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APPLICATION OF SLOW STROKE BACK MASSAGE ON BLOOD PRESSURE CHANGES IN NON-HEMORAGIC STROKE PATIENTS

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ABSTRACT

This study aims to determine the effectiveness of slow-stroke back massage in reducing high blood pressure in non-hemorrhagic stroke patients. It uses a descriptive research method in the form of a case study. The study showed that during three slow-stroke back massage interventions, a significant decrease in blood pressure was obtained. In conclusion, slow-stroke back massage is effective in reducing high blood pressure in non-hemorrhagic stroke patients.

Keywords: Hypertension, Slow Stroke Back Massage, Non-Hemorrhagic Stroke

INTRODUCTION

Stroke is a condition that can occur when blood flow to the brain is blocked or sudden bleeding occurs in the brain. Stroke is classified into two types, namely ischemic/non-hemorrhagic stroke and hemorrhagic stroke. Ischemic stroke or also known as non-hemorrhagic stroke is a stroke that occurs due to blockage of blood flow to the brain some involve blockage of blood vessels (ischemic), and the rest involve internal bleeding/hemorrhagic (National Heart, Lung, and Blood Institute, 2023). Stroke ranks second in the cause of death worldwide and is a major contributor to disability. Ischemic stroke accounts for the majority of strokes with a percentage of about 62% of all strokes, followed by intracerebral hemorrhage stroke at 28% and subarachnoid hemorrhage at 10%.

Meanwhile in Indonesia, according to data from the Institute for Health Metrics and Evaluation (IHME), 19.42% of deaths are caused by stroke, making it the leading cause of death in Indonesia (Ministry of Health, 2023). In addition, based on a survey conducted by Riskesdas, it shows an increase in the prevalence of stroke in Indonesia which increased from 56% from 7 per 1000 population in 2013, to 10.9 per 1000 population in 2018 (Ministry of Health, 2023). The number of stroke incidents at Pandan Arang Boyolali Regional Hospital in the first half of 2023 was 407 cases consisting of 113 cases of hemorrhagic stroke, 119 cases of non-hemorrhagic stroke, and 98 cases of unidentified stroke (Subaningsih, 2023).

Stroke can be caused by several risk factors, one of which is hypertension or high blood pressure. Hypertension is the most common risk factor for stroke. According to the Joint National Committee (JNC VIII), hypertension is a condition that occurs due to systolic blood pressure (BP) $\geq$ 140 mmHg and diastolic BP $\geq$ 90 mmHg (Andri et al., 2022; Harsismanto et al., 2020; Putri et al., 2019). High blood pressure can damage arteries throughout the body, creating conditions that make them more likely to burst or become blocked.

Weakened or blocked arteries in the brain are at higher risk for recurrent strokes, which is why managing high blood pressure is essential to reducing stroke risk (American Heart Association, 2022). Controlling blood pressure levels to <150/90 mmHg has been shown to reduce the risk of stroke (Wajngarten & Silva, 2019). Therefore, one way to prevent stroke or recurrent stroke is to reduce high blood pressure (Rodríguez-Yañez et al., 2021).

Interventions carried out to lower high blood pressure can be in the form of pharmacological and non-pharmacological therapy (Vázquez-Narváez & Ulibarri-Vidales, 2019). Based on observations that have been made during the provision of stroke interventions at Pandan Arang Boyolali Hospital, the provision of therapy is only prioritized on pharmacological therapy while non-pharmacological therapy is only carried out minimally in the form of early mobilization. Therefore, one of the other non-pharmacological therapies that can be done is slow stroke back massage therapy or back massage which has been proven to lower blood pressure (Arslan et al., 2021).

Back massage can also improve sleep quality (Anggraheni & Kristinawati, 2023). Slow stroke back massage or back massage can stimulate the production of endorphin hormones which function to increase the relaxation effect of patients because there is a process of widening blood vessels so that it can lower blood pressure (Kartika, 2019). According to research conducted by Meidayanti et al., (2023) shows that slow stroke back massage therapy is proven to reduce high blood pressure. Based on this, the author is interested in providing ideas on 'Application of Slow Stroke Back Massage on Blood Pressure Changes in Non-Hemorrhagic Stroke Patients'.

RESEARCH METHODS

The method used in this study is descriptive research in the form of a case study on the effect of slow stroke back massage intervention to reduce high blood pressure in non-hemorrhagic stroke patients. which was conducted at the Pandan Arang Regional General Hospital, Boyolali Regency. The study was conducted during three interventions on February 15-16, 2024. The sample collection technique in this case study used a simple random sampling technique by selecting one respondent randomly from the sample that met the criteria.

The sample criteria used were: 1) Patients with a history of non-hemorrhagic/ischemic stroke, 2) Patients with systolic blood pressure> 140 mmHg and diastolic> 90 mmHg. The instrument in this case study used a measuring instrument in the form of a digital sphygmomanometer to measure the blood pressure of non-hemorrhagic stroke patients both before and after the slow stroke back massage intervention and an evaluation form to record the results of the intervention.

RESULT

Slow stroke back massage intervention was carried out on respondent Mr. S with a medical diagnosis of non-hemorrhagic stroke supported by supporting examinations in the form of CT-Scan results as follows.

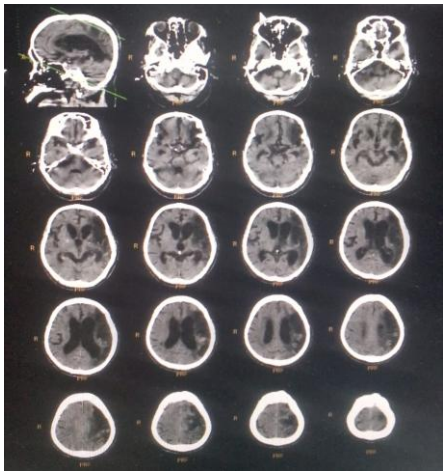

Figure 1. CT-Scan Examination Results

The results of the intervention showed changes in blood pressure, especially in systolic pressure, which decreased during three slow stroke back massage interventions. The following results were obtained during the three intervention.

Table 1.
Results of Slow Stroke Back Massage Intervention on Mr. S

Date, Time	Blood Pressure Before Intervention	Blood Pressure After Intervention
Thursday, 15th February 2024 09.00 – 09.10 WIB	Blood Pressure :150/95 mmHg Heart Rate : 97x/minute	Blood Pressure :129/92 mmHg Heart Rate : 94x/minute
Friday, 16th February 2024 09.00 – 09.10 WIB	Blood Pressure :166/96 mmHg Heart Rate : 112x/minute	Blood Pressure :162/109 mmHg Heart Rate : 117x/minute
Friday, 16th February 2024 13.30 – 13.40 WIB	Blood Pressure :162/109 mmHg Heart Rate : 117x/minute	Blood Pressure :127/95 mmHg Heart Rate : 115x/minute

Slow stroke back massage intervention on Mr. S was given for three interventions with a duration of 10 minutes each. Slow stroke back massage intervention was given on February 15-16, 2024. On February 15, 2024, the intervention was carried out once at 09.00 - 09.10 WIB while on February 16, 2024, the intervention was carried out twice in the morning at 08.30 - 08.40 and afternoon at 13.30 - 13.40 WIB. In the first slow stroke back massage intervention, the initial blood pressure results were obtained which decreased systolic pressure by 21 mmHg and diastolic pressure by 3 mmHg. In the second intervention, the initial blood pressure was 166/96 mmHg and after the intervention, the blood pressure results were 162/109 mmHg which decreased systolic pressure by 4 mmHg but diastolic pressure increased by 13 mmHg. In the third intervention, the initial blood pressure was 162/109 mmHg and after the intervention the results were 127/95 mmHg, which resulted in a significant decrease in systolic pressure of 35 mmHg and diastolic pressure of 9 mmHg.

DISCUSSION

The data obtained during the assessment was that the patient Mr. S, aged 57 years, male, had had a stroke since 2017 and had a second and third stroke in 2019 and 2021. In 2017, the patient and family only realized that the patient had hypertension when he had experienced the first stroke. The results of the assessment of Mr. S's blood pressure were 150/95 mmHg, which according to the Joint National Committee VII is classified as grade I hypertension because the systolic pressure is between 140-159 mmHg and the diastolic pressure is 90-99 mmHg.

According to the American Heart Association, stroke risk factors can be caused by hypertension (Boehme et al., 2017). Stroke is closely related to hypertension, which causes plaque to form in large blood vessels. The presence of this plaque can cause the diameter of the blood vessels to narrow. Unstable plaque can cause plaque to crack, which can block blood vessels in the brain. The risk factors for hypertension are age over 40 years (Umeda et al., 2020), which in Mr. S's case was 57 years old. This is supported by research conducted by Cheng et al., (2022) which in his research showed that people over 35 years of age are at risk of experiencing increased blood pressure, both systolic and diastolic. Mr. S's work history as a truck driver also disrupted Mr. S's sleep patterns. Sleep disorders are one of the risk factors for hypertension (Sukrillah et al., 2024; Umeda et al., 2020).

This is supported by research conducted by Li & Shang, (2021) that sleep pattern disorders can increase the risk of hypertension. In the third stroke attack, Mr. S could only rest in bed and needed family assistance for mobilization. According to the family, Mr. S still often experiences high blood pressure even though he has been given medication. However, sometimes his blood pressure is still often high, the family does not know any other way to lower blood pressure in Mr. S other than with medication.

Based on the assessment conducted on Mr. S, it was obtained that the appropriate nursing diagnosis is Ineffective Family Health Maintenance related to the inability to overcome problems by individuals and families. The nursing intervention applied from the nursing problem is Determination of Joint Goals which focuses on actions that can reduce high blood pressure in the condition of non-hemorrhagic stroke experienced by Mr. S. Assistance by the family with hypertension management actions can help stabilize blood pressure (Muchtar & Tasman, 2021). The actions taken are non-pharmacological therapy through slow stroke back massage or back massage. Slow stroke back massage therapy is an easy action so that it can be applied by the patient's family at home and has minimal side effects. Slow stroke back massage therapy can stimulate the production of endorphin hormones which function to increase the patient's relaxation effect because there is a process of widening blood vessels so that it can lower blood pressure (Kartika, 2019).

The stages of slow stroke back massage include warming up massage and primary massage (Selfira, 2020). Slow stroke back massage therapy is performed for 3-10 minutes to obtain a relaxing effect on the muscles, tendons and ligaments (Punjastuti et al., 2020). Slow stroke back massage management is carried out for three interventions with a duration of approximately 10 minutes in each massage session. The procedure for performing slow stroke back massage therapy begins with washing both hands with handrub, checking the patient's identity and informed consent regarding the patient's willingness to undergo the procedure, measuring blood pressure before the massage procedure, positioning the patient according to their wishes (lying on their side, face down, or sitting), lifting the back of the shirt, applying lotion or baby oil, performing a

massage session that begins with a warming-up massage or massaging the entire back area, followed by primary massage movements by performing a combination of effluvage, friction, petrissage, and pressure movements, then after the massage session is complete, blood pressure is re-checked, and ends with saying goodbye and washing hands (Selfira, 2020).

After the slow stroke back massage was performed, the results showed a change in blood pressure. The results of the implementation showed that slow stroke back massage therapy for three interventions had a significant effect on changes in systolic and diastolic pressure numbers before and after the slow stroke back massage on Mr. S who was diagnosed with non-hemorrhagic stroke. Thus, based on these results, it can be concluded that back massage is a fairly effective intervention in lowering both systolic and diastolic blood pressure in non-hemorrhagic stroke patients. These results are in accordance with research conducted by Sridani et al., (2020) and Meidayanti et al., (2023) which in his research showed the results of slow stroke back massage therapy effectively lowering blood pressure, both systolic and diastolic. Slow stroke back massage exercise therapy has been proven to be effective in lowering blood pressure in stroke patients with risk factors for hypertension (Naben, 2022).Which if exercise is done regularly will have an effect on the quality of life of non-hemorrhagic stroke sufferers (Rusti et al, 2023).

CONCLUSION

Based on the slow stroke back massage intervention that has been carried out, the results obtained are that slow stroke back massage is effective in lowering blood pressure, both systolic and diastolic. In the case of Mr. S, the slow stroke back massage was carried out for three interventions with a duration of 10 minutes each. Before and after the slow stroke back massage was carried out, blood pressure was checked first to evaluate the effectiveness of the slow stroke back massage. The results obtained were that in intervention I, the initial blood pressure results were 150/95 to 129/92 mmHg after the slow stroke back massage intervention, in intervention II, the initial blood pressure results were 166/96 mmHg to 162/109 mmHg after the back massage intervention, and in intervention III, the initial blood pressure results were 162/109 mmHg to 127/95 mmHg after the slow stroke back massage intervention. After the slow stroke back massage was carried out, Mr. S felt more relaxed and calmer. Based on this, slow stroke back massage is a non-pharmacological therapy that is effective in lowering blood pressure in hemorrhagic stroke patients.

SUGGESTION

This research is limited to one respondent with non-hemorrhagic stroke so there is the possibility of differences in results after slow stroke back massage intervention if carried out with a different number of respondents. Therefore, further research is needed to determine the effectiveness of slow stroke back massage for a wider range of respondents.

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