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Awareness of Nurses about Posture, Mobilization and Disability in Patients with Acute Ischemic Stroke

Akut İskemik İnme Geçiren Hastalarda Postür, Mobilizasyon ve Yeti Yitimi ile İlgili Hemşirelerin Farkındalıkları

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ABSTRACT

Background: Stroke is the second leading cause of death and disability in the world and patients with stroke often need care due to functional impairments and disability. The aim of this study was to examine the awareness of nurses about posture, mobilization and reduction of disability in patients with acute ischemic stroke.

Methods: This descriptive and cross-sectional study was conducted between June 15 and December 15, 2024 with 120 nurses working in clinics with a high number of stroke patients in four hospitals. Data were collected using the "Posture, Mobilization and Reduction of Disability Awareness Information Form in Patients with Acute Ischemic Stroke".

Results: Most of the nurses were undergraduate graduates (72.5%) and more than half (51.7%) had been working for 10 years or more. More than half of the nurses who participated in the study stated that they received training for stroke patients (58.3%). The correct response rate of nurses working in neurology-related clinics (39.6%) to the question of how often a position change should be made was significantly higher than that of nurses working in other clinics (20.8%) (P<.05).

Conclusion: All patients with acute stroke should ideally be hospitalized in a stroke unit. Increasing the awareness of nurses working with stroke patients by organizing evidence-based training programs to maintain the body posture of patients, ensure mobilization and reduce disability.

Keywords: Stroke, ischemic stroke, evidence-based nursing, posture.

ÖZ

Amaç: İnme dünyada ölüm ve sakatlığın ikinci önde gelen nedenidir ve inme geçiren hastalar sıklıkla işlevsel bozukluklar ve yeti yitimi nedeniyle bakıma ihtiyaç duyarlar. Bu çalışmada, hemşirelerin akut iskemik inme geçiren hastaların postür, mobilizasyon ve yeti yitiminin azaltılması ile ilgili farkındalıklarının incelenmesi amaçlandı.

Yöntemler: Tanımlayıcı ve kesitsel tipteki çalışma 15 Haziran-15 Aralık 2024 tarihleri arasında dört hastanede inme hastalarının yoğunlukla bulunduğu kliniklerde çalışan 120 hemşire ile yürütüldü. Veriler "Akut İskemik İnme Geçiren Hastalarda Postür, Mobilizasyon ve Yeti Yitiminin Azaltılması Farkındalık Bilgi Formu" kullanılarak toplandı.

Bulgular: Hemşirelerin çoğu lisans mezunu (%72,5) ve yarısından fazlası (%51,7) 10 yıl ve üzerinde çalışmaktaydı. Çalışmaya katılan hemşirelerin yarısından fazlası inme geçiren hastaya yönelik eğitim aldığını (%58,3) belirtti. En az kaç saatte bir pozisyon değişikliği yapılması gerektiği sorusuna nöroloji ile ilgili kliniklerde çalışan hemşirelerin doğru yanıt oranları (%39,6) diğer kliniklerde çalışanlardan (%20,8) anlamlı derecede daha yüksekti (P<.05).

Sonuç: Akut inme geçiren tüm hastaların ideal olarak bir inme ünitesine yatırılması sağlanmalıdır. İnme hastası ile çalışan hemşirelere kanıta dayalı olarak hastaların vücut postürünün korunması, mobilizasyonun sağlanması ve yeti yitiminin azaltılmasına yönelik eğitim programlarının düzenlenerek farkındalıkların arttırılması önerilmektedir.

Anahtar Kelimeler: İnme, iskemik inme, kanıta dayalı hemşirelik, postür.

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INTRODUCTION

Over the past 30 years, the disease pattern in 80% of developing countries has shifted from infectious to non-communicable diseases.[1] Among all neurological disorders, stroke is the most devastating and ranks as the second most common cause of death worldwide and the third leading cause of overall mortality and disability.[2] Globally, stroke-related deaths are projected to increase by 50% between 2020 and 2050, with the majority of the stroke burden occurring in low- and middle-income countries.[3] Based on the underlying pathology, stroke is classified as either ischemic or hemorrhagic.[4] One of the two main subtypes of stroke, ischemic stroke, results from cerebral ischemia caused by thrombosis in a cerebral blood vessel.[1] Ischemic stroke is one of the most significant neurovascular causes of death and disability. It accounts for approximately 70% of all strokes and carries a high long-term risk of recurrence.The total number of deaths due to ischemic stroke reached 3.29 million in 2019, accounting for 50.3% of all stroke-related deaths and 17.7% of all cardiovascular-related deaths, underlining the importance of stroke prevention.[5-7] In Türkiye , 18.6% of deaths are reported to be caused by cerebrovascular diseases.[8] Among strokes seen in Turkiye , 65.1% are due to acute ischemic stroke, 24% due to intracerebral hemorrhage, and 10.9% due to subarachnoid hemorrhage.[9] Patients who have had a stroke often require long-term care due to complications such as loss of motor control, paralysis, visual, sensory, cognitive, and sexual dysfunctions, muscle and balance coordination impairments, and varying degrees of disability.[4] The results of a systematic review conducted with stroke patients emphasized that a wide range of specific nursing interventions and advanced nursing care—including incontinence management, pressure ulcer care, dysphagia management, early mobilization, prevention of pulmonary thromboembolism, and early antiplatelet therapy—are critical to facilitate early recovery in stroke patients.[10] To support early recovery, nurses working with stroke patients should play a role that includes advanced nursing care and a variety of specific nursing interventions, including early mobilization.[11]

The World Stroke Organization (WSO) has developed a series of guidelines for stroke care leaders and frontline providers, offering easy access to up-to-date, evidence-based recommendations that guide the planning and delivery of stroke care throughout the continuum.[12] To significantly control stroke-related mortality and morbidity rates, it is necessary to develop stroke control programs focused on evidence-based practices. Today, the widely accepted approach for managing stroke patients effectively and successfully involves their follow-up in specialized stroke units by expert teams.[13] In this context, the responsibilities of nurses working in stroke units include positioning, mobilization, monitoring of vital signs, intake and output tracking, prevention and treatment of pressure injuries, neurological monitoring, aspiration pneumonia prevention, dysphagia assessment, and early detection of dehydration.[14]

MAIN POINTS

- The level of nurses' awareness regarding post-stroke care significantly differs according to the clinical units in which they work.
- Although more than half of the nurses have received training related to the care of stroke patients, knowledge gaps remain in some fundamental practices (e.g., frequency of repositioning).
- In order to improve the quality of care for stroke patients, evidence-based training programs focusing on posture, mobilization, and prevention of disability should be organized for nurses.

However, little is known about nurses' awareness of observation elements and methods related to their care practices for stroke patients.[15] Given the permanent damage caused by stroke and the high level of care these patients require, it is clear that nurses' support is essential in treatment, care, and minimizing disability. The outcomes of this process, which begins in neurology intensive care or stroke units, are directly influenced by the quality of nursing practices. Although there are studies in the literature regarding early mobilization, treatment, and follow-up after stroke, research focusing on nurses' knowledge or awareness concerning correct body posture, mobilization, and disability prevention is limited.[16,17] This study was conducted to determine, based on evidence, the level of stroke awareness among nurses working with patients who have had an acute ischemic stroke, particularly regarding posture, mobilization, and disability reduction, and to provide a foundation for future theoretical training and practical implementation studies.

MATERIAL AND METHODS

This descriptive and cross-sectional study was conducted between June 15 and December 15, 2024. Nurses working in four hospital of a province in northeast Turkiye were included in the study. Instead of using sampling methods, the study aimed to reach the entire population.The study population consisted of a total of 140 nurses working in neurology clinics, stroke intensive care units, neurology intensive care units, anesthesia intensive care units where stroke patients are frequently treated, and palliative care clinics. The sample group of the study included 120 nurses who agreed to participate and met the inclusion criteria. Nurses who had been working for at least one month in the aforementioned clinics, were over the age of 18, and voluntarily agreed to participate were included in the study. Nurses who had been working for less than one month in these clinics, those on leave due to unpaid leave, maternity leave, or similar reasons, and those who did not consent to participate were excluded.

The research data were collected using the "Awareness and Knowledge Form on Posture, Mobilization, and Disability Reduction in Patients with Acute Ischemic Stroke," which was developed by the researchers in line with stroke nursing evidence-based guidelines after reviewing the relevant literature.[14] Prior to data collection, written informed consent was obtained from the nurses. The relevant forms were distributed in nurse lounges of the hospital and administered by the researchers using face-to-face interview techniques. Completion of the forms took approximately 10 minutes.

Awareness and Knowledge Form on Posture, Mobilization, and Disability Reduction in Patients with Acute Ischemic Stroke: This form was developed by the researchers based on a review of the relevant literature encompassing the most recent evidence.[14] The form consists of two sections. The first section includes 7 questions regarding the nurses' demographic and professional characteristics (gender, education level, hospital of employment, unit of employment, years of experience, training received on stroke patient care, and average number of stroke patients treated in the clinic within the past month). The second section includes a total of 21 questions: 5 questions related to maintaining correct body posture in stroke patients (Questions 1–5), 4 questions on mobilization (Questions 6, 7, 8, 13), and 6 questions on reducing disability (Questions 9, 10, 11, 12, 14). The questions in the second section consist of statements to be answered as "True" or "False." The form

was also reviewed and revised in line with the opinions and suggestions of three experts (a neurologist, an academic in internal medicine nursing, and a clinical nurse in charge of stroke intensive care).

Data analysis: The research data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 22.0 (IBM SPSS Corp.; Armonk, NY, USA). Descriptive data were analyzed using number (n) and percentage (%). In the study, chi-square and Fisher's Exact test values were used to compare the percentage of correct responses. The results were evaluated at a 95% confidence interval, with statistical significance set at P<.05.

Ethics committee approval: This study was approved by the Non-Interventional Research Ethics Committee of Trabzon University, Faculty of Health Sciences on May 2, 2024 (Approval No: E-71551547-050.04-2400019761). Institutional permissions were obtained from the relevant provincial hospitals (Date: May 14, 2024; No: E-55568733-604.01-245569142) and the university hospital (Date: June 13, 2024; No: E-44710342-299-15552). The study was conducted in accordance with the ethical principles of the Declaration of Helsinki.

RESULTS

Table 1 presents the demographic characteristics of the participating nurses and the units in which they work. The majority of nurses were female (89.2%) and held a bachelor's degree (72.5%). More than half of the nurses (51.7%) had 10 or more years of experience, and less than half (31.7%) worked in anesthesia intensive care units. More than half of the nurses stated that they had received training on caring for stroke patients (58.3%), and less than half (42.5%) reported that the average number of stroke patients in their unit in the past month was 7 or more.

In Table 2, regarding the questions answered about proper body posture maintenance, mobilization, and reduction of disability in stroke patients, nearly all nurses gave the highest correct response rate (96.7%) to the statement "The patient's bed side rails should always be raised." This was followed by the statements: "The head of the bed should be elevated to 30–45 degrees" (95%), "Massage should be applied to the affected side, and the patient should be supported to use the affected side" (94.2%), "A pillow should be placed under the calf and hip to prevent external rotation of the affected leg" (93.3%), "A pillow should be placed under the armpit on the affected side to prevent shoulder adduction" (85.8%), and "Positioning should not be done without supporting the affected extremity" (85%).

The question least correctly answered by nurses was the one stating that patients with acute ischemic stroke should not be recommended a supine lying position (17.5%). The questions answered correctly by less than half of the nurses were, respectively: only a quarter of the nurses (25%) correctly responded to the misleading statement "In order to prevent contracture development and to maintain/increase muscle strength, passive range of motion exercises should be performed on the unaffected side and active exercises on the affected side"; 28.3% correctly responded to the misleading statement "Position changes should be made at least every four hours"; and 44.2% correctly answered the question "Elastic compression stockings are not preferred in acute ischemic stroke due to their negative effects such as skin integrity deterioration, blister formation, skin necrosis, and ulcers."

Table 1: Time Intervals from Emergency Department Admission to Performed Procedures

	n	%
Gender		
Female	107	89.2
Male	13	10.8
Educational Status		
Vocational School of Health	6	5.0
Associate Degree	15	12.5
Undergraduate	87	72.5
Master's Degree	12	10.0
Employment status		
5 years and below	42	35.0
Between 5-10 years	16	13.3
10 years and longer	62	51.7
Unit of Work		
Neurology Intensive Care	11	9.2
Anesthesia Intensive Care	38	31.7
Stroke Intensive Care	11	9.2
Internal Medicine Intensive Care	8	6.7
Neurology clinic	26	21.7
Palliative clinic	26	21.7
Status of receiving information/training regarding the care of stroke patients		
Yes, I received it	70	58.3
No, I haven't received it	50	41.7
Average number of stroke patients in the clinic in the past month		
1-2 patients/month	32	26.7
3-4 patients/month	23	19.2
5-6 patients/month	14	11.7
7 or more patients/month	51	42.5

Table 3 presents a comparison between nurses' training status regarding care for stroke patients and their awareness of posture, mobilization, and disability reduction in patients with acute ischemic stroke. In the comparisons between the questions in the knowledge form and the nurses' stroke training status, no statistically significant difference was found (P>.05).

Table 2: Correct response rates of nurses to the awareness questionnaire on posture, mobilization, and disability prevention in patients with acute ischemic stroke (n=120)

Awareness Knowledge Form on Posture, Mobilization, and Disability Prevention in Patients with Acute Ischemic Stroke	Correct n (%)	False n (%)
Q1The affected extremity should not be positioned without support.(Answer: Correct)	102 (85.0)	18 (15.0)
Q2.A position change should be made at least every four hours. (Answer: False)	86 (71.7)	34 (28.3)
Q3.A supine position should not be recommended. (Answer: Correct)	21 (17.5)	99 (82.5)
Q4. Passive range of motion exercises should be performed on the unaffected side, and active range of motion exercises on the affected side to prevent contracture development and maintain/increase muscle strength.(Answer: False)	90 (75.0)	30 (25.0)
Q5. The bedside height of the patient should be raised to 30-45 degrees. (Answer: Correct)	114 (95.0)	6 (5.0)
Q6. The bedside height of the patient should be constantly raised. (Answer: Correct)	116 (96.7)	4 (3.3)
Q7. In order to improve the balance of the patient, the unaffected arm of the patient should be placed on the arm strap outside the bed. (Answer: False)	19 (15.8)	101 (84.2)
Q8. Rapid and early mobilization should not be recommended within 24 hours of the onset of stroke. (Answer: Correct)	89 (74.2)	31 (25.8)
Q9. The patient's personal belongings, television, or reading materials should be placed within the affected side's field of vision. (Answer: False)	59 (49.2)	61 (50.8)
Q10. Massage should be applied to the affected side, and the patient should be supported to use the affected side. (Answer: Correct)	113 (94.2)	7 (5.8)
Q11.A pillow should be placed under the armpit on the affected side to prevent shoulder adduction in patients. (Answer: Correct)	103 (85.8)	17 (14.2)
Q12.It is recommended to support the affected leg by placing a pillow under the calf and hip to prevent outward rotation. (Answer: Correct)	112 (93.3)	8 (6.7)
Q13.Elastic compression socks are not preferred in acute ischemic stroke due to negative effects such as deterioration in skin integrity, bulla formation, skin necrosis and ulcer. (Answer: Correct)	53 (44.2)	67 (55.8)
Q14. Long-term use of splints or leaving the limb in extension for long periods is not recommended in patients with contractures or at risk of developing contractures. (Answer: Correct)	92 (76.7)	28 (23.3)

* Correct answers to the relevant questions are indicated in *italics* .

Table 4 presents a comparison of nurses' awareness of posture, mobilization, and disability reduction in patients with acute ischemic stroke according to the clinical units they work in. For the misleading question "Position changes should be made at least every four hours," the correct response rate of nurses working in neurology clinics was 39.6%, while it was 20.8% for those working in other clinics. A statistically significant difference was found between the correct response rates of nurses working in neurology clinics and those working in other clinics (P<.05). The effect size of this difference was found to be Phi = 0.20, indicating a small-strength effect. Working in a neurology clinic was found to have a small-strength effect (Phi = 0.20) on the knowledge of how frequently position changes should be made. However, no statistically significant difference was found in the comparisons made for the other questions (P>.05).

Table 3: Comparison of nurses' stroke-related training status with their awareness of posture, mobilization, and reduction of disability in patients with acute ischemic stroke

	Status of receiving training on stroke		Test Statistics and P value
	Yes n (%)	No n (%)	
Q1The extremity on the affected side should not be positioned without support(Answer: Correct)			
Correct	61 (87.1)	41 (82)	X2=0.269 P>.05
False	9 (12.9)	9 (18)	
Q2.A position change must be made at least every four hours (Answer: False)			
Correct	52 (74.3)	34 (68.0)	X2=0.300 P>.05
False	18 (25.7)	16 (32.0)	
Q3.Lying on your back should not be recommended (Answer: Correct)			
Correct	14 (20)	7 (14)	X2=0.371 P>.05
False	56 (80)	43 (86)	
Q4. Passive range of motion exercises should be performed on the unaffected side, and active range of motion exercises on the affected side to prevent contracture development and maintain/increase muscle strength (Answer: False)			
Correct	50 (71.4)	40 (80)	X2=0.731 P>.05
False	20 (28.6)	10 (20)	
Q5. The bedside height of the patient should be raised to 30-45 degrees (Answer: Correct)			
Correct	67 (95.7)	47 (94.0)	P>.05*
False	3 (4.3)	3 (6.0)	
Q6. The bedside height of the patient should be constantly raised (Answer: Correct)			
Correct	68 (97.1)	48 (96.0)	P>.05*
False	2 (2.9)	2 (4)	
Q7. To improve the patient's balance, the patient's unaffected arm should be placed on the arm sling outside the bed (Answer: False)			
Correct	13 (18.6)	6 (12.0)	X2=0.516 P>.05
False	57 (81.4)	44 (88)	
Q8. Rapid and early mobilization should not be recommended within 24 hours ofstroke onset (Answer: Correct)			
Correct	51 (72.9)	38 (76.0)	X2=0.031 P>.05
False	19 (27.1)	12 (24.0)	
Q9. It should be ensured that the patient's personal belongings, television or reading materials are placed in the field of view of the affected party (Answer: False)			
Correct	39 (55.7)	20 (40)	X2=2.287 P>.05
False	31 (44.3)	30 (60)	
Q10. Massage should be applied to the affected side, and the patient should be supported to use the affected side. (Answer: Correct)			
Correct	67 (95.7)	46 (92)	P>.05*
False	3 (4.3)	4 (8)	
Q11. A pillow should be placed under the armpit on the affected side to prevent shoulder adduction in patients. (Answer: Correct)			
Correct	64 (91.4)	39 (78)	X2=3.292 P>.05
False	6 (8.6)	11 (22)	
Q12. It is recommended to support the affected leg by placing a pillow under the calf and hip to prevent outward rotation (Answer: Correct)			
Correct	68 (97.1)	44 (88)	P>.05*
False	2 (2.9)	6 (12)	
Q13. In acute ischemic stroke, elastic compression socks are not preferred due to negative effects such as deterioration in skin integrity, bulla formation, skin necrosis and ulcer (Answer: Correct)			
Correct	33 (47.1)	20 (40)	X2=0.349 P>.05
False	37 (52.9)	30 (60)	
Q14. Long-term use of splints or leaving the limb in extension for long periods is not recommended in patients with contractures or at risk of developing contractures. (Answer: Correct)			
Correct	58 (82.9)	34 (68)	X2=2.816 P>.05
False	12 (17.1)	16 (32)	

If the number of categories with expected values less than 5 exceeded 20% of the total number of categories, the Fisher's Exact Test (Fisher's Exact Test) value was used. X2= Chi-Square test

Table 4: Comparison of nurses' awareness-related knowledge regarding posture, mobilization, and reduction of disability in patients with acute ischemic stroke according to the clinics they work in (n=120)

	Clinic Worked In*		Test Statistics and P value
	Neurology clinics n (%)	Other clinics n (%)	
Q1The extremity on the affected side should not be positioned without support(Answer: Correct)			
Correct	39 (81.3)	63 (87.5)	X2=0.460
False	9 (18.8)	9 (12.5)	P>.05
Q2.A position change must be made at least every four hours (Answer: False)			
Correct	29 (60.4)	57 (79.2)	X2=4.106
False	19 (39.6)	15 (20.8)	P<.05
Q3.Lying on your back should not be recommended (Answer: Correct)			
Correct	9 (18.8)	12 (16.7)	X2=0.002
False	39 (81.3)	60 (83.3)	P>.05
Q4 To prevent the development of contractures and to maintain/increase muscle strength, passive range of motion exercises should be performed on the unaffected side, and active range of motion exercises on the affected side. (Answer: False)			
Correct	39 (81.3)	51 (70.8)	X2=1.157
False	9 (18.8)	21 (29.2)	P>.05
Q5. The bedside height of the patient should be raised to 30-45 degrees (Answer: Correct)			
Correct	47 (97.9)	67 (93.1)	P>.05**
False	1 (2.1)	5 (6.9)	
Q6. The bedside height of the patient should be constantly raised (Answer: Correct)			
Correct	45 (93.8)	71 (98.6)	P>.05*
False	3 (6.3)	1 (1.4)	
Q7. To improve the patient's balance, the patient's unaffected arm should be placed on the arm sling outside the bed (Answer: False)			
Correct	5 (10.4)	14 (19.4)	X2= 1.149
False	43 (89.6)	58 (80.6)	P>.05
Q8. Rapid and early mobilization should not be recommended within 24 hours ofstroke onset (Answer: Correct)			
Correct	37 (77.1)	52 (72.2)	X2=0.147
False	11 (22.9)	20 (27.8)	P>.05
Q9. It should be ensured that the patient's personal belongings, television or reading materials are placed in the field of view of the affected party (Answer: False)			
Correct	23 (47.9)	36 (50)	X2=0.001
False	25 (52.1)	36 (50)	P>.05
Q10. Massage should be applied to the affected side, and the patient should be supported to use the affected side. (Answer: Correct)			
Correct	43 (89.6)	70 (97.2)	
False	5 (10.4)	2 (2.8)	P>.05**
Q11. To prevent shoulder adduction in patients, a pillow should be placed under the affected side's armpit.(Answer: Correct)			
Correct	38 (79.2)	65 (90.3)	X2=2.082
False	10 (20.8)	7 (9.7)	P>.05
Q.12. It is recommended to support the affected leg by placing a pillow under the calf and hip to prevent outward rotation (Answer: Correct)			
Correct	44 (91.7)	68 (94.4)	
False	4 (8.3)	4 (5.6)	P>.05**
Q13. In acute ischemic stroke, elastic compression socks are not preferred due to negative effects such as deterioration in skin integrity, bulla formation, skin necrosis and ulcer (Answer: Correct)			
Correct	20 (41.7)	33 (45.8)	X2=0.069
False	28 (58.3)	39 (54.2)	P>.05
Q14. The long-term use of splints or keeping the extremity in a prolonged stretched position is not recommended for patients with developed contractures or those at risk of developing contractures.(Answer: Correct)			
Correct	37 (77.1)	55 (76.4)	X2=0.000
False	11 (22.9)	17 (23.6)	P>.05

*The units where the study was conducted were combined into two groups: Neurology clinics (Neurology Intensive Care, Stroke Intensive Care, Neurology Clinic) and other clinics (Anesthesia Intensive Care, Internal Medicine Intensive Care, Palliative Clinic).
** If the number of categories with expected values less than 5 exceeds 20% of the total number of categories, Fisher's Exact Test value has been used. X2= Chi-Square test

DISCUSSION

Stroke is a neurological condition that negatively affects patients' overall health and requires long-term care due to permanent impairments and loss of function.[4] Evidence-based nursing means providing nursing care to patients based on the latest and best scientific evidence.[18] Evidence-based nursing combines clinical nursing experience with patient preferences, and adopts accurate, cautious, and safe prevention strategies and measures to improve the quality and level of clinical nursing.[19] In this study, the awareness of nurses working with stroke patients regarding evidence-based posture, mobilization, and the reduction of disability was examined.

The quality study in acute stroke care[20] showed that using nursing care protocols reduced mortality and dependence by 16% and that these effects persisted over the long term. In this protocol, it is stated that nurses should aim to prevent injuries or falls in stroke patients and ensure a safe environment with bed rails and other supportive measures when necessary (Level of Evidence III).[21] In the present study, the question most accurately answered by the nurses was that bed rails should be kept raised at all times for the patient (96.7%). This indicates that nurses have a high level of awareness on this matter.

Stroke patients, especially those with hemiparesis, are at risk of developing complications such as pressure ulcers and contractures. Correct positioning after stroke is a fundamental component of stroke care, as it can help prevent these complications.[22] Proper positioning of the patient can also support optimal recovery by regulating muscle tone, providing stability, and increasing comfort.[22] In the study, the rate of correct responses given by nurses to questions related to positioning is noteworthy. It was observed that nurses gave correct answers at high rates to the following questions: the head of the bed should be elevated to 30–45 degrees (95%), massage should be applied to the affected side and the patient should be supported to use the affected side (94.2%), to prevent external rotation of the affected leg, support should be provided by placing a pillow under the calf and hip (93.3%), a pillow should be placed under the armpit on the affected side to prevent shoulder adduction (85.8%), and the affected extremity should not be positioned without support (85%).

At the end of the first 24 hours after stroke onset, a multidisciplinary team should assess whether the patient is clinically and hemodynamically stable enough to be placed in a sitting position, if tolerated (Level of Evidence III).[21] Studies have shown that early mobilization (before 24 hours after stroke onset) has harmful effects (Level of Evidence II).[23,24] It is recommended that early mobilization of stroke patients be performed by specialized nurses or physiotherapists.[4] In this study, 72.9% of nurses agreed that rapid and early mobilization should not be recommended within the first 24 hours after stroke onset. Similarly, in a survey conducted by Tulek et al.[25] with nurses working in stroke care in 11 European countries, 94% reported that they initiated mobilization 24 hours after the patient became stable.

Because nurses play a vital role and are responsible for patients 24 hours a day, good nursing care can improve the neurological functions and daily living activities of stroke patients.[26] In this study, the least correctly answered question by nurses was that the supine position should not be recommended for patients with acute ischemic stroke

(17.5%). Looking at the questions correctly answered by less than half of the nurses: only one in four nurses (25%) correctly answered the misleading question "To prevent contractures and maintain/increase muscle strength, passive range of motion exercises should be performed on the unaffected side and active ones on the affected side"; 28.3% correctly answered the misleading statement "Position should be changed at least every four hours"; and 44.2% correctly answered that "Elastic compression stockings are not preferred in acute ischemic stroke due to negative effects such as skin breakdown, blister formation, skin necrosis, and ulcers." Nurses working with stroke patients need to be supported through training on positioning, mobilization, and the reduction of disability. It is important that nurses deliver evidence-based stroke care to optimize patient outcomes.[27] In one study, a training program for nurses improved not only their knowledge and clinical practices but also stroke patients' daily living activities and self-care.[28] Due to the nature of their roles, even small changes in how nurses view and implement stroke care can have a major impact.[11]

Results from a large-scale observational study found that for every 1% increase in the number of certified nurses per unit, the average length of hospital stay decreased by approximately 6%, highlighting the importance of nurses with this level of expertise.[29] In our study, 58.3% of the nurses had received training on caring for stroke patients; however, whether they were certified was not questioned. When comparing the responses to all questions on the evidence-based information form with the nurses' training status on stroke, no statistically significant difference was found. Future studies are recommended to compare the results with certified nurses.

The most significant finding of our study was that nurses working in neurology clinics had a significantly higher rate of correct responses (39.6%) to the question on how often patients with acute ischemic stroke should be repositioned compared to nurses working in other clinics (20.8%). It was concluded that working in a neurology clinic had a small effect size on knowledge of repositioning intervals (Phi = 0.20). It is recommended that hospitalized stroke patients receive early interventions in specialized stroke care units (Level of Evidence I-A).[4,14] A meta-analysis[30] revealed that, on average, 12 months after a stroke, patients who had received care in a stroke unit had a higher likelihood of survival (two additional survivors per 100 patients receiving stroke unit care; moderate-quality evidence) and a higher likelihood of being discharged home (six additional patients per 100; Level of Evidence II). Moreover, patients were more likely to be independent in activities of daily living (six additional patients per 100; moderate-quality evidence).

Stroke units are equipped with continuous, non-invasive monitoring and a multidisciplinary, specialized staff coordinated by stroke specialists (typically neurologists). Stroke units represent the most effective approach to stroke care and provide the greatest benefit to the community. They have proven efficacy in reducing mortality (by 17%), recurrence, and dependency (by 25%) (Evidence Level I-A).[30] The benefits of stroke units even surpass those associated with reperfusion therapy, as a greater number of patients receive specialized care. Stroke units are also cost-effective because they help reduce average hospital stay durations as well as rates of institutionalization and readmission. Ideally, all patients experiencing an acute stroke should be admitted to a stroke unit, as improvements are observed regardless of stroke subtype or severity. The only exceptions are patients with extremely low levels of consciousness (who should be admitted to an intensive care unit) and those with severe pre-stroke functional disabilities. The length of hospital stay depends on patient characteristics and stroke subtype.[21]

CONCLUSION

Patients who have suffered a stroke often experience functional impairments. Nurses, as key members of the stroke team, play an active role in the prevention, identification, monitoring, and evaluation of complications that may arise in stroke patients. To ensure control and effective, successful treatment of stroke, all patients who have experienced an acute stroke should ideally be admitted to a dedicated stroke unit and monitored by a specialized team.Studies also support that care provided by nurses, who play a vital role in reducing the level of dependency that may result from functional loss, has a positive contribution to the recovery process. It is essential to provide stroke nurses with ongoing and adequate training based on evidence-based protocols, not only for clinical care but also to raise their awareness regarding the maintenance of body posture, promotion of mobilization, and reduction of disability in stroke patients.

To the best of our knowledge, no such study has been encountered in Türkiye that explores nurses' awareness regarding the reduction of disability in stroke patients through evidence-based questions developed within the framework of a guideline specifically for stroke nursing. In this regard, the study is valuable in terms of contributing to the field. Another strength of the study is that it was conducted across multiple centers.

The most significant limitation of the study is that the evidence-based questions directed to the nurses were not based on a structured scale with established validity and reliability. Additionally, the content, duration, and frequency of the training received by nurses for caring for stroke patients were not examined, which is another limitation of the study.

Ethics Committee Approval: Ethics committee approval for this study was obtained from the Non-Interventional Research Ethics Committee of Trabzon University Faculty of Health Sciences on May 2, 2024 (Approval No.: E-71551547-050.04-2400019761). Institutional permissions were also obtained from public hospitals in the province where the study was conducted (Date: May 14, 2024; No.: E-55568733-604.01-245569142) and from the university hospital (Date: June 13, 2024; No.: E-44710342-299-15552). The study was carried out in accordance with the ethical principles stated in the Declaration of Helsinki

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