How Effective are the Stroke Management Workshops Held for the Emergency Nurses?

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ABSTRACT

Introduction: Nurses play a vital role in the recognition and triage of patients with stroke and Initial assessment. We intended to evaluate the validity and usefulness of training programs in the knowledge of nurses working in the emergency department who participated in the stroke training workshop; and compare the data with those who did not, to assess the effectiveness of these workshops. **Methods**: This was a cross-sectional analytical study of all nurses working in the emergency department. An interview was conducted with nurses and they were asked several questions about demographic data of participants, signs, and symptoms of stroke and stroke types and its complications. The data was analyzed by IBM® SPSS® 20.0 release software and a Comparison between the two groups was done by crosstab t-test. **Results**: A total of 26 participants including 53.8% male and 46.2% female with an average age of 32.62 8.68 were studied. Of these participants, 15 had a history of attending the training classes and 11 had none. There wasn't any significant difference in the knowledge of nurses who participated in the stroke education workshop and who did not about stroke signs and their subtypes. The nurses' work experience also did not affect this matter.The present study showed that there should be a workshop for holding educational classes as continuous education, using different resources, updated guidelines, and evaluating the usefulness of these classes and the performance of the participants.

Keywords: Nurse, Acute Stroke, education, emergency department

INTRODUCTION

Stroke is the most common neurological disorder that causes mortality and morbidity worldwide (1, 2). The burden of stroke is increasing in low- and middle-income countries (3).

Acute stroke is now become a treatable condition with immediate specialist care and drug treatment (4). Acute stroke care needs a skilled, multidisciplinary team that includes physicians, nurses, and Para-medical staff who all have an important role in stroke rehabilitation (4). Studies have shown that treatment within 60 minutes from the onset of symptoms (known as the golden hour) significantly affects the patient outcome and reduces mortality and morbidity rate (5). Therefore, for quick action, it is necessary to recognize the symptoms of stroke and proper triage of patients, which requires knowledge and skills about stroke and its management. Some studies show education courses for emergency staff are an effective method to improve their knowledge and abilities and enhance the quality of patient care and patient outcome and emergency staffs job satisfaction. Since the continuum of stroke care begins in the Emergency Department, and nurses play a vital role in the recognition and triage of patients with stroke, Initial assessment and coordination of patient's circulation in the hospital (6), their knowledge about symptoms of stroke and its complications such as r-TPA administration, golden hour are of particular importance.

In this study, we intended to evaluate the validity and usefulness of training programs in the knowledge of nurses working in the emergency department who participated in the stroke training workshop; and compare the data with those who did not, to assess the effectiveness of these workshops.

MATERIAL AND METHODS

We performed a cross-sectional analytical study of all nurses working in the emergency department of Imam Reza hospital of Tabriz/Iran in 2021. At first, an oral test was designed based on Wiszniewska et al study (7) which was approved by the Stroke Neurologist Fellowship. Then, an interview was conducted with nurses who were willing to participate in this study and they were asked several questions. The nurses who did not want to participate or is temporary works in emergency department were excluded. The questions were divided into three sections:

Part 1 included 8 questions about demographic data of participants (age, sex, education, work experience, attendance in training stroke management workshop which was designed by the hospital education deputy).

The workshop which was held included recognition of signs and symptoms of acute stroke, treatment, emergency evaluation, and how to transfer the patient and stroke code activation educated by neurology and emergency professors. This course was last for one day and all nurses were evaluated after at least one year after the workshop.

Part 2 included 10 questions about signs and symptoms of stroke (Sudden numbness or tingling sensation (Hemi sensory deficits), Sudden paralysis of one side of the body, Sudden difficulty in speaking or Slurred speech, Sudden blurred vision in one or two eyes, or double vision, Sudden loss of vision in one eye, loss of balance, Sudden fall, Loss of consciousness, Severe and sudden headache with nausea and vomiting, sudden feel of dizziness and confusion)

Part 3 included 4 questions about stroke type and its complications (hemorrhagic stroke, Ischemic strokes with no thrombolytic indication, Ischemic strokes with thrombolytic indication, golden time of thrombolytic therapy).

Following answers were regarded as yes/no answers, Stroke signs included correct or incorrect answers with interview situations. The data were gathered in a checklist.

Data analysis

All collected information was analyzed by IBM® SPSS® 20.0 release software, and normal distribution was checked. The linear regression statistical method was used to evaluate the relationship between data. Comparison between two groups was done by crosstab t-test.

RESULTS

A total of 26 people including 53.8% male and 46.2% female with an average age of 32.62 8.68 were studied. Age did not obey normal distribution. IQI (Inter-Quartile Index) of the population was between 26-38 years old.

IQI of work experiences of participants in this study was between 3-17 years with a median of 7 years.

Of these participants, 15 people (57.7%) had a history of attending the training classes and 11 (42.3%) had none.

Among the study population, only one (3.8%) did not know the triage level of patients with acute stroke, and there wasn't any significant difference between those who participate in the training classes and who did not (Pv= 0.577).

In assessing participants' awareness of stroke symptoms, most identified speech disorders, facial droop and numbness, and hemiparesis. More information is summarized in table1.

In comparison between nurses who participated in the workshop and those who did not: there was no significant difference in the knowledge of participants about speech disorder (Pv = 0.572), facial droop (Pv=0.677), monocular and binocular visual deficits (Pv = 0.426), severe and sudden headache with nausea and vomiting (Pv = 0.588), hemiparesis or quadriparesis (Pv = 0.381), decrease in the level of consciousness (Pv = 0.345), hemi-sensory deficits (Pv = 0.574), balance and gait disturbance (Pv = 0.509), as the symptoms of a stroke.

P-values of the differences between the knowledge of nurses who participated in the workshop and those who did not about signs and symptoms of stroke and stroke complications are shown in table2.

Among participants, there was a significant age difference (Pv =0.012) and years of work or experience (Pv = 0.007), but there were not any differences in the sex of participants (Pv=0.400) and their knowledge of the patient's triage level (Pv=0.392).

DISCUSSION

Emergency nurses are at the forefront of the stroke team.

Table 1. Participants' awareness of stroke symptoms

Sign and symptom	Frequency	Percent	Participated in stroke workshops	Didn't participate in workshops
Speech disorder	11	14	96.2	25
Facial sagging & numbness	10	14	92.3	24
Visual deficits	1	3	15.4	4
Severe and sudden headache	4	6	38.5	10
Hemiparesis	9	14	88.5	23
Decrease in level of consciousness	9	10	73.1	19
Hemi sensory deficits	9	13	84.6	22
Gait disturbance	8	12	76.9	20

Table2. P-values of the differences between the knowledge of nurses who participated in the workshop and those who did not

Signs and symptoms of stroke	p-value
Speech disorder	0.572
Facial droop	0.677
Visual deficits	0.426
Sudden headache and nausea and vomiting	0.588
Hemiparesis and quadriparesis	0.381
Decrease in level of consciousness	0.345
Balance & gait disturbances	0.509
Hemi-sensory deficits	0.574
Stroke complications	
Hemorrhagic stroke	0.655
Ischemic strokes with no thrombolytic indication	0.543
Ischemic strokes with thrombolytic indication	0.412
golden time of thrombolytic therapy	0.577

Therefore, their knowledge is very important in identifying stroke symptoms, knowing about golden time, indications of thrombolytic therapy, and taking the necessary actions. In this study, we evaluated the usefulness of holding stroke education workshops by comparing the knowledge of nurses who participated in these workshops and those who did not; about symptoms of stroke and its complications. There are several studies

on training courses for medical staff and their results, which we will discuss.

In Shinohara's study (8), they aimed to determine the educational effect of a stroke workshop on clinical staff using the Kirkpatrick model of training evaluation which has four-level including reaction, learning, behavior and results respectively. They concluded that the clinical staff's skills to manage stroke have improved with a half-day stroke workshop. In a study done by Matsuda et al(9), about the Evaluation of an emergency first aid training program for occupational health nurses, the training was evaluated by the Kirkpatrick model. The scores after training were significantly higher than the scores before the training, indicating that the training program led to improved knowledge of participants and increased their satisfaction; therefore, the program was useful. Puri et al (10), evaluated the effect of stroke care education on emergency staff and measured the outcome. They also mentioned that the effect of education diminishes over time, so, sustained education and repetitive courses are needed to prevent this. Stroke-related training should include knowledge of the rapid diagnosis of stroke, the importance of time, knowledge of different reperfusion strategies, and the advantages of stroke unit care. Stroke education is one of the most cost-benefit and possible interventions to improve patient outcomes and improve stroke care qualities. In a study done by Mehndiratta et al(11), about Stroke-related education to emergency department staff, they stated that Stroke care needs a multi-skilled team which can be achieved by the education for improving knowledge and skills about stroke care based on updated guidelines and clinical practice that can be useful for all medical and Paramedical staff and improve their skills and expertise. Education must include acute stroke care education as well as stroke risk factors and prevention. This study suggests that educational resources should be easily accessible to everyone and social media, books, websites, and journals can be effective in increasing awareness about stroke. This study, also, states that designating an informed person who develops a training program about stroke and its complications and provides updated training protocols for participants, scheduling and holding educational classes, taking evaluation exams, assessing the performance of participants and the need for further education can be very helpful, especially for new emergency staff such as junior residents and nurses. Therefore, the quality of stroke care and patient compliance promotes.

In the present study, most of the participants knew about speech disorder, face droop or numbness, hemiparesis, and FAST symptoms as the common symptoms of a stroke but did not have enough information about other symptoms. Nearly half of the participants had enough information about how to control blood pressure in patients with stroke. This result can be because the training was not continuous and repetitive courses were not held for reminding, as a result of which, the training has been forgotten over time. Also, various sources were not used for training and there was no assessment of the needing to re-hold workshops or change the methods used in them or the way they were conducted.

CONCLUSION

The present study showed that there were no significant differences in the knowledge of nurses who participated in stroke care workshops just once and who did not; in recognizing stroke symptoms or managing them. Hence, for better results, there should be a workshop for holding educational classes as continuous education, using different resources, updated guidelines, evaluating the usefulness of these classes and the performance of the participants, also getting feedback from them; so that better decisions can be made about how to hold these workshops in the future.

ETHICAL CONSIDERATION

This study has been approved by the regional ethics committee of Tabriz university of Medical Sciences with the ethics code IR.TBZMED.REC.1400.192.

CONFLICT OF INTRESETS

The authors declare there is no conflict of interests.

ABBREVIATIONS

IQI; Inter-Quartile Index.

LIMITATIONS

Due to the small number of employed emergency nurses, the need for studies with larger communities is quite tangible. Comparing the knowledge of emergency nurses with other nurses can give us helpful information and it seems necessary to add these workshops to the nurses' university training course.

The job experiences of the nurses were significantly different and it can be impressive this study, but we did not have any choice.

REFERENCES

1. Longo DL, Fauci AS, Kasper DL, Hauser SL, Jameson JL, Loscalzo J. Harrison's principles of internal medicine 18E Vol 2 EB. McGraw Hill Professional; 2012 Nov 8.
2. Ovbiagele B, Nguyen-Huynh MN. Stroke epidemiology: advancing our understanding of disease mechanism and therapy. Neurotherapeutics. 2011 Jul;8(3):319-29.
3. Krishnamurthi R, V, Ikeda T, Feigin V, L: Global, Regional and Country-Specific Burden of Ischaemic Stroke, Intracerebral Haemorrhage and Subarachnoid Haemorrhage: A Systematic Analysis of the Global Burden of Disease Study 2017. Neuro-epidemiology 2020;54:171-179. doi: 10.1159/000506396
4. Bath PMW. The medical management of stroke. Int J Clin Pract 1997; 51:50410.
5. Ebinger M, Kunz A, Wendt M, Rozanski M, Winter B, Waldschmidt C, Weber J, Villringer K, Fiebach JB, Audebert HJ. Effects of golden hour thrombolysis: a Prehospital Acute Neurological Treatment and Optimization of Medical Care in Stroke (PHANTOM-S) substudy. JAMA neurology. 2015 Jan 1; 72(1):25-30.
6. Middleton S, Grimley R, Alexandrov AW. Triage, treatment, and transfer: evidence-based clinical practice recommendations and models of nursing care for the first 72 hours of admission to hospital for acute stroke. Stroke. 2015 Feb; 46 (2):e18-25.
7. Wiszniewska M, Głuszkiewicz M, Kobayashi A, Włodek A, Jezierska-Ostapczuk A, Fryze W, Członkowska A. Knowledge of risk factors and stroke symptoms among nonpatients with stroke. European neurology. 2012; 67(4):220-5.
8. Shinohara M, Nakamura T, Kunikata N. A half-day stroke workshop based on the Kirkpatrick model to improve new clinical staff behavior. Journal of Advances in Medical Education & Professionalism. 2020 Jan;8(1):10.
9. Matsuda Y, Negishi M, Otani K, Arakida M, Higashi T. Evaluation of an emergency treatment training program for occupational health nurses. Sangyo eiseigaku zasshi= Journal of occupational health. 2016 Jun 13;58(4):118-29.
10. Puri I, Bhatia R, Vibha D, Singh MB, Padma MV, Aggarwal P, Prasad K. Stroke-related education to emergency department staff: An acute stroke care quality improvement initiative. Neurology India. 2019 Jan 1;67(1):129.
11. Mehndiratta MM, Gulati NS, Mehndiratta P. Stroke-related education to emergency department staff. Neurology India. 2019 Jan 1;67(1):134.