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THE EFECT OF PASSIVE ROM AND TACTILE STIMULATION ON MUSCLE STRENGTH IN POST ISCHEMIC STROKE PATIENTS IN RSUD DR. H. SLAMET MARTODIRDJO PAMEKASAN REGENCY

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ABSTRACT

Post ischemic stroke patients should immediately be given passive ROM therapy and tactile stimulation, because if passive ROM therapy and tactile stimulation are not given, it will result in atrophy, hemiparesis, and decreased muscle strength. The purpose of this study is to ascertain how tactile stimulation and mobilization affect the post-ischemic stroke patients' ability to move their limbs. In order to determine the various test analyses using spss, this study used a quasi-experimental design with a wo group pretest posttest, research data collection using observation sheets, editing data processing, scoring, coding, tabulating, wilcoxon statistical tests, and mann whitney statistical tests. According to the results of the Wilcoxon test, the asymp.sig (2-tailed) value in group 1 was 1.000 higher than the probability value of 0,05, and the asymp.sig (2-tailed) value in group 2 was 0,018 less than the probability value of 0,05. The study's findings revealed that 7 respondents received good muscle strength scores, while 6 respondents received poor muscle strength scores. There is a difference between the effects of passive range of motion mobilization and tactile stimulation in groups 2 and 1, with group 2 receiving passive ROM intervention and tactile stimulation twice daily for 10 minutes over the course of 20 days, and group 1 receiving passive ROM intervention and tactile stimulation just once daily for 10 minutes. So it is advisable for post ischemic stroke patients to perform passive range of motion of muscles and tactile stimulation in preventing muscle weakness and atrophic events in the extremities.

Kata Kunci: *ROM, Tactile stimulation, Ischemic stroke.*

INTRODUCTION

Stroke or CerebroVascular Accident (CVA) can be defined as a condition where there is a disturbance of blood circulation in the brain which results in the death of brain tissue, causing the patient to suffer paralysis or death (1). The number of atrophic events in RSUD DR. H. Slamet Martodirdjo Pamekasan Regency is a very high problem. With the number of events obtained, there were 10 patients who experienced atrophy with a medical diagnosis of non-hemorrhagic stroke. Patients with non-hemorrhagic stroke are increasing from year to year. Data on non-hemorrhagic stroke patients according to the World Health Organization (WHO) in 2018 globally there were as many as 15 million people having strokes and around 5 million people suffering from permanent paralysis. Data on stroke sufferers according to the World Stroke Organization (WSO) in 2018 there are 13.7 million new cases of stroke every year. Data from the 2018 Riskesdas results nationally, the prevalence of non-hemorrhagic stroke patients in Indonesia increased from 7% in 2013 to 10.9% in 2018 or an estimated 2,120,362 people, while in East Java province there were 507 people with a population percentage stroke as much as 1.4% in Pamekasan Regency (2). Patients with non-hemorrhagic stroke at Dr. H. Slamet Martodirdjo in 2018 there were 55.5% of the total stroke with a total of 348 people, while in 2020 there were 134 people (RSUD Pamekasan, 2020).

As many as 80% of stroke patients will experience hemiplegia or hemiparesis, which means one side is weak or even paralyzed (3). Nerve disorders due to stroke will cause a sudden loss of consciousness and paralysis/weakness in the extremities (4).

Manual muscle testing (MMT) is a measurement tool that functions as a measurement of muscle strength in patients with post-ischemic stroke and to determine muscle ability gradually, so as to determine the patient's muscle endurance and strength (5). The results of research by (6) explained that mobilization needs to be carried out in patients who have had a stroke to avoid muscle atrophy in the extremities that experience weakness or paralysis. Mobilization is a movement that results from a change in body position or a change in location (7). Mobilization needs to be done as one of the key factors in treating patients with a history of stroke (6).

Tactile stimulation is a stimulus given to the skin to cause muscle contraction, which will stimulate the muscle spindles and golgi tendons (7). In principle, tactile stimulation must cause muscle contraction, so that it will stimulate the muscle spindles and the Golgi tendon. Impulses originating from the two organs are sent by myelinated conducting fibers. Other proprioceptive impulses originate in fascial, joint, and deeper connective tissue receptors, also in less myelinated fibers. Tactile stimulation will stimulate the proprioceptors in the skin and joints, as well as the muscle spindles which will react by sending impulses to the anterior motoneurons. Stimulation of these neurons causes a brief increase in contractions (8).

The phenomenon that occurs is that there is a contracture and atrophy in post ischemic stroke patients due to a lack of range of motion activity after leaving the hospital. This research was conducted by dividing into two groups, where 1 group received passive ROM and tactile stimulation 1 day 1 time, group 2 received passive ROM and 1 day 2 tactile stimulation, with a total of 13 respondents and group 1 there were 6 respondents and in the group 2 there are 7 respondents. Researchers are interested in conducting research on "The Effect of Mobilization and Tactile Stimulation on Extremity Motor Function in Post-Ischemic Stroke Patients at Dr. H. Slamet Martodirdjo, Pamekasan Regency, with the aim of applying the scientific field of nursing, especially medical surgical nursing in a real scope.

RESEARCH METHOD

Penelitian dilakukan di laboratorium Universitas An Nuur Purwodadi pada bulan Maret-Juli 2023. Determinasi dilakukan di Balai Besar penelitian dan Pengembangan Tanaman Obat dan Obat Tradisional (B2P2TOOT) pada bulan Maret (Anisa ik., 2019).

Below are shown the results of research on the effects of movement and tactile stimulation on limb motor function in post-ischemic stroke patients at DR. H. Slamet Martodirdjo, Pamekasan Regency.

a.Characteristics of Respondents Based on Gender

According to table 1, it can be concluded that out of a total sample of 13, the number of male sex reached 76.9%, equivalent to 10 respondents, and the number of female sex was up to 23.1%, equivalent to 3 respondents.

Table 1 Characteristics of Respondents Based on Gender in RSUD DR. H. Slamet Martodirdjo Pamekasan Regency in 2022

N	Characteristics	Frequency	Percentage
13	Male	10	76,9%
	Female	3	23,1%

b.Characteristics of Respondents based on Age

Table 2. Characteristics of Respondents by Age at RSUD DR. H. Slamet Martodirdjo Pamekasan Regency in 2022

N	Characteristics	Frequency	Percentage
13	17-53	7	53,8%
	54-71	6	46,2%
	72-90	0	0%

c.Characteristics of Respondents Based on Last Education

According to the table based on the last education shows that as many as 5 participants had final education up to elementary school and a small proportion of 1 respondent's last education was junior high school.

Table 3 Respondents Based on Respondents' Last Education at RSUD DR. H. Slamet Martodirdjo Pamekasan Regency in 2022

N	Characteristics	Frequency	Percentage
13	Uneducation	2	15,4%
	SD	5	38,5%
	SMP/MTS	1	7,7%
	SMA/SMK/MA	2	15,4%
	University	3	23,1%

d.Characteristics of Respondents Based on Occupation

The results are shown in the table of the 24 respondents who were examined, it was found that the majority of the answers, namely, 4 respondents (30.8%), did not work, while only 2 respondents (15.4%) were civil servants.

Table 4 Characteristics of Respondents Based on Respondent's Occupation at RSUD DR. H. Slamet Martodirdjo Pamekasan Regency in 2022

N	Characteristics	Frequency	Percentage
13	Unemployed	4	30,8%
	Private-employe	4	30,8%
	Entrepreneur	3	23,1 %
	PNS	2	15,4%

e.Wilcoxon Test Passive ROM Mobilization and Tactile Stimulation in Group 1 and Group 2

Group	Z	Asymp.Sig. (2-tailed)
Group 1 Pre Test and Post Test	,000	1,000
Group 2 Pre Test and Post Test	-2,375	0,018

Based on the Wilcoxon test table for passive ROM mobilization and tactile stimulation, a significance value of Sig (2-tailed) was obtained in the experimental group of 1.000 > 0.05, according to the test criteria it was decided to reject H1, this shows that in group 1 there is no significant effect on mobilization Passive range of motion on extremity motor function in post ischemic stroke patients, while the significance value of sig (2-tailed) in group 2 was 0.018 <0.05, according to the testing criteria it was decided to reject H0, This implies that in post-ischemic stroke patients, range of motion mobilization passive response to muscular strength has a substantial impact.

f.Mann Whitney Test Passive ROM Mobilization and Tactile Stimulation in Group 1 and Group 2

Result	
Mann-whitney U	3,000
Asymp.Sig. (2-tailed)	0,310
Exact.Sig (2/1-tailed sig)	0,008

Based on the Mann Whitney test table for passive ROM mobilization and tactile stimulation by entering the post-test difference rate data from each group, a Sig (2-tailed) significance value was obtained of 0.310 > 0.05, it can be said that there is no significant difference between groups Group 1 and 2 are significant, thus that the post-ischemic stroke patients in group 2 benefit from passive ROM mobilization and tactile stimulation of muscular strength.

DISCUSSION

1. The effect of passive rom and tactile stimulation with a frequency of 1 time a day

The results of the research from the results of data analysis using the Wilcoxon test obtained the results of a sig (2-tailed) significance value of 1,000, which means there is no effect of passive ROM and tactile stimulation on post-ischemic stroke patients at RSUD DR. H. Slamet Martodirdjo, Pamekasan Regency in group 1. Research by (9) on the effects of passive ROM exercises and tactile stimulation on the range of motion of the upper extremity joints in stroke patients at Dr. M Natsir showed a p value of 0.060, indicating that there was no impact of passive ROM and tactile stimulation on the movement range of the upper extremity joints in stroke patients. Group 1 was intervened once a day for 20 minutes with a total of 6 respondents. Group 1 had no significant effect, due to the lack of passive ROM intervention and tactile stimulation carried out and the absence of support and motivation provided by the family to sufferers. This is in line with the researcher (10) who found that passive ROM and tactile stimulation 1 day once for 10 minutes will not affect the improvement of the motor nervous system and without family support will make sufferers lazy to do passive ROM and tactile stimulation automatically. independent.

2. The effect of passive ROM and tactile stimulation with a frequency of 2 times a day

The results of the research from the results of data analysis using the Wilcoxon test obtained a significant value of sig (2-tailed) of 0.018, which means that there is an effect of passive ROM and tactile stimulation on post-ischemic stroke patients at RSUD DR. H. Slamet Martodirdjo, Pamekasan Regency in group 2. This is consistent with a study by (11) about the impact of applying passive ROM and tactile stimulation to the extremities on muscle strength in non-hemorrhagic stroke patients at the Nirmala Hospital Hospital. The results of the t-test between passive ROM and tactile stimulation on muscle strength yielded a p value of 0.000, which indicates that there is an effect of passive ROM and tactile stimulation on increasing muscle strength. Group 2 was intervened twice a day for 20 minutes conducted by the researcher Airin (2017) It was found that the longer the passive ROM and the tactile stimulation, the more significant the effect, due to a nerve repair for 1 day of 1 mm.

3. Differences in the effect of passive ROM and tactile stimulation 1 time and 2 times a day

The results of the research from the results of data analysis using the Man Whitney test obtained the results of a sig (2-tailed) significance value of 0.310, which means there is no significant difference based on the results of the post-test group 1 with 6 respondents as ischemic post-stroke sufferers and the post-test results of group 2 consisting of 7 respondents after ischemic stroke. Where in group 1 was given passive ROM treatment and tactile stimulation 1 day 1 time for 20 minutes, while group 2 was given passive ROM treatment and tactile stimulation 1 day 2 times for 20 minutes. The findings of this study are consistent with those of (12) study, which revealed that passive ROM therapy and tactile stimulation, when used in combination with various treatments for each group, did not significantly vary from the intervention group.

CONCLUSION

1. The results of research that has been conducted at RSUD DR. H. Slamet Martodirdjo, Pamekasan Regency, from June to July, it was found that limb motor weakness in post-ischemic stroke patients before mobilization of passive range of motion and tactile stimulation, all (100%) had weakness.
2. The limb function of post ischemic stroke patients after passive range of motion mobilization and tactile stimulation in group 2 had an increase in limb muscle strength values and in group 1 did not have an increase in limb muscle strength values.
3. Predicated on the Wilcoxon test decision-making, it can be concluded that H1 is accepted in group 2 and H0 is accepted in group 1 because the statistical test output shows that the asymp.sig (2-tailed) value in group 2.018 is less than the probability value of 0.05, while in group 1, the asymp.sig (2-tailed) value is 1.000 greater than 0.05. The Man Whitney test found no discernible difference between group 1 and group 2 in terms of value.

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