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The Impact of Nursing Care on Outcome and Satisfaction in Stroke Patients Receiving Caring-Based Thrombolysis

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Abstract:- Caring-based nursing care has been shown to improve the standard of care and patient satisfaction. The purpose of this study was to investigate the impact of Nursing Care on Outcome and Satisfaction in Stroke Patients Receiving Caring-Based Thrombolysis. A quasi-experimental research approach was used, with a pre-post-test control group. Purposive sampling was used to gather samples from 50 patients with stroke. Caring-based nursing care for stroke patients, outcome and patient satisfaction are among the research variables. The NIHSS scale, mRS scale, and patient satisfaction questionnaire were utilized as instruments. The descriptive analysis test, Paired t Test, and independent t Test were utilized to analyze the data. There was a significant difference in the mean NIHSS score of stroke patients who arrived at the emergency room and 30 days after hospitalization in the treatment group (p value 0.001). This shows a significant decrease for the level of stroke symptoms in stroke patients who received thrombolysis after receiving caring-based nursing care. The mean mRS score at hospitalization increased significantly between the treatment and control groups (p value 0.004). The functional status of stroke patients who received caring-based nursing care improved their self-care ability compared to the control group. Similarly, the level of satisfaction in stroke patients who received caring-based nursing care had significantly higher satisfaction than the control group (p value 0.001). Caring-based nursing care model for stroke patients with thrombolysis is effective to improve outcomes and patient satisfaction.

Keywords*: caring, nursing, stroke, thrombolysis, patient satisfaction*

1. Introduction

Stroke is the second greatest cause of death and disability globally, according to the findings of The Global Burden of Diseases, Injuries, and Risk Factors Study (GBD) in 2016 (Krishnamurthi et al., 2020), and stroke is the top cause of disability in adults (Sanjuan et al., 2023). Stroke patients can avoid disability if thrombolysis therapy is started within 4.5 hours of the beginning of symptoms (Powers et al., 2019). According to research conducted in the Philippines, nurses evaluated themselves to be caring, however patients evaluated nurses to be less compassionate (Calong and Soriano, 2018). Low caring attitudes and actions, including poor patient weight prediction (Breuer et al., 2010), problems determining whether put off NGT insertion and internal catheter placement before giving thrombolysis therapy (Hargis et al., 2015), are all examples of low caring attitudes and behaviors. According to the findings of a study conducted in New Jersey, nurses found it challenging to practice caring behavior in the emergency room since patient arrivals frequently surpassed capacity (Johansen, 2014). Increased symptoms patient outcomes, such as rising symptoms of stroke and the degree of brain infarction, can lengthen hospital stays and negatively impact patient satisfaction (Tramonte et al., 2022). According to the findings of a research of 114 stroke patients in Malawi, ideal patient outcomes were significantly connected to patient satisfaction (Chimatiro et al., 2018). Nurses that are uncaring when providing thrombolysis to stroke

patients can have an impact on outcomes and patient satisfaction. There is not any confirmation that caring-based nursing care improves outcomes or patient satisfaction in stroke patients receiving thrombolysis.

Studies in Norway suggest that implementing the stroke track has no effect on post-stroke patient outcomes or mortality 90 days following hospitalization (Bergh et al., 2023). In contrast, research in China demonstrates that nursing treatments for stroke patients in the emergency room can minimize door-to-nedlle time, reduce stroke danger, and enhance patient activity level (Li & Hongxia, 2020). Similarly, a study in Iran on education for 29 stroke patients by professional nurses found that 85% of patients were satisfied with the instruction offered by nurses, and 73% were satisfied with the self-care training (Allijanpour, 2020).

According to a research investigation conducted in Southwest Nigeria, the overall level of patient satisfaction reached 90.5%, and excellent nursing interaction has been shown to have an effect on patient satisfaction (Deji-dada et al., 2021). Caring-based nursing care, including nurses responding quickly to reactivating stroke signals and accurately performing NIHSS assessments, has been proven to reduce door-to-nedlle time and enhance stroke patient outcomes (Droegemueller et al., 2020). Other types of caring-based nursing care, including closely monitoring blood pressure, maintaining normal body temperature, and maintaining normal blood sugar levels, have been shown to improve stroke patients' outcomes (Amatangelo & Thomas, 2020) and can improve stroke patients' quality of life (Ramos-Lima et al., 2018).

Caring-based nursing care has been proven to reduce thrombolysis time (Droegemueller et al., 2020) and also increase nursing care quality (Cheruiyot and Brysiewicz, 2019). Caring nurses have been found to help patients feel more comfortable, enhance patient self-esteem and expectations, and ultimately help patients comply and cooperate better in following nursing programs and care (Salinas et al., 2020). Patient and family satisfaction has been shown to rise with caring-based nursing care (Mobolaji-Olajide et al., 2020). Implementing compassionate nurses can also boost patient comfort, self-esteem, and self-confidence, and also contribute to making patients respectful and cooperative in following treatment programs and nursing care (Salinas et al., 2020).

A report on a study on nurses' caring attitudes in Croatia, most nurses used more task skills than caring behaviors (Vujani, Prli, and Lovri, 2020a). Nurses with professional attitudes and sympathetic behaviors, on the contrary, have been found to improve the quality of nursing care (Cheruiyot and Brysiewicz, 2019). Caring nurses' attitudes and behaviors in the emergency room are expected by patients and families to be as follows: approaching patients as soon as they arrive, explaining and educating patients and families, and creating a calm environment so that patients can rest (Salinas et al., 2020). Another caring attitude in the emergency room is the efficiency with which nurses provide treatment, in addition to the nurses' true or genuine caring attitude (Alexandrov et al., 2019c). The goal of this study is to investigate how nursing care for stroke patients with caring-based thrombolysis affects patient satisfaction. If the results reveal that caring-based nursing care has a substantial effect on the outcome and satisfaction of stroke patients, it will become a caring-based nursing care model for stroke patients, particularly those who get thrombolysis therapy.

2. Objectives

The purpose of this study is to investigate the impact of caring-based nursing care on patient satisfaction and outcomes for stroke patients receiving thrombolysis therapy. The study aims to determine whether the incorporation of compassionate and caring attitudes by nurses, particularly in emergency room settings, improves the timeliness and effectiveness of thrombolysis treatment, enhances patient outcomes, and increases patient and family satisfaction. If the study finds significant positive effects, it intends to propose a caring-based nursing care model specifically tailored for stroke patients undergoing thrombolysis therapy.

3. Methods

Research design

A quasi-experiment type control group design was adopted. Starting with the first evaluation (pre-test) in the treatment and control groups, a therapy was administered to the treatment group, and in the end, the final measurement (post-test) was administered to the treatment and control groups.

Data were collected using purposive sampling technique from May to August 2023. A total of 50 participants have been collected with 36 patients in the treatment group and 14 patients in the control group. The research was implemented out in two vertical hospitals in Jakarta. The treatment group was at the National Brain Center Hospital (RS PON) Prof. Dr. Mahar Mardjono in Jakarta because it is the coordinator of national stroke protection and receives approximately 20-30 thrombolysis patients per month. The control group at Fatmawati General Hospital is a regional network of stroke care in the Jakarta area and has fewer thrombolysis patients, approximately 5-10 patients per month. Inclusion criteria included diagnosis of ischemic stroke, symptom occurrence less than 4.5 hours, mild to moderate stroke level of severity (NIHSS Score 3-16), age >18 years, and patients treated with intra-venous thrombolysis. Exclusion criteria included patients with a history of stroke more than 2 times, international citizens.

Variable, Instrument and Data Collection

Patient demographic parameters (age, gender, education, occupation, and onset of stroke symptoms) are examples of independent variables. Patient outcomes (stroke severity and functional status of stroke patients) and patient satisfaction were dependent variables. The research instruments included the National Health Stroke Scale (NIHSS) to assess stroke severity (Lyden, 2017), the modified Rankin Scale (mRS) to assess stroke patients' functional status (Wilson et al., 2002), and a stroke patient satisfaction questionnaire based on the American Customer Satisfaction Index (ACSI) customer satisfaction theory, which includes five dimensions: reliability, assurance, tangible, empathy, and responsibility. Data were collected from May to August 2023, with 9 respondents dropping out because of to death, with 4 people passing in the treatment group and 5 people passing in the control group.

Intervention

Prior to data collection, nurses from the National Brain Center Hospital (NBCH) Prof. Dr. Mahar Mardjono were trained in nursing care for stroke patients using caring-based thrombolysis, with the following specifications for trainees: Participating nurses who are assigned to the Emergency Department, Stroke Unit, or Stroke Ward, have at least one year of on-the-job experience, and are able to complete the whole training. Nurses who are unwell, on leave, doing additional service, or attending school are excused. Neuroscience nurses from HIPENI and medical professionals from NBCH served as training resource people. Participants who passed the competency test received two certificates: one as a trainee and one as a competent.

Respondent data collection was started on May 1, 2023, after 25 nurses graduated from the competency test and provided caring-based nursing care to patients in the emergency room, stroke unit, and stroke room. Caring-based nursing services for stroke patients include: triaging using FAST (Hargis et al., 2015), activating the stroke program or stroke management team (Vicente-Pascual et al., 2022), measuring blood pressure, pulse, and respiration, 2022), measuring blood pressure, pulse, respiration and body temperature, installing an ECG monitor, checking GCS, assessing stroke level of severity using the National Institute Health Stroke Scale (NIHSS) (Oliveira et al., 2020), measuring body weight, facilitating CT scan screening, analyzing the patient and / or family, and collecting special forms for thrombolysis therapy (Li and Hongxia, 2020). Furthermore, nurses review the main complaints, medical history and treatment history using language that is understandable to patients, perform physical checks carefully and maintain patient privacy, and analyze the results of supporting examinations carefully and accurately.

The principle of caring is also integrated in nursing treatments for stroke patients receiving thrombolysis, including monitoring TTV, checking neurological status, checking NIHSS, and checking mRS on a regular basis, evaluating patients, verifying informed consent, providing thrombolysis therapy, accurately monitoring signs and symptoms of thrombolysis complications, and managing gastrointestinal function.

Outcome

Primary Outcome

The NIHSS instrument is used in the first primary outcome assessment, which is performed when the patient arrives at the emergency room, 1 hour, 24 hours, and 48 hours following thrombolysis therapy, and when the patient is discharged and 30 days after hospitalization. The mRS instrument was used in the second primary outcome assessment to determine the patient's functional status or ability to care for themselves, which was done in two measures, at discharge and 30 days after hospitalization. Nurses from NBCH and RSU Fatmawati assessed the primary outcome in a double-blind method.

Secondary Outcome

Secondary outcomes were assessed using a patient satisfaction questionnaire instrument comprised of 29 questions containing statements on the level of patient satisfaction with caring-based nursing care received by patients during hospitalization, with five dimensions, namely reliability, assurance, tangible, responsibility, and empathy. Patients completed a questionnaire on a digital device to measure secondary outcomes in a double-blind method.

Data Analysis

SPSS 23 was used to analyze the data. When the patient came at the emergency room, a data homogeneity test was performed based on the patient's age and NIHSS score. The data was considered to be homogeneous, therefore parametric tests, such as the t test and paired t test, were performed. The GLMRM test was used to perform serial NIHSS measures, which included tests 1 hour, 24 hours, and 48 hours following thrombolysis therapy, at discharge, and 30 days after hospitalization.

4. Results

Prior to the study, 25 NBCH nurses were trained as the treatment group, applying a 42 JPL caring-based nursing care module for stroke patients. The training lasted three days of classroom instruction, two days of simulation in the skill lab, and one month of mentoring and supervision in the room. Following the passing of the competency test by the trainee nurses, data collection started in accordance with the inclusion criteria. The treatment group had 40 participants, while the control group had 19 participants. The flow of respondent collection is shown in picture 1.

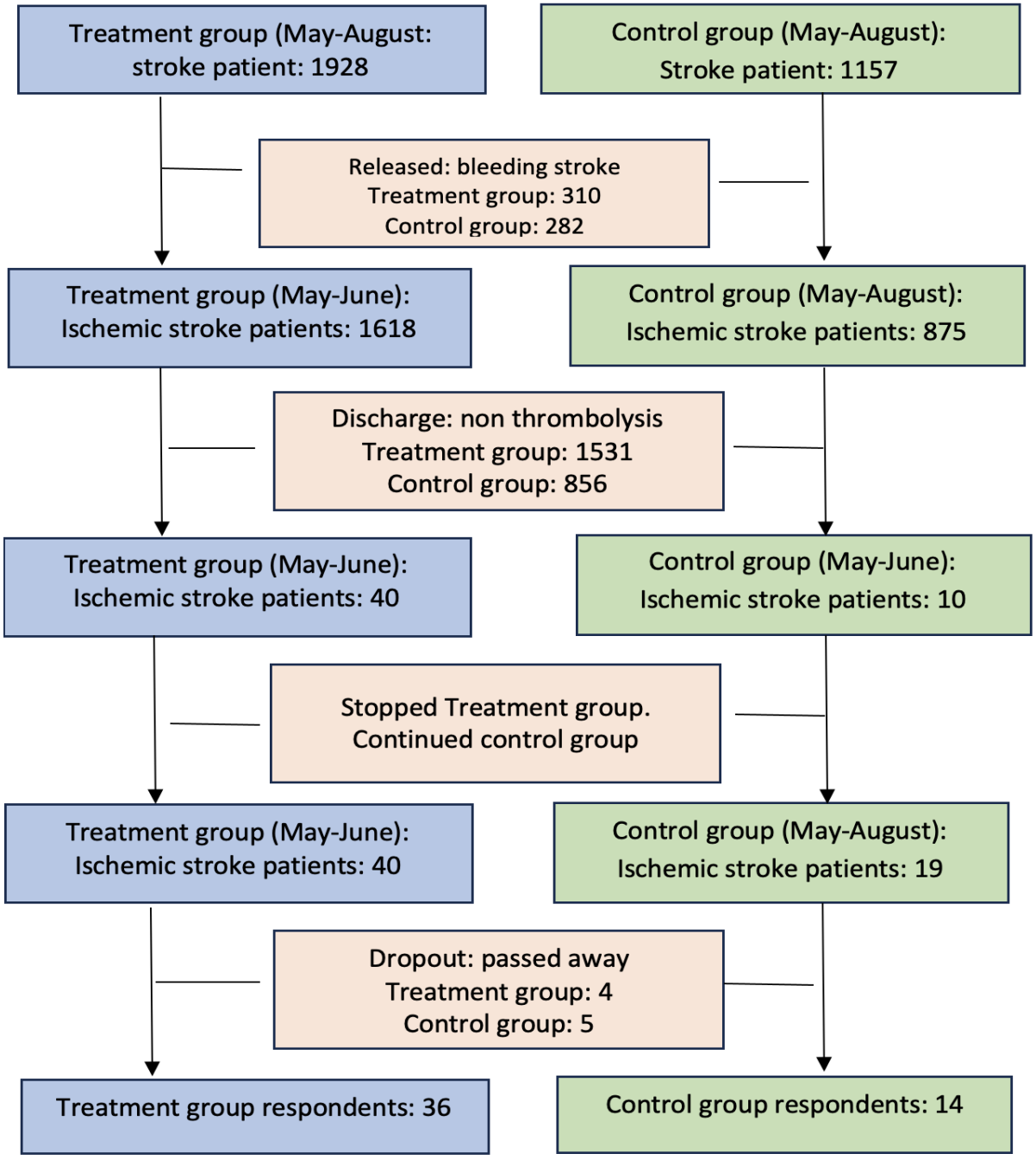

Figure 1 Flowchart of participants recruitment

In figure 1 the collecting of respondent data begins on May 1, 2023. By the end of June, 40 responders had been collected in the treatment group, compared to only 19 in the control group. Furthermore, data collection in the treatment group ended when data at 40, whereas data collection in the control group continued until September 2023. However, the sample number in the control group was just 19 through the research time finished out. There

ere 9 dropouts during the research process, 4 from the treatment group and 5 from the control group because of death.

Table 1. Characteristics of respondents based on gender, education, occupation, and symptom onset (n=50)

Variable	frequency		Percentage (%)	
	Treatment	Control	Treatment	Control
Gender				
Male	29	11	80,6	78,6
Famele	7	4	19,4	21,4
Education				
Elementary School	5	-	13,9	-
Junior High School	1	2	2,8	14,3
Senior High School	19	6	52,8	42,9
3rd diploma	4	3	11,1	21,4
Undergraduate	5	2	13,9	14,3
Master	2	1	5,6	7,1`
Job				
Civil Servant	5	2	13,9	7,1
Private sector	10	3	14,3	11,1
entrepreneur	6	1	27,8.	21,4
housewife	4	3	21,4	16,7.
Pensioner	6	3	16,7.	21,4
Not employed	5	2	13,9.	14,3
Onset of Symptom				
<1 hour	4	5	11,1	35,7
1-2 hour	11	2	30,6	50
2-3 hour	10	3	27,8	21,4
3-4 hour	11	4	30,6	28,6

Table 2. Correlational analysis of patients' NIHSS scores on arrival at the emergency room and 30 days after discharge in the treatment group (n=36)

Variable	**n**	***Mean***	**SD**	***P Value****
Arrival at the emergency room	36	8,14	4,093	0,001
30 days after discharge	36	3,94	4,598	

*significant *p-value < 0,05*

According to Table 1, the majority of respondents in both the treatment and control groups were men (80.6%). The majority of respondents in the treatment group (52.8%) were high school graduates, while the majority of respondents in the control group (42.9%) were also high school graduates. Respondents in the treatment group were predominantly private employees (27.8%), whereas respondents in the control group were equally divided among private employees, housewives, and retirees (21.4%). Most stroke patients experienced the same onset of symptoms, approximately 1-2 hours in the treatment (30.6%) and control groups (50%).

Effect of caring-based nursing care on stroke severity

According to Table 2, the mean NIHSS score in the therapy group after presentation at the emergency room was 8.14 (SD 4.093), and the mean NIHSS score 30 days following discharge was 3.94 (SD 4.598). In the therapy group, there was a substantial difference in the mean NIHSS score between arriving at the emergency room and 30 days after discharge (p value 0.001).

The stroke severity rate serially in the treatment group and control group

Table 3 demonstrates that there is a significant difference between the treatment and control groups in the measurement of NIHSS scores at 1 hour, 24 hours, 48 hours, and at discharge, with a p value of 0.005. In contrast, there was no significant difference in NIHSS score between the treatment and control groups before thrombolysis therapy and 30 days after treatment.

Functional status of stroke patients at hospital discharge

Table 4 illustrates that the mean mRS score at discharge in the treatment group was 1.72 (SD 1.279) and the mean mRS score at discharge in the control group was 2.93 (SD 1.387). There was a significant difference in the mean mRS score at discharge between the treatment group and the control group (p value 0.004).

Patient satisfaction level

According to Table 5, the mean patient satisfaction level in the treatment group was 37.36 (SD 11.692), while the mean patient satisfaction level in the control group was 63.36 (SD 9.818). Patient satisfaction levels differed significantly between the treatment and control groups (p value 0.000).

Table 3 Analysis of Between Subjects Effect test (n=50)

Dependent Variable	Parameter	B	*Standar Error*	*t*	*P value**
NIHSS_Seb	Intercept	10,357	1,163	8,903	0,000
	Control	-2,218	1,371	-1,618	0,112
	treatment	0			
NIHSS_1 hour	Intercept	9,786	1,351	7,242	0,000
	Control	-3,397	1,592	-2,133	0,038
	treatment	0			
NIHSS_24 hour	Intercept	9,357	1,383	6,764	0,000
	Control	-3,385	1,630	-2,076	0,043
	treatment	0			
NIHSS_48 hour	Intercept	9,214	1,281	7,192	0,000
	Control	-4,298	1,510	-2,846	0,006
	treatment	0			
NIHSS_discharge	Intercept	7,857	1,034	7,599	0,000
	Control	-3774	1,219	-3,097	0,003
	treatment	0			
NIHSS_discharge	Intercept	5,429	1,168	4,646	0,000
	Control	-1,484	1,377	-1,078	0,286
	treatment	0			

*significant *p-value* < 0,05

Table 4 Analysis of mean mRS score at discharge in treatment and control groups (n=50)

Variable	n	Mean	SD	P Value*
mRS treatment group	36	1,72	4,093	0,000
mRS control group	14	2,93	4,598	

*significant *p-value < 0,05*

Table 5. Analysis of the mean score of patient satisfaction level in the treatment group and control group (n=50)

Variabel	n	Mean	SD	Min	Max	*p-value**
Treatment group	36	37,36	11,692	28	63	0,000
Control group	14	63,36	9,818	52	81	

*significant *p-value* <0,05

5. Discussion

The result of a shortage of respondents in the control group, the sample size was not as expected. Nine responders dropped out because of to death, four from the treatment group and five from the control group. According to data from the UK national register of stroke care (SSNAP), the most common complication of thrombolysis therapy was symptomatic intracerebral hemorrhage, followed by oropharyngeal angioedema, extracranial bleeding, epistaxis, gum bleeding, gastrointestinal bleeding, anaphylactic shock, and other complications. Complications kill about 4.3% of patients over the age of 81, and 5.1% of patients over the age of 81. In addition to being the cause of death, thrombosis problems are the cause of patients' duration of stay in the Stroke Unit and decreased functional status at discharge (Han et al., 2022). Similarly, a Brazilian retrospective analysis of 515 ischemic stroke patients revealed that stroke patients with NIHSS scores more than 16 increased death by 15.5 times (Tramonte et al., 2022).

Nurses have a critical role in preventing, detecting, and treating post-thrombolysis problems. Nurses' caring attitudes and behaviors, in addition to regular monitoring, early detection of signs and symptoms of complications, and strong coordination with the stroke team, can help to prevent worsening and enhance the functional status of post-stroke patients.

The demographic data revealed that the mean age of stroke patients in the treatment group was 60.14 years (SD 9.454) and 60.86 years (SD 13.637) in the control group. This contrasts with the findings of a study of 200 stroke patients in Budapest, where the average age of stroke patients was 68.53 (SD 12.86). According to the findings of this study, rising age increases the severity of stroke and lowers the outcome of stroke patients.

This study found that after receiving caring-based nursing care, stroke severity decreased in the treatment group. The control group, on the contrary present, experienced a drop in stroke severity. There was no significant difference in stroke severity between the treatment and control groups, but the treatment group's NIHSS score was lower than the control group's, and the lower the NIHSS score, the smaller neurological problems experienced by the patient or the lower level of severity on stroke patients.

The results from a serial NIHSS test revealed that only the NIHSS score at discharge differed from the NIHSS score prior to thrombolysis therapy. The NIHSS score differed between the treatment and control groups before and after thrombolysis therapy, but there was no significant change in the mean combined NIHSS score (NIHSS score 1 hour to 30 days post-thrombolysis) between the treatment and control groups.

A research in Thailand with 76 stroke patients who received thrombolysis therapy supports the findings of this investigation. The availability of trained case manager nurses for stroke patients receiving thrombolysis therapy resulted in a decrease in door to thread time and a decrease in NIHSS scores 24 hours following thrombolysis therapy administration (Kummarg et al., 2018). The results of the developing of a new nurse flow in the emergency room are consistent with the findings of a study conducted in China involving 120 stroke patients who received thrombolysis therapy. Nurses are the main members of the Stroke Instruction Team and take an important role as the team's initiator, closely monitoring the patient's TTV and neurological status before and after thrombolysis therapy, monitoring signs and symptoms of thrombolysis complications, providing emotional and psychological support to ensure patients can get through the crisis successfully. As a result, the treatment group's door-to-nedlle time was reduced and their NIHSS score was significantly decreased.

Similarly, the findings of another study on the application of an innovative management system for stroke patients in the emergency room in the form of employing a wristwatch, which is a time detector on the patient's wrist and involves nurses as a stroke team, were published. The wristwatch detects the time of the nursing care with a sample size of 1031 ischemic stroke patients who received thrombolysis therapy, there was a significant reduction in NIHSS or stroke severity at discharge after the implementation of this innovative management system (Y. Zhang et al., 2023).

The contrary present, several factors influence the severity of stroke after thrombolysis therapy. According to the findings of a study conducted at the Boston American General Hospital on 1237 ischemic stroke patients who

received thrombolysis therapy, older age and Hispanic race were associated with worse stroke severity than younger age and white race (Ali et al., 2016). Another factor that influences the severity of stroke after thrombolysis therapy is the patient's comorbid conditions, which include hypertension, diabetes, and heart disease, especially atrial fibrillation (W. Zhang et al., 2018).

Nurses have a crucial role in the care of ischemic stroke patients, particularly those who receive thrombolysis therapy. Caring-based nursing care in the emergency room for stroke patients can minimize the severity of the stroke and increase the patient's ability to do self-care. When assessing, facilitating CT scan patients, preparing thrombolysis therapy, monitoring TTV and neurological status, and providing emotional and psychological support to patients and families, nurses' caring attitudes and behaviors can be used as part of the stroke team. However, the analysis of this study revealed that only the NIHSS score at discharge differed, implying that assessing stroke severity after thrombolysis therapy should be finished when the patient is discharged from the hospital or at discharge, and can be maintained at 30 days post-discharge to predict patient outcomes at 90 days post-stroke.

The results of this study describe that the functional status of post-stroke patients in the treatment group who received caring-based nursing care was significantly better than the control group. The rate of functional status of the treatment group at discharge showed that patients were able to carry out daily activities independently despite having mild symptoms. Whereas, the functional status of the control group at discharge still needed the help of others and experienced moderate symptoms, despite some patients being able to walk without support. However, the results also showed that the functional status at 30 days after the patients returned home had no significant difference between the treatment group and the control group, but the treatment group had a lower disability score than the control group, in some cases the treatment group had a better ability to walk and perform other daily activities.

This is similar to the survey in the USA of 1339 post-stroke patients, in which a quarter of stroke patients with mild symptoms at admission experienced changes in functional status at 30 days and 90 days post-stroke, compared to the mRS scale. The functional status of post-stroke patients at 30 days after discharge can be used as a predictor of patient condition at 3 months post-stroke (Gardener et al., 2022). The same results are studies in China that nurse intervention in the management of stroke patients in the emergency room can shorten door to nedlle time, reduce stroke severity and improve patient functional status (Li and Hongxia, 2020). In contrast, the results of Hebant et al.'s study on the effect of thrombolysis therapy on the functional status of 95 ischemic stroke patients in France showed no difference in the functional status of stroke patients after thrombolysis therapy 3 months after returning home (Hebant et al., 2017). The various factors that can affect the functional status of stroke patients are age, NIHSS score at the onset of stroke, and infarct location (Ali et al., 2016).

Nurses are crucial in trying to enhance post-stroke patient outcomes. From the patient in the emergency room to the Stroke Unit, a strategy with caring attitudes and actions is used because high blood sugar levels may negatively impact patient outcomes, nursing interventions based on caring attitudes include testing blood sugar accurately and maintaining stable blood sugar levels. Similarly, assessment and nursing interventions are performed rapidly and accurately with the goal to decrease the door-to-needle time, which can reduce the severity of stroke and improve the functional level of stroke patients.

The results of this investigation indicated that stroke patients with thrombolysis who received caring-based nursing care were significantly able to improve patient satisfaction. There is a significant difference in the level of satisfaction of stroke patients with thrombolysis who receive caring-based nursing care with those who receive standard nursing care.

A study on the interaction between nurses' caring behavior and patient satisfaction levels in a public hospital in Harari, eastern Ethiopia, found that as nurses' caring behavior increased it correlated with patient satisfaction. The Clinical Nurse Patient Interaction (CNPI) scale, which contains 23 items with four main dimensions: clinical care components, relational care, humanistic care, and comfort care, was applied to assess nurses' caring behavior, and the Patient Satisfaction Scale (PSS) was used to assess patient satisfaction (Kibret et al., 2022).

Similar results were reported in a qualitative study in the US with 22 respondents, 18 patients and 4 patients' families. In-depth interviews were conducted by two clinical nurses and one other health worker. In general, the caring attitude of nurses can increase patients' sense of responsibility for their health, improve outcomes, and improve patients' ability to care at home. According to the opinions of patients and families, nurses' caring attitudes and behaviors include the following: responsive nurses immediately approach patients when they arrive at the emergency room, nurses talk to patients and families in the emergency room, and nurses treat patients as friends (Salinas et al., 2020), so that a mutually understanding relationship is established between patients and nurses and patients will be able to cooperate in treatment programs and nursing care (You et al., 2018).

Similarly, the results of a study in Slovenia of 266 nurses illustrate that nurses' caring attitudes and behaviors are shown to be able improve the quality of nursing care and increase patient satisfaction. The most patient satisfaction is with the attitude of nurses who are polite and respectful of patients, nurses being good listeners to patients, and explaining things that patients do not understand (Pajnkihar et al., 2017). Nursing care for stroke patients with caring-based thrombolysis has been shown to be very effective in increasing patient satisfaction. Caring attitudes and behaviors of nurses that are integrated at every stage of the nursing care process from patients in the emergency room, in the Stroke Unit room to the stroke ward have been able to provide a sense of comfort to patients, so that patients can cooperate properly in the care process during patient treatment in the hospital.

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