000

DISCUSSION

CVAs are a medical emergency and the recognition and assessment of the patients' prognosis is crucial for the healthcare team in the initial evaluation. The results of the pre-test and the post-test applied to the nurses indicated increased knowledge about CVA and the NIHSS scale. Although the NIHSS scale is used as part of healthcare protocols in developed countries and Brazilian reference hospitals, such as the Albert Einstein Hospital,[18] the same fact does not occur in other Brazilian localities.

After the training, we observed a success increase in the NIHSS scale score (93.75%), demonstrating that the nursing team was not aware of prognosis evaluation by means of this instrument in patients with CVA. Questions 7A and 7K also indicated an increase in the success rate after training, demonstrating the benefits of training with respect to nurses' learning on the risk factors for CVA.

Questions 8C and 8J showed a success rate increase of 31.25% and 18.75%, respectively. This way, there was an increase in the knowledge of the nursing team about the signs and symptoms of CVA (blindness or partial

vision loss, alteration or absence of unilateral or bilateral sensitivity). On the other hand, nurses' understanding about the appropriate time (3 and 4.5 hours) for the treatment of patients with ischemic CVA helped optimize the service provided to these patients in the EMU.

The training of nurses of the EMU allowed an increase of 68.5 to 85.26% in the overall success rate of the post-test (p <0.001), which demonstrated the increased knowledge of these professionals about the risk factors, signs and symptoms, evaluation, and treatment in patients with CVA. These results contributed to optimize the service at the EMU, promoting a better evaluation and follow-up of these patients

The deficiency in health promotion and education, especially in the knowledge about the care provided to patients with CVA, contributes to a less humanized care. With this, the adoption of educational measures allows improving the knowledge and the care provided to patients with CVA in the emergency medical service.

CONCLUSION

AVCs are a public health problem, which could worsen if there is no continuity in the improvements of the socioeconomic and educational conditions, quality of hospital and pre-hospital care, as well as primary and secondary control of risk factors.

The results of the present study demonstrated that there was improvement in knowledge about CVA and the NIHSS scale after the training of the nurses of the EMU of a city in the central-west region of the State of Minas Gerais, Brazil. Considering the positive impact generated by the project and the benefits to the population, it is necessary to promote constant stimulus for health professionals' learning in the emergency services of Brazilian EMUs.

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Corresponding Address

Laila Cristina Moreira Damázio
Universidade Federal de São João Del-Rei
Praça Dom Helvécio, s/n - Pavilhão, Fábricas
Departamento de Medicina - *Campus* Dom Bosco
CEP: 36301-160 – São João del-Rei (MG), Brazil