Effect of Instructional Guidelines regarding Therapeutic Positions on Post Stroke Pain and Vital Signs among Patients with Stroke

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Abstract

Background: Vital signs can draw attention to impeding the clinical deterioration of a patient with stroke. So; therapeutic positioning is important to promote patients' functional recovery. **Aim:** to determine the effect of instructional guidelines regarding therapeutic positions on post-stroke pain and vital signs among patients with stroke. **Design:** This study will be used a quasi-experimental design (pre/post-test) with study and control groups. **Setting**: at the stroke unit in Suez Canal University hospital-Egypt. **Sample**: A Purposive sample consisted of 100 patients who will be divided into the study (50) and control groups (50) from the above-mentioned setting will be recruited in this study and assigned randomly. **Tools:** Tool **I:** Personal data assessment sheet, Tool II: The Glasgow Coma Scale (GCS) for assessing patients' medical history, Tool III: Vital parameters observational checklist tool, and Tool IV: Numerical Pain Rating scale. **Results:** The results revealed that there were highly significant improvements in patients with stroke's knowledge of pre- and post-instructional guidelines implementation ($P<0.001$). Furthermore, the study revealed that the majority of the studied patients had no pain after the semi-fowler's position. There was a statistically significant difference and improvement in pre and post-instructional guidelines implementation regarding therapeutic positioning concerning selected vital signs such as heart rate and respiratory rate scores at semi-fowler's position. **Conclusion:** The instructional guidelines implementation regarding therapeutic positions had a significant effect on reducing pain levels and improving vital signs among patients with stroke. **Recommendations:** The instructional guidelines regarding therapeutic positions should be conducted, discussed, integrated into the care of patients with stroke, and taught to them to improve their knowledge.

Keywords: Instructional guidelines; Post-stroke pain, Patients with stroke, Therapeutic positions

Introduction:

A distinction between two stroke types can be made: The most common type of stroke, accounting for around 85% of all strokes, is an ischemic stroke, which happens when thrombosis results in a vascular obstruction and severe hypoperfusion. The second kind is hemorrhagic, which happens when blood seeps into the brain or the subarachnoid region **(Chandra et al., 2017)**. The American Stroke Association lists transient ischemic attack (TIA), also referred to as a "mini-stroke," as the third form of stroke (2018). A TIA happens when the brain's blood supply is cut off for a brief period, typically no longer than five minutes.

Motor impairment, contractures, fecal and urinary incontinence, venous thrombosis, pain, pneumonia, myocardial infarction, cardiac arrhythmias, heart failure, peptic ulcers, pressure ulcers, and depression are all more common after a stroke. Motor function deficiencies have a substantial impact on the patient's everyday activities, mobility, and ability to engage in social and other professional activities. These effects have a detrimental effect on the patient's psychological and emotional health in addition to placing a heavy socioeconomic load on them. Since it impacts the prognosis and recovery from the stroke, the timing of post-stroke issues concerning the stroke's onset is crucial **(Lui & Nguyen, 2018).**

Furthermore, these effects have a detrimental effect on the patient's psychological and mental health and create a significant socioeconomic burden on them **(Laszuk, et al., 2017; Lui & Nguyen, 2018).** The relationship between the beginning of post-stroke complications and the prognosis

and recovery from the stroke is significant since it affects both **(Du et al., 2019).**

The stroke must be medically successfully treated as soon as possible because it may cause either temporary or permanent disability. The goals of rehabilitation for stroke victims are to increase functional independence, lessen disability, and improve quality of life (**Laszuk, et al., 2017**).

When recuperating from a stroke, patients used to frequently spend the first few days in bed, which put them at significant risk for side effects such as venous thromboembolism, discomfort, and pressure ulcers. To decrease the negative effects of bed rest and inactivity, it is now usually advised that patients who have an acute stroke be assisted to sit up, walk around, and exercise as soon as their clinical status permits. Adequate positioning and early movement out of bed during hospitalization have been linked to better functional outcomes for stroke patients throughout rehabilitation (**Mohamed, & Babiker, 2021).**

The main component of the recently developed positioning strategy is therapeutic positioning. To prevent stretching and muscular shortening, various body parts are held in neutral positions. There are no voids beneath any of the pieces because each one is supported against gravity. Certain treatments are also used to normalize muscle tone to stabilize body portions with high or low tone. In patients with severe disabilities, all body parts are supported against gravity, and the body's weight is distributed evenly **(Pickenbrock et al., 2015).**

To stop further brain damage after a stroke, it is crucial to treat the condition quickly and effectively. Strokes can result in temporary or permanent incapacity. Strengthening functional independence, lowering disability, and enhancing the quality of life for stroke victims are the goals of rehabilitation (Mohamed, & Babiker, 2021). After a stroke, patients frequently spend the first few days in the hospital in bed, which puts them at high risk for consequences such as venous thromboembolism, discomfort, and pressure ulcers. To reduce the negative consequences of bed rest and inactivity, it is now universally advised that acute stroke survivors, if their clinical condition allows, be assisted to sit, be mobile, and actively participate in the exercise as soon as feasible **(Ali et al., 2021).**

A stroke patient's recovery depends on nursing care. Using the proper therapeutic positions and encouraging early mobilization, nursing care for stroke rehabilitation focuses on physical recovery, independence in daily activities, lowering the risk of secondary complications while maintaining normal hemodynamic status, and promoting holistic adaptation to stroke-related disability **(American Stroke Association, 2018).**

Significance of the study:

Worldwide, cerebral vascular accidents are the main cause of mortality and morbidity. Worldwide, 15 million individuals suffer from stroke each year, of which around 6 million pass away and another 5 million become incapacitated. Strokes account for four out of every five cases in low- and middle-income nations. According to the World Health Organization, coronary heart disease will continue to be the number one killer in both developing and developed nations through the end of 2020, with stroke coming in second **(World Heart Federation, 2019).**

With a cumulative prevalence of 963/per 100,000 residents, stroke ranks third in Egypt behind heart disease and gastrointestinal disease as the cause of 6.4% of all fatalities. Stroke and its sequelae may be one of the key economic concerns facing the Egyptian health industry as they share many of the same clinical characteristics as other populations **(Ahangar et al., 2018).** When nurses collaborate well with the medical staff on positioning and early mobilization, patients benefit. It has been demonstrated that appropriate placement and early movement from bed during hospitalization are linked to better functional outcomes for stroke patients during rehabilitation. So, the researchers aimed to determine the effect of instructional guidelines regarding therapeutic positions on post-stroke pain and vital signs among patients with stroke.

Operational definitions

Therapeutic positions: By using various supportive devices and taking into

consideration body component alignments, the patient's positions while lying on the bed are changed for two hours in each of the following positions: supine, semi-fowler's, unaffected side, and affected side.

Aim of the study:

This study aimed to determine the effect of instructional guidelines regarding therapeutic positions on post-stroke pain and vital signs among patients with stroke

Research hypothesis:

H1: Patients with stroke who will be subject to instructional guidelines regarding therapeutic positions are expected to have low pain levels post-instructional guidelines than pre-instructional guidelines .

H2: Patients with stroke who will be subject to instructional guidelines regarding therapeutic positions are expected to have a significant difference between the study and control groups regarding vital signs pre and post-instructional guidelines .

Subjects and Methods:

Research design:

This study used a quasi-experimental design (pre/post-test) with study and control groups.

Setting:

The study was conducted at a stroke unit at the neurology departments affiliated with Suez Canal University hospital .

Sample:

The target sample consisted of 100 patients who were divided into the study (50) and control groups (50), a control group (50 patients) received the usual position technique (without the use of support devices), and a study group (50 patients) who received a therapeutic position from the aforementioned setting were recruited in this study, which is assigned randomly, meeting the inclusion criteria, were evaluated using a power analysis n=N/1+N (e2); since the study population was 136 patients, based on the sample size equation, the sample size is 100 patients at the 95% confidence level. Before the start of the study, participants were asked to select cards with numbers one and two for each patient. Patients who chose number one were assigned to the study group, and those who chose number two were assigned to the control group.

Sample size calculation:

The sample size was determined using the power analysis level of significance of 0.95(=1-0.95=0.5) at alpha. The significance was set at 0.05 (one-sided) with a big effect size (0.5), and the high significance was set at 0.001.

Inclusion criteria included:

- Patients' ages ranged from 18 up to 60 years old.
- From both sexes.
- Agree to participate in this study.
- Conscious patients (Glasgow Coma Scale= 9-15).

Exclusion criteria included:

- Patients who are (motor response ≤ 3).
- Patients with cognitive impairment.

Tools of data collection:

Tool I: Personal data assessment sheet: It was developed by the researchers. This tool includes personal data covering questions related to age, gender, occupation, and level of education

Tool II: GCS (Glasgow Coma Scale) for Patient History Evaluation: For initial and follow-up assessments, this neurological scale seeks to offer a trustworthy and impartial approach to record a person's level of consciousness. Three tests make up the scale: visual, verbal, and motor responses. Three values are examined separately as well as collectively. The GCS ranges from 3 (deep coma or death) to 15, with 1 being the lowest and 15 the highest (awake).

Tool III: Vital Signs Checklist Tool: This was developed by researchers to record selected vital signs (heart rate, respiratory rate, systolic and diastolic blood pressure, pulse pressure in different positions (supine, affected side, supine undamaged side and Pauptushkolovska).

Tool IV: Scale for Quantifying Pain (NPRS). This was made to track the test group's discomfort in various positions, including its location and intensity (supine, affected side, non-affected side, and semi-fowler). It is made up of a straight line with ends that represent extremes like "no pain at all" and "pain as awful as it gets." On a line connecting the two endpoints, the patient is asked to indicate their level of pain. 0 = no pain, 1–3 = mild pain, 4–6 = moderate pain, 7–9 = severe pain, and 10 = worst agony were the possible numerical ratings for pain (McCaffery & Beebeet al, 1989). Ferraz et al. (1990) tested its reliability and found that it had high test-retest reliability (r = 0.96 and 0.95, respectively).

Ethical considerations

In addition, the director of the stroke unit officially approved the current study's conduct. Written informed consent from the patients was obtained after a discussion of the study's nature and objectives. Each patient had the option of taking part or not taking part in the current study, and they had the flexibility to leave at any time, without having to give a reason or have an impact on the care given. The fact that the data collected won't be used in any further research was also disclosed to the patients. Each subject's anonymity and confidentiality are ensured by encrypting all data.

Methods of data collection:

Fieldwork:

The researchers collected data from the studied patients who attended previously selected settings two days / a week from 9 Am to 1 Pm (Sunday and Monday). Data were collected within 6 months from the beginning of from first of June 2021 to the first of December 2021. Approximately,30-35 minutes were taken to complete each interview questionnaire.

The current research was divided into three stages: preparatory, implementation, and evaluation.

A-Preparatory phase:

The researchers met the studied patients at previously selected settings and explain the aim of the study after introducing themself to the patients.

Validity of the tools:

The content validity of the tools, their clarity, comprehensiveness, appropriateness, and relevance was reviewed by five expert professors in medical-surgical nursing. No modifications were made according to the panel judgment to ensure sentence clarity and content appropriateness.

Reliability of the tools:

Test-retest was used to determine the reliability of the tools, and Pearson correlation coefficients are used which reliability of the I, II, and III tools were determined through the use of the interview method. The reliability of the coefficient was (r= 0.832).

A pilot study

A pilot study was conducted on 10% (10 patients) of the total sample to test the clarity and feasibility of the research process. No modifications were carried out to develop the final form of the tools. Patients who were in the pilot study were included in the research study.

B- Implementation phase:

Data collection instruments were distributed to study patients twice; (1) pre-test to assess your knowledge regarding the therapeutic positions of the pre-implementation instructions. (2) Post-test to assess the knowledge regarding therapeutic positions after implementation of the instructions.

Personal data were collected from all patients using the first instrument. After that; each patient in the study group was placed in a different therapeutic position every two hours following a rotation schedule such as half-fowler, lying on the uninjured side, lying on the back, and lying on the injured side, while the control group received the usual hospital positions followed by assessment of vital signs such as heart rate, respiratory rate, systolic blood pressure, diastolic blood pressure, pulse pressure and pain for both experimental and control groups after two hours for each position on two consecutive days only in the morning shift using tools II, III and IV.

A simplified booklet was used as support material and given to the study patients in Arabic to cover all the points related to the knowledge of the therapeutic positions, after reviewing the relevant literature based on the assessment of the actual needs of the study patients. Different teaching methods were used: lectures, discussions, pictures, and posters.

The researchers designed and implemented the instructional guidelines regarding stroke and therapeutic positions in the form of a theoretical part and a practical part. The theoretical part included the patient's knowledge regarding stroke as definition, causes, signs and symptoms, complications, risk factors, and management. It was implemented through lectures, posters, educational films, scenarios, and role-plays regarding therapeutic positions such as the semi-fowler's position, unaffected side position, supine position, and affected side position. An educational booklet written in simple Arabic language and illustrative pictures prepared by the researchers was given to the women.

The researchers provided patients with written materials that were illustrated with photos as well as spoken instructions to further explain the disease. Based on a review of the literature, the findings and suggestions of other studies, as well as the views of healthcare professionals, the researchers developed this illustrative handout as well as were tested for its content.

Evaluation phase:

Instructional guidelines evaluation (post) at the end of the sessions, the researchers was begun to evaluate the effect of the instructional guidelines regarding therapeutic positions on post-stroke pain and vital signs among patients with stroke using the same pretest tools used before instructional guidelines implementation.

Statistical analysis:

The information was coded and tabulated on a personal computer. The Statistical Package for Social Science (SPSS) used version 23. The current study included both inferential and descriptive statistics. Descriptive statistics used in the study comprised mean and standard deviation, frequency, percentage distribution, a measure of dispersion, and t-test and ANOVA test. At a P-value of 0.05, statistical significance was taken into account.

Results:

The mean ages of the study and control groups are shown in **Table 1** as (44.5610.89) and (45.319.034), respectively. Males make up (58%) of the study group while females make up (56%) of the control group. In terms of education, (38%) of the study group and (36%) of the control groups are illiterate. In terms of occupation, housewives and farmers made up 30% of the study group and 34% of the control group, respectively. The research and control groups, respectively, lived in urban areas in addition to their residences (52% and 54%). Between the study and control groups, there were no statistically significant changes in terms of personal information. On the Glasgow coma scale, (58%) of the study group were in a coma and had more than 13 scores, while (54%) of the control group their scores ranging between 11-12. Regarding motor ability, (40%) of the study group and (44%) of the control group had left-side paresis.

Table (2) shows that there were no significant variations in the levels of pain pre and post-application between the study and control groups because (80% and 82%) of the study and control groups, respectively, reported no discomfort before therapeutic placement. Additionally, neither the study group nor the control group experienced any pain in the semi-position Fowler's (84%), unaffected side position (82%), supine position (98% and 92%), or affected side position (94% and 88%).

Table (3) demonstrates that there was no statistically significant difference in vital sign ratings between the study and control groups before therapeutic posture (ANOVA=0.844, p-value=0.646).

Table (4) shows that there was a statistically significant difference between the study and control groups for the heart rate on the second day of the semi-position fowler's (T-test =1.186, p-value=0.0237), the respiratory rate on the second day (T-test =2.556, p- value=0.013), and the pulse pressure on the first day (T test=2.199, p-value=0.030).

Table (5) shows that there was a statistically significant difference between the study and control groups for both pulse pressure scores and systolic blood pressure scores on the second day of the supine posture (T-test = 2.086, p-value=0.041). (T-test =3.094, p- value=0.004).

Table (6) shows that there were statistically significant differences between the study and control groups for both heart rate scores on the second day of the affected side position (T-test

=2.015, p-value=0.046) and systolic blood pressure scores on the second day of the affected side position (T-test =2.778, p-value=0.006). Additionally, there was a statistically significant difference in pulse pressure scores between the study and control groups on the first and second days of the afflicted side position (T-test =2.587, p-value = 0.011) and (T-test =3.958, p-value=<.001) respectively.

Table (7) shows that there was a statistically significant difference in respiratory rate scores on the second day of the unaffected side position between the study and control groups (T-test =2.297, p-value=0.025) as well as systolic blood pressure scores on the second day of the unaffected side position (T-test =3.304, p-value=0.001). Additionally, there was a statistically significant difference in pulse pressure scores between the study and control groups on the second day of unaffected side posture (T-test =3.522, p- value=<.001).

Table (1): Frequency and Percentage distribution of the studied patients regarding their data (No=100)

Personal data	Study group	Control group
Educational Levels:		
Illiterate	14.0	12.0
Read & write	38.0	36.0
Basic	8.0	6.0
Secondary education	42.0	48.0
High education	22	22.0
Gender		
Male	58.0	56.0
Female	42.0	44.0
Occupation:		
Work	70.0	66.0
Housewife or farmer	30.0	34.0
Residence:		
Urban	52.0	54.0
Rural	48.0	56.0
Age in years: Mean + SD	44.56± 10.89	45.31± 9.034

Table (2): Frequency and Percentage Distribution among Study and Control Groups regarding Pain Levels pre and post-therapeutic positions applications (n= 100).

Variables	Study group		Control group		χ^2	P- value
	No.	%	No.	%		
Pain intensity before application					**0.089**	**0.958**
Mild Pain	7	14.0%	7	14.0%		
Moderate Pain	3	6.0%	2	4.0%		
No Pain	40	80.0%	41	82.0%		
Pain intensity after semi fowler's position					**0.342**	**0.567**
Mild Pain	6	16.0%	8	16.0%		
Moderate Pain	0	0.0%	0	0.0%		
No Pain	46	84.0%	42	84.0%		
Pain intensity after unaffected side position					**1.369**	**0.243**
Mild Pain	2	6.0%	4	8.0%		
Moderate Pain	0	0.0%	0	0.0%		
No Pain	48	94.0%	46	92.0%		
Pain intensity after supine position					**1.886**	**0.168**
Mild Pain	1	2.0%	4	8.0%		
Moderate Pain	0	0.0%	0	0.0%		
No Pain	49	98.0%	46	92.0%		
Pain intensity after affected side position					**1.373**	**0.503**
Mild Pain	2	4.0%	5	10.0%		
Moderate Pain	1	2.0%	1	2.0%		
No Pain	47	94.0%	44	88.0%		

**P-value≤ 0.05 is significant at two-tailed*

Table (3): Differences in vital signs mean scores among patients with stroke in the study and control groups pre-therapeutic positioning applications (n= 100)

Vital Signs	Pre Therapeutic Positioning					
	Study group	Control group	T-testP-value	Study group	Control group	T-testP-value
	1st day Mean±SD	1st day Mean±SD		2nd day Mean±SD	2nd day Mean±SD	
Heart Rate	87.05±12.29	83.79±12.08	**1.448 0.152**	86.32±9.78	85.07±9.80	**0.635 0.526**
Respiratory Rate	19.91±8.47	18.12±2.39	**1.335 0.186**	19.39±4.22	18.67±3.34	**1.348 0.182**
Systolic blood pressure	132.15±18.42	127.09±14.69	**0.937 0.353**	128.29±22.03	134.62±17.99	**0.617 0.537**
Diastolic blood pressure	75.18±9.51	73.09±9.52	**1.268 0.209**	75.69±8.14	75.61±12.23	**0.098 0.924**
Pulse pressure	54.39±14.92	55.62±8.16	**0.498 0.618**	52.33±16.15	55.02±9.18	**1.197 0.235**
ANOVA P- value	**0.844 0.646**					

**P-value≤ 0.05 is significant at two-tailed*

Table (4): Differences in vital signs mean scores among patients with stroke in the study and control groups at therapeutic semi fowler's position application (n= 100)

Vital Signs	Study group	Control group	T-test P-value	Study group	Control group	T-test P-value
	1st day Mean±SD	1st day Mean±SD		2nd day Mean±SD	2nd day Mean±SD	
Heart Rate	87.52±8.802	85.21±13.12	**1.186 0.237**	84.46±9.711	87.29±13.85	**1.367 0.175**
Respiratory Rate	20.13±3.51	19.14±3.81	**1.522 0.132**	20.22±3.89	18.48±4.190	**2.556 0.013***
Systolic blood pressure	125.62±17.13	133.72±16.100	**1.833 0.073**	127.14±19.87	132.15±18.83	**1.383 0.172**
Diastolic blood pressure	74.64±8.85	76.89±13.200	**1.203 0.234**	72.78±8.89	76.17±9.93	**1.893 0.062**
Pulse pressure	50.46±14.32	55.00±8.044	**2.199 0.030***	53.34±17.208	56.16±9.48	**1.092 0.279**
ANOVA P- value	**0.963 <0.001***					

**P-value≤ 0.05 is significant at two-tailed*

Table (5): Differences in vital signs mean scores among patients with stroke in the study and control groups at therapeutic supine position application (n= 100)

Vital signs	Study group	Control group	T-test P-value	Study group	Control group	T-test P-value
	1st day Mean± SD	1st day Mean±SD		2nd day Mean±SD	2nd day Mean±SD	
Heart Rate	85.63±9.77	85.04±13.12	**0.299 0.766**	86.64±9.98	86.59±12.60	**0.050 0.960**
Respiratory Rate	18.72±3.46	18.71±3.63	**0.026 0.979**	18.76±3.77	19.73±3.78	**1.211 0.229**
Systolic blood pressure	125.3±17.88	134.56±17.54	**1.883 0.063**	126.78±15.99	133.49±18.36	**2.086 0.041***
Diastolic blood pressure	73.86±7.20	75.63±12.99	**0.904 0.368**	76.21±7.203	75.97±13.48	**0.100 0.921**
Pulse pressure	53.09±15.90	56.14±13.39	**1.190 0.237**	50.39±8.380	56.15±9.92	**3.094 0.004***
ANOVA P- value	**1.159 <.001***					

**P-value≤ 0.05 is significant at two-tailed*

Table (6): Differences in vital signs mean scores among patients with stroke in the study and control groups at therapeutic affected side position application (n= 100)

Vital Signs	Study group	Control group	T-test P- value	Study group	Control group	T-testP-value
	1st day Mean±SD	1st day Mean±SD		2nd day Mean±SD	2nd day Mean±SD	
Heart Rate	85.57±9.44	86.43±8.27	**0.494 0.624**	86.69±7.52	90.22±9.38	**2.015 0.046***
Respiratory Rate	19.47±2.69	19.78±3.85	**0.536 0.595**	19.59±3.69	19.90±2.48	**0.314 0.756**
Systolic blood pressure	124.16±16.97	133.1±18.15	**1.818 0.073**	124.45±12.44	132.49±19.92	**2.778 0.006***
Diastolic blood pressure	77.65±8.27	77.54±10.55	**0.100 0.922**	75.79±7.82	75.66±11.17	**0.097 0.923**
Pulse pressure	49.24±13.21	55.18±12.63	**2.587 0.011***	48.67±9.73	56.44±10.95	**3.958 <.001***
ANOVA P- value	**3.497 .000***					

**P-value≤ 0.05 is significant at two-tailed*

Table (7): Differences in vital signs mean scores among patients with stroke in the study and control groups at therapeutic Unaffected Side position application (n= 100)

Vital Signs	Study group	Control group	T-testP-value	Study group	Control group	T-test P-value
	1st day Mean±SD	1st day Mean±SD		2nd day Mean±SD	2nd day Mean±SD	
Heart Rate	84.99 ±10.08	85.87±11.56	**0.424 0.674**	86.53±9.39	87.78±10.51	**0.636 0.524**
Respiratory Rate	19.26±3.82	18.62±3.71	**1.032 0.306**	20.09±3.69	18.47±3.63	**2.297 0.025***
Systolic blood pressure	129.05±17.9	131.74±18.20	**0.767 0.447**	123.26±13.23	134.06±20.25	**3.304 0.001***
Diastolic blood pressure	75.59±9.85	75.97±11.59	**0.182 0.857**	74.64±7.31	77.77±11.82	**1.688 0.095**
Pulse pressure	53.66±13.66	55.59±9.67	**0.835 0.407**	48.66±9.87	56.17±11.41	**3.522 <.001***
ANOVA P- value	**1.135 0.000***					

**P-value≤ 0.05 is significant at two-tailed*

Discussion

To maintain the patient's body in a neutral position, ensure physiological safety, and prevent complications from immobility and injuries, the nurse's primary responsibility in the patient care unit is to put patients correctly (Pniak et al., 2021)

The findings of the present study demonstrated that there was no significant difference in personal data between the experimental and control groups. The mean ages of the experimental and control groups were, respectively, (44.56 10.89) and (45.31 9.034) years and more than half of the study subjects in both groups were male. This result was comparable to that of Ali, Ahmed, and Zaky's (2021) evaluation of the impact of altering specific body positions on oxygen saturation in patients with acute stroke. In that study, the researchers found that less than two-thirds of the sample had a mean age of (47.91) and that more than half of stroke cases involved men.

Young women had a low risk of having a stroke, which was validated by Pniak et al. in 2021. In addition, Roy-O'Reilly & Louise-McCullough (2018) discovered that patient age affects the influence of patient gender on

ischemic stroke. Their study sought to explore the impact of gender and age on the pathology of ischemic stroke. Men are more affected by ischemic stroke at an earlier age, but as women age, the stroke becomes more prevalent and incapacitates them. Additionally, about 40% of the experimental and control groups were from rural areas, so about 30% of both groups were farmers and housewives, reflecting their location of residence.

Nearly three-fifths of the patients in the study group had a Glasgow Coma Scale score of 13 or higher, while more than half of the control group had a score between 11 and 12. The researchers concluded that these patients had craniocerebral mild to moderate trauma, which met the inclusion criteria for the present study. In a study titled "Glasgow Coma Scale Score Fluctuations Inversely Associated With NIRS-Based Cerebral Autoregulation Index in Acute Comatose Patients," Healy (2019) found that as patients' neurologic examinations deteriorated and their SCL scores dropped, their cerebral values oximetry index (Cox) either deteriorated or increased. These findings may confirm that increased neurological impairment is linked to increasing neurological injury severity and impairment of cerebral autoregulation, whereby cerebral blood flow is dependent on perfusion pressure.

According to the study's findings, there were no appreciable differences in pain levels between the experimental and control groups before and following administration. This shows the significance and utility of using therapeutic posture, according to the researchers. The results of this study, which are similar to those of Abd El-Moaty et al. (2017), who investigated the "Effects of Half-Positions Fowler's on Oxygenation and Hemodynamics in Critically Ill Stroke Patients," confirmed that central post-stroke pain (CPSP), a type of neuropathic pain brought on by damage to the central nervous system during cerebrovascular disorders, is a common aftereffect of a stroke.

According to the current study's findings, there was no statistically significant difference between the experimental and control groups' mean vital sign values before therapeutic positioning. From the researchers' point of view, this suggests that both the experimental and control groups received no intervention and continued to receive the same standard of inpatient care.

The current study's findings demonstrated that specific vital signs changed in a statistically significant way after different therapeutic positioning procedures: on the second day following Fowler's therapeutic position, heart rate, respiratory rate, and pulse pressure were all lower than they were before the intervention. According to the experts, this shows that using therapeutic posture has a good impact. These outcomes are in line with those discovered by Pickenbrock, Zapf, and Dressler (2015) before the intervention.

According to the study's findings, there was no statistically significant change in the vital signs of the experimental and control groups before therapeutic posture. This shows, in the opinion of the researchers, that therapeutic positioning is highly necessary.

The current study's findings revealed a statistically significant difference in heart rate on the second half-fowler position day, respiratory rate on the second half-fowler position day, and pulse pressure on the first half-fowler position day between the experimental and control groups. According to the researchers, this illustrates the usefulness and success of the therapeutic half-fowler position. When conducting a study to assess the impact of therapeutic postures on hemodynamic parameters among critically ill patients and a comparison of parameters in the post-test between experimental and control groups in the left lateral position, Anchala (2016) supported this conclusion. Systolic blood pressure had a significant difference in mean scores between the experimental group and the control group in the left lateral position.

According to the study's findings, there was a statistically significant difference between the experimental and control groups' systolic blood pressure, pulse pressure, and measurements taken on the second day while supine, on the affected side, and the unaffected side. According to the researchers, this demonstrated the beneficial effects of employing the therapeutic position of supine,

on the affected side. These variations in vital sign measurements could be caused by the use of various therapeutic positions for patients, the maintenance of joint alignment, or the enhancement of vital functions. These results are consistent with Pickenbrock et al., (2015) who found that heart rate, respiratory rate, and blood pressure did not change significantly post-intervention compared to pre-intervention in either group.

Conclusion:

Based on the results of the present study, the study findings concluded that the instructional guidelines implementation regarding therapeutic positions had a significant effect on reducing pain levels and improving vital signs among patients with stroke.

Recommendations:

Based on the current study results, the following recommendations are proposed:

- The instructional guidelines regarding therapeutic positions should be conducted, discussed, integrated into the care of patients with stroke, and taught to them to improve their knowledge.
- Replication of the current study with a larger sample of patients in different settings is required for generalizing the results.

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