

DOI: 10.15225/PNN.2017.6.4.3

Involvement of the Nurse in the Treatment of Ischemic Stroke — Knowledge of Nurses from the Stroke Unit

Udział pielęgniarki w leczeniu udaru niedokrwiennego mózgu — wiedza pielęgniarek oddziału udarowego

Justyna Zych¹, Piotr Korzekwa²

¹Blessed Virgin Mary Provincial Specialist Hospital in Częstochowa, Poland

²Komed Clinic in Częstochowa, Poland

Abstract

Introduction. Stroke units are wards created to provide specialized care after stroke. Comprehensiveness of actions taken according to the latest recommendation is a priority. A nurse plays an important role at every stage of therapeutic activities. The actions taken by her should be based on the EBNP (Evidence Based Nursing Practice) and cover all aspects of care of the patient after stroke. By using up-to-date results of scientific studies in practice, the patient has been guaranteed the highest quality of care and safety.

Aim. In this study there has been discussed the issue of knowledge of the nursing staff from the Stroke Unit in the context of theoretical and practical information related to stroke.

Material and Methods. The research was conducted among 26 nurses from the Neurology and Stroke Unit. The diagnostic survey method was used. The research tool was an authorial questionnaire.

Results. Non-modifiable risk factors of stroke were indicated by 77% of people. The set of tests used to diagnose stroke was indicated by 15.4% of the respondents. A physical examination was often omitted. The recombinant plasminogen activator (rt-PA), as a medicine was marked by 52% participants, whereas as a medicine used for treatment was indicated by 32% of them. The meaning of the term thrombolysis is known by 100% of individuals, however, the possibility of performing intra-arterial thrombolysis was indicated by 30% of respondents. The recombinant plasminogen activator (rt-PA), as a medicine used in the thrombolysis was chosen by 43.5% respondents, and streptokinase by 39% of them. The sources of knowledge include professional work (54%), education (27%), trainings (19%). Conducting education among the patients is declared by 96% of the respondents.

Conclusions. 1) Knowledge of the nurses from the Stroke Unit on the basic matters regarding stroke is at a good level. 2) Knowledge of the nurses is mainly based on their personal experience. 3) Theoretical basics regarding new treatment techniques should be strengthened. 4) There is a need to organize courses to update the gained knowledge on new guidelines and information regarding the new scientific research. (JNPN 2017;6(4):150–156)

Key Words: stroke unit, nurse, stroke, thrombolysis, knowledge

Streszczenie

Wstęp. Oddziały udarowe to jednostki stworzone do zapewnienia specjalistycznej opieki w udarze mózgu. Priorytetem jest kompleksowość działań zgodnie z najnowszymi zaleceniami. Pielęgniarka pełni istotną rolę na każdym etapie działań terapeutycznych. Działania przez nią podejmowane powinny być oparte o EBNP (Evidence Based Nursing Practice) i obejmować zakresem wszystkie aspekty opieki nad pacjentem udarowym. Dzięki zastosowaniu aktualnych wyników badań naukowych w praktyce pacjent ma zagwarantowaną najwyższą jakość opieki i bezpieczeństwo.

Cel. W badaniu podjęto problematykę wiedzy personelu pielęgniarskiego zatrudnionego w oddziale udarowym w kontekście informacji teoretycznych i praktycznych związanych z udarem.

Materiał i metody. Badanie przeprowadzono wśród 26 pielęgniarek Oddziału Neurologii i Udarowego. Zastosowano metodę sondażu diagnostycznego. Użytym narzędziem badawczym był autorski kwestionariusz ankiety.

Wyniki. Niemodyfikowalne czynniki ryzyka udaru mózgu wskazało 77% badanych. Komplet badań wykonywanych w diagnostyce udaru wskazało 15,4% respondentek. Najczęściej pomijano badanie fizykalne. Rekombinowany aktywator

plazminogenu (rt-Pa) jako lek określiło 56% badanych, a jako lek stosowany w leczeniu 32%. Ankietowane znają znaczenie słowa tromboliza w 100%, ale możliwość podania jej dotętniczo wskazało 30% badanych. Rekombinowany aktywator plazminogenu (rt-Pa) jako lek stosowany w trombolizie wybrało 43,5%, a streptokinazę 39%. Źródłami wiedzy są praca zawodowa (54%), wykształcenie (27%), szkolenia (19%). Prowadzenie edukacji pacjentów deklaruje 96% ankietowanych.

Wnioski. 1) Znajomość podstawowej tematyki udaru mózgu przez pielęgniarki oddziału udarowego jest na dobrym poziomie. 2) Wiedza pielęgniarek opiera się głównie na doświadczeniu własnym. 3) W zakresie nowych technik leczenia, należy wzmocnić podstawy teoretyczne. 4) Istnieje konieczność organizowania szkoleń, aby aktualizować zdobytą wiedzę o nowe wytyczne i informacje z zakresu nowych badań naukowych. (PNN 2017;6(4):150–156)

Słowa kluczowe: oddział udarowy, pielęgniarka, udar mózgu, tromboliza, wiedza

Introduction

Over the past 20 years there has been a change in the approach to treatment of stroke. According to the guidelines of the American Heart Association (AHA) and ESO (European Stroke Organization), stroke patients should be treated and taken care of by a specialized stroke unit. In 2016 this treatment took place in 180 institutions all over Poland. However, according to the NIK report published in 2016, every third stroke patients was treated outside the stroke unit [1–4].

Stroke units were created to provide diagnostic process, treatment and early rehabilitation for stroke patients. Their priority being comprehensiveness of actions compliant with the latest recommendations. It has been proved that treatment in the stroke ward brings significant benefits to the patient in terms of reducing the percentage of total mortality, the number of patients depending on others and requiring care in specialized institutions [5].

Currently, the recommended, effective and most widely available method of treating ischemic stroke is thrombolytic therapy with recombinant plasminogen activator (rt-Pa, Actylise). Reasonable treatment of stroke is available only in the stroke ward, where medical staff trained in that respect are employed. The nurse plays an important role at every stage of therapeutic activities and closely cooperates with the other staff members of the ward [1].

The methods of dealing with strokes can be divided into non-specific and specific types. Non-specific activities include: monitoring of vital signs, of neurological condition, treatment when complications occur, complex care, early rehabilitation. The tasks of a nurse in the implementation of thrombolytic specific therapy include: physical and mental preparation of the patient, providing 2-way peripheral puncture (preferably on the same limb), preparation of necessary equipment and dissolution of the drug, measurement of vital parameters, ensuring a sense of safety and mental comfort, supervision over correct rt-Pa infusion, observation of neurological and general condition of the patient for signs of allergy and behavior, avoidance of bladder catheterization due to the risk of micro-injury and infection [2,6].

The activities undertaken by nurses should be based on EBNP (Evidence Based Nursing Practice) and include participation in treatment, early rehabilitation, prevention of complications, primary and secondary prevention education and the preparation of the patient and the family for self-care. Thanks to the use of current scientific research results by the medical team, the patient is guaranteed the highest quality of high standard care and safety [7].

The Glasgow Scale (GCS), NIHSS (National Institutes of Health Stroke Scale), the Rankin and Barthel Scales are recommended to be applied. Thanks to their use, patient care is performed in an appropriate, complete manner, adjusted to the condition and needs of the patient. With proper assessment of the condition of the patient, it is possible to carry out the best nursing interventions bringing the desired effects [1,8,9].

The purpose of this study was to analyse the knowledge of nurse staff working at the neurology and stroke wards, in the scope of theoretical and practical knowledge related to stroke.

Material and Methods

The study was conducted in 2016 among 26 nurses from the Neurology and Stroke Ward in Częstochowa. The method of the diagnostic survey was used and the author's questionnaire was the research tool. The study included women, mostly aged 40–50 years (69.2%). The characteristics of the examined group are presented in Table 1.

Table 1. Characteristics of the study group

Variable	%
1	2
Age	
≤30	7.7
31–39	7.7
40–50	69.2
>50	15.4

Table 1. Continued

	1	2
Education		
Secondary		46.2
Higher		53.8
Place of residence		
Village		38.4
City under 20 thousand residents		7.7
City between 20–100 thousand residents		7.7
City between 100–200 thousand residents		7.7
City between 200–400 thousand residents		34.6
City >400 thousand residents		3.9

Results

The definitions of stroke were well understood by 73% of the respondents. The fact that generalized cerebral ischaemia is not classified as stroke was indicated by 36.4% of the participants. The group included respondents aged 40 and younger (50%) and with higher education (42.8%). The most frequently mentioned symptoms of stroke are presented in Figure 1.

77% of the respondents correctly identified non-modifiable risk factors of stroke. 100% of women aged under 40 knew them. The entire set of examinations performed to the patient at the Admission Center was indicated only by 15.4% of the respondents. The Physiological — neurological examination and ECG recording were most often omitted. The distribution of responses in the field of diagnostic tests, including age, place of residence and education, is shown in Table 2.

Alteplaza as a medicine was defined by 53.8% of the respondents and as a drug used to treat stroke by 34.6%. The exact distribution of the responses referring to the drug used in thrombolysis is presented in Table 3. 100% of the female respondents know the meaning of the word thrombolysis, however the possibility of its intra-arterial administration was indicated by every third of those surveyed. Most often they were respondents aged 40 and younger (50%) with secondary education (33.3%). The recapititized plasminogen activator (rt-Pa) as a drug applied in thrombolytic therapy was selected by 43.5% and streptokinase was chosen by 39%%. The distribution of responses is presented in Table 4.

Nurses in 88.5% know therapeutic window for treatment of ischemic stroke. The activities mentioned before the rt-Pa inclusion consisted mainly of the measurement of vital parameters, establishing the second

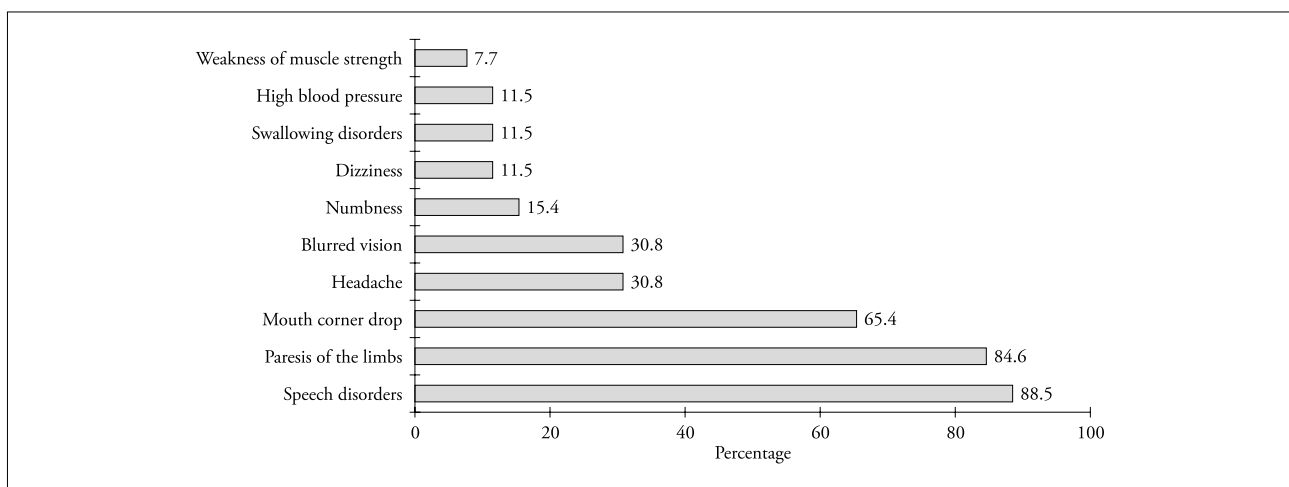


Figure 1. Stroke a most often mentioned by the respondents

Table 2. The most frequently indicated tests performed at the Admission Hall when diagnosing a patient with suspected stroke

Answers	Total	Age		Education		Place of residence	
		Persons under 40	Persons ≥40	Secondary	Higher	Village	City
Laboratory tests	88.5%	100%	86.4%	91.6%	85.7%	80%	93.75%
Computer tomography	92.3%	100%	90.9%	91.6%	92.8%	100%	87.5%
EKG	61.5%	100%	54.5%	66.6%	57.1%	70%	56.25%
Physical examination	19.5%	25%	18.2%	16.6%	21.4%	20%	18.75%
Blood pressure measurement	11.5%	—	13.6%	16.6%	7.1%	20%	6.25%
All selected examinations	15.4%	25%	13.6%	16.6%	14.3%	20%	12.5%

Table 3. Distribution of responses determining what is the drug used in the causal treatment of ischemic stroke

Definitions	Total	Age		Education		Place of residence	
		Persons under 40	Persons ≥40	Secondary	Higher	Village	City
Medicine	53.8%	75%	50%	58.3%	50%	80%	37.5%
Treatment	61.5%	–	72.7%	66.6%	78.6%	60%	81.25%
Medicine+	34.6%	75%	27.3%	25%	35.5%	50%	18.75%
Treatment only medicine	23%	25%	22.7%	33.3%	14.3%	30%	18.75%
Only treatment	42.3%	25%	45.5%	41.6%	42.8%	10%	62.5%

Table 4. Distribution of answers regarding the drug used in the treatment of ischemic stroke

Medicine	Age		Education		Place of residence	
	Persons under 40	Persons ≥40	Secondary	Higher	Village	City
Streptokinase	–	40.9%	50%	21.4%	20%	43.75%
rt-Pa	75%	31.8%	50%	28.6%	70%	18.75%
Heparin	25%	13.6%	–	21.4%	–	–

Table 5. The most frequently indicated actions performed before inclusion of thrombolytic medicine

Answers	Total	Age		Education		Place of residence	
		Persons under 40	Persons ≥40	Secondary	Higher	Village	City
Measurement of life parameters	100%	100%	100%	100%	100%	100%	100%
Intravenous insertion (IV)	84.6%	100%	81.8%	91.6%	78.6%	100%	75%
The Foley catheter wearing	73.1%	75%	72.7%	83.3%	64.3%	80%	68.75%
Taking blood for laboratory tests	15.4%	25%	13.6%	16.6%	14.3%	20%	12.5%
Measurement of life parameters IV, catheter	73.1%	75%	72.7%	83.3%	64.3%	80%	68.75%

peripheral puncture and the Foley catheter to the bladder. The answers in this regard are presented in Table 5.

The most frequently indicated sources of nurses' knowledge on stroke are shown in Figure 2.

All negative health behaviors that increase the risk of stroke were accurately identified by 88% of respondents,

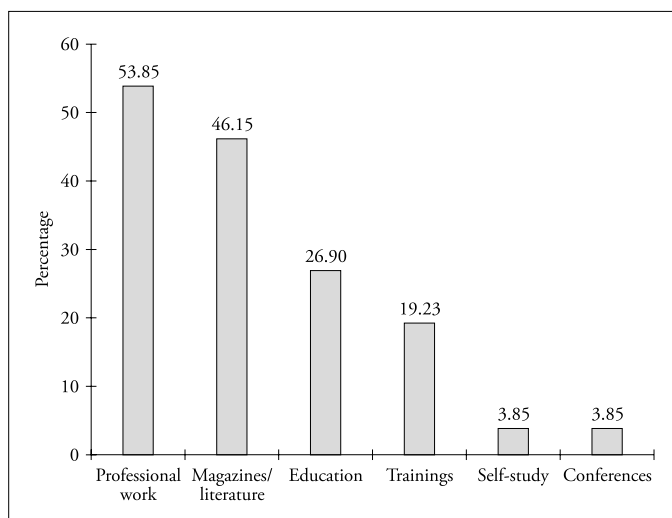


Figure 2. Sources of knowledge most often indicated by nurses

and almost every third person gave an additional answer. The meaning of the term — secondary prevention is well known in nearly 70% of the female respondents, whereas the TIA abbreviation was most often defined as transient cerebral ischemia (77%) or transient cerebral circulation disorders (11.53%). 100% of the respondents are aware that TIA requires hospitalization, that the occurrence of several risk factors simultaneously increases the risk of stroke and that the blood pressure should not be drastically and rapidly lowered in the acute phase of stroke. 96% of the respondents declare that they educate the and indicate patients and that they often (57.7%) or very often (26.9%) do that.

Nursing staff in the ward assess the patient's condition using a three-step nursing categorization and the Norton Scale, assessing the risk of bedsores occurrence.

Discussion

Stroke is a condition that requires rapid reaction and the inclusion of a specific treatment that gives a

chance to survive and return to fitness. The place to receive comprehensive assistance in this area is a stroke unit with an experienced multidisciplinary therapeutic team.

The analysis of the collected data indicates that nurses' knowledge of the new definition of stroke and non-modifiable factors is at good level. It was similar, in the study by Rosińczuk-Tonderys et al. and by Misiak. However, in the 2002 in the study by Rosińczuk-Tonderys, health-care personnel indicated a low level of knowledge about risk factors. Similar conclusions arose from the study carried out by Zych et al. of nurses participating in specialized trainings. This difference may be due to the diversity of the groups included in the aforementioned studies [10–13].

The knowledge of characteristic symptoms of the disease is a very significant issue in medicine. In our study, the majority of the nurses indicated characteristic symptoms of stroke which included speech disorders, paresis, dropping of the corner of the mouth, a headache or visual disturbances. It was similar in the research, by Adelman E.E. et al., where the study involved nursing staff in the hospital, including neurological nurses. In the analysis carried out by Rosińczuk et al., in which also the staff of neurological wards took part, only approximately 60% of the respondents were aware of the symptoms of stroke. On the other hand, satisfactory knowledge in this respect was revealed by nursing students, who in large numbers can list the characteristic symptoms of stroke. It is a matter of concern that in the own study almost no purely neurological definitions of symptoms such as aphasia, dysphagia, etc. were taken into account. In this aspect it is necessary to increase the awareness of nurses of neurology regarding professional vocabulary applied in neurology in order to emphasize their professionalism and knowledge [10,14,15].

At the time of the patient's arrival at the SOR (Independent Rescue Unit), diagnostic measures should be implemented to allow proper diagnosis and qualification for treatment. In the case of the choice of tests in stroke diagnosis, a very small group of respondents answered the question. The most overlooked part of the diagnosis was the physical examination. The reasons for such a state should be found in the absence of participation in the procedure of admission, or not drawing sufficient attention by nurses to diagnostic measures taken by a physician. It was similar, in the 2016 study. At Rosińczuk et al. the knowledge in this area was at a much higher level. Education in this respect is needed as the preliminary diagnosis can also give an answer as to what the possible cause of stroke (e.g. atrial fibrillation, coagulation disorders) is. The nursing team does not perform physical examination although its elements are included in the course of education. This should be subject to a change in connection with the

acquisition by our professional group of increasing entitlements in relation to the provision of health services [13,15].

The type of medicine used in causal treatment — thrombolysis is rt-Pa (trade name — Actylise). The definition of thrombolysis is known to nurses, but only a small group of respondents indicated the possibility of performing it intra-arterially. This may be due to the lack of access to this method in the ward in which the respondents worked and that their knowledge is based on their own experience. Similarly, in the analysis by Zych et al, 43.5% of the respondents chose the rt-Pa abbreviation as the medicine applied in thrombolytic treatment, and almost the same number (39.1%) indicated streptokinase. This may confirm insufficient knowledge of Actylise as far as the characteristics of the medicinal product are concerned. In the study by Rosińczuk et al. and Zych et al. on nursing knowledge, information on thrombolytic therapy was also insufficient. Very satisfactory is the fact of a profound knowledge of the therapeutic window, which did not occur in the study of non-neurological nurses. It should be concluded however, that it is necessary to promote and organize further training courses on new methods of treatment both at the workplace as well as at centers organizing postgraduate trainings [13,15].

Before including the rt-Pa, it is required to perform the necessary activities, including: vital-size measurement, securing 2-way peripheral puncture, mental and physical preparation, providing life-saving medical equipment. Most of the respondents indicated only the first 2 activities, and also, which is not recommended, placing the Foley catheter in the bladder (approximately 3/4 respondents). It is advisable to avoid routine catheterization due to the risk of microreception and bleeding during thrombolysis and increased urinary tract infection [2]. Nurses' responses may be related to the fact that at the acute stage of stroke it is recommended to run fluid balance as well as to routine attitude to treatment by medical personnel.

Nurses should base their skills on knowledge acquired in the course of education and work experience, and also, which is required by legislation, on supplementing it with current guidelines and recommendations within postgraduate education and self-education. The respondents most often learned from work experience, and to a very small extend from self-education and conferences. Literature and training were also indicated as a source of knowledge. However, the analysis of the material shows that the degree of knowledge on new recommendations or treatment method is at unsatisfactory level. In the research by Zych et al., mass media and not the sources of education was the main source of information about stroke. In Poland, there are no strict nursing guidelines for stroke-related activities, as it is

the case in Canada, the United Kingdom and Australia. It is observed in numerous studies that nurses' education activities for patients in many areas are a very low level. In terms of these two aspects, steps should be taken to improve them and to increase the prestige of the profession [8,13].

Promoting healthy lifestyle, motivating to treatment, creating a positive attitude of the patient towards the disease, towards the patient himself and life plans are the activities carried out within the framework of secondary prevention. Knowledge on negative health behaviors remains at a high level. Awareness of the importance of the secondary prevention as the one applied after stroke is quite good. Contrary to the knowledge of the participants in the study by Zych et al. satisfactory is the fact that nurses define carrying out prevention activities among patients as frequent and very frequent. Prevention improves results in many areas regarding both the patient as well as the healthcare system [13]. There is a visible need to systematize knowledge in all aspects regarding the symptoms and the principles of modern treatment as well as prevention-related actions.

The weak side of the study was a small group of respondents. This was due to the lack of willingness to fill in the questionnaire survey in one of the wards and the lack of consent of the Directorate of one of the hospitals in Częstochowa. When planning another survey, the area of the study should be extended to other cities and provinces.

Conclusions

1. Basic knowledge of the problem of stroke shown by nurses from the stroke unit is at a good level.
2. Nurses' knowledge is based primarily on their personal experience.
3. In terms of new treatment techniques, the theoretical basis should be strengthened.
4. There is a need to organize trainings to update the knowledge already gained with new guidelines and information on new research.

Implications for Nursing Practice

The professional operating of the nursing team in the treatment and care of the patient with stroke should be based on EBNP. Their goal is to provide the highest quality, safety and standards of nursing care.

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Corresponding Author:

Justyna Zych

ul. Wschodnia 3a, 42-100 Kłobuck, Poland

e-mail: justynazych87@gmail.com

Conflict of Interest: None

Funding: None

Author Contributions: Justyna Zych^{A-E,H}, Piotr Korzekwa^G

(A — Concept and design of research, B — Collection and/or compilation of data, C — Analysis and interpretation of data, D — Statistical analysis, E — Writing an article, F — Search of the literature, G — Critical article analysis, H — Approval of the final version of the article)

Received: 29.09.2017

Accepted: 27.10.2017