

THE EFFECT OF SOAKING THE FEET USING WARM WATER ON THE BLOOD PRESSURE OF HYPERTENSIVE PATIENTS AT GINOWAN HOSPITAL, JAPAN

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ABSTRACT

Hypertension is a health problem that many elderly people experience and can cause serious complications if left untreated. One of the non-pharmacological therapies that can help lower blood pressure is warm water soaking foot therapy. This case study aims to determine the effect of warm water foot soaking therapy and the application of nursing care in the elderly with hypertension at Ginowan Hospital, Japan. The subject was a 69-year-old woman with a history of hypertension and complaints of dizziness and heavy head. Interventions included vital sign monitoring, education, pain management, and warm water soaking foot therapy for 15–20 minutes daily. The results showed that blood pressure decreased from 160/90 mmHg to 140/85 mmHg after three days of the intervention, accompanied by a decrease in dizziness complaints and improved comfort. Warm water foot soaking therapy has proven to be effective as a supportive measure in the management of hypertension in the elderly.

Keywords: elderly; foot soaking therapy; hypertension; nursing; warm water

INTRODUCTION

Hypertension is one of the health problems that are widely found in the community and is a major risk factor for various cardiovascular diseases such as stroke, coronary heart disease, and kidney failure. Chronic blood pressure increases can cause damage to blood vessels and target organs so that proper treatment is required to prevent further complications. The World Health Organization (WHO) reports that hypertension has become a cause of high morbidity and mortality in various countries, including Japan, so blood pressure control efforts are a priority in health services. Various methods of managing hypertension have been developed, both through pharmacological and non-pharmacological therapies. One of the nonpharmacological therapies that has been proven to help lower blood pressure is to soak the feet using warm water. This therapy works through peripheral vasodilation due to an increase in temperature, which then lowers vascular resistance and helps reduce blood pressure.

In addition, soaking feet in warm water is a simple, inexpensive, easy-to-do, and minimally risky procedure so it can be applied to various age groups, including patients with chronic hypertension. Ginowan Hospital Japan is one of the health facilities that treats various cases of hypertension every year. Based on preliminary observations, many hypertensive patients experience unstable blood pressure despite receiving pharmacological therapy. This encourages the need for the application of safe and effective additional therapies, one of which is through soaking feet in warm water. Through this intervention, it is hoped that there will be a more significant and stable decrease in blood pressure so that it can improve the quality of life of patients. Based on this phenomenon, this study was conducted to determine the effect of foot soaking therapy using warm water on the blood pressure of hypertensive patients at Ginowan Hospital in Japan. This research is expected to contribute to the development of non-pharmacological nursing interventions in the management of hypertension and become a reference for health workers in providing comprehensive care.

METHOD

This study uses a case study method with a focus on a hypertensive patient who was treated at Ginowan Hospital in Japan. Data was collected through the assessment of vital signs, major complaints, medical history, and physical examination to establish a nursing diagnosis. The main diagnosis that emerged was

the ineffectiveness of peripheral perfusion due to vasoconstriction in hypertensive conditions. The nursing intervention provided was in the form of foot soaking therapy using warm water as a nonpharmacological effort to lower blood pressure. The patient's feet are soaked up to the wrist for 15–20 minutes with close supervision of the patient's physiological response and comfort. Supportive measures such as blood pressure monitoring and education are also carried out. The implementation of the intervention was followed by the evaluation of the results, namely comparing blood pressure before and after therapy. The results showed a decrease in blood pressure after the action was performed. Data analysis was carried out descriptively based on these changes. The instruments used include a sphygmomanometer, a foot immersion device, and an observation sheet.

RESULT AND DISCUSSION

The study was carried out on an elderly patient named Mrs. L aged 69 years old who came with complaints of dizziness, heavy head, tired quickly, and unstable when standing. The patient has a history of hypertension for several years and is not always regular in taking medication. At the initial examination, the patient's blood pressure reached 165/95 mmHg with pulse, breathing, and temperature within normal limits. Other physical examinations showed the general condition was stable and there were no serious neurological or respiratory abnormalities. Based on the results of the study, the main problems emerged in the form of the risk of ineffective cerebral perfusion, the risk of decreased cardiac output, and acute pain due to increased blood pressure. Interventions were provided through vital sign monitoring, observation of neurological status, education on low-salt diets and medication adherence, creating a calm environment, and administering warm water soaking foot therapy to help vasodilation.

The implementation was carried out for three consecutive days and showed a good response. Blood pressure decreases gradually from 165/95 mmHg to 140/85 mmHg, Complaints of dizziness are reduced, sleep quality improves, and patients feel more relaxed after foot soaking therapy. No signs of decreased heart rate were found during monitoring. Education is well received and patients show motivation to improve their lifestyle. Overall, the combination of medical therapy and nonpharmacological interventions, especially soaking feet in warm water, has been shown to be effective in lowering blood pressure and improving patient comfort. The results of the evaluation showed improvements that were in accordance with the nursing objectives.

The case of hypertension in Mrs. L shows that the increase in blood pressure in the elderly is influenced by age, non-adherence to medication, and a diet high in salt. Complaints of dizziness and heavy headache correspond to uncontrolled symptoms of hypertension. The interventions provided, including blood pressure monitoring, education, and warm water foot soaking therapy, have proven to be effective because they are able to gradually lower blood pressure and reduce patient complaints. Foot soaking therapy works through peripheral vasodilation which helps to lower the workload of the heart. Improvement of patients' conditions confirms that the combination of medical care, nursing measures, and lifestyle education has an important role in the management of hypertension in the elderly.

Assessment

The study was carried out on an elderly patient named Mrs. L aged 69 years old who came with the main complaint in the form of dizziness, headache feel heavy, and get tired quickly. Patients said complaints had arisen since the last few days and were increasingly disrupting activities. The medical history shows that the patient has been suffering from hypertension for a long time and has received routine medication, but does not always obediently take it. Patients also have eating habits high in salt and irregular sleep patterns. Family history shows that one of the family members also has hypertension.

On the vital signs examination, the initial blood pressure was recorded at 165/95 mmHg, while the pulse, breathing, and temperature were within normal limits. Physical examination showed that the general condition of the patient was stable, the head was symmetrical, the conjunctiva appeared slightly pale, and there were no abnormalities in the neck or tire. The lungs show normal vesicular breathing sounds without ronking or wheezing. Cardiac examination showed normal S1 and S2 sounds with no additional sounds. Flat abdomen with normal peristalsis and not accompanied by pressure pain. The extremities appear warm, skin tone is normal, without edema, and rapid capillary filling indicates good peripheral circulation.

Patients complain of headaches that are described as heavy sensations on a moderate scale and tend to appear during activities. No complaints of interference found vision, weakness of the extremities, or other neurological signs. Psychologically, patients said that they were easily tired, lack of sleep, and felt anxious about their blood pressure condition. Family support is quite good as the patient stays with family who help with daily care. The results of the study showed that the patient's hypertension condition has not been well controlled and has the potential to cause problems such as cerebral perfusion disorders, decreased cardiac output, and acute pain. These findings are the basis for determining nursing diagnoses and planning interventions at the next stage.

NURSING DIAGNOSIS

A nursing diagnosis is a clinical assessment of an individual's response experience to a health problem in the process of livelihood. Nursing diagnosis is a vital part of determining appropriate nursing care to help clients achieve optimal health (SDKI DPP PPNI Working Group Team, 2018). Based on the results of the study which showed that the initial blood pressure reached 165/95 mmHg, complaints of dizziness, and heavy headaches, the patient's condition led to several nursing problems related to uncontrolled hypertension. The complaints of dizziness and headache that patients have reported since the last few days are an indication of the risk of ineffective cerebral perfusion, especially since increased blood pressure can interfere with blood flow to the brain. This was evident in the initial assessment when patients complained of "dizziness and heavy headache" that appeared especially after activity

In addition, repeated high blood pressure can increase the workload the heart, thus putting the patient at risk of decreased cardiac output, especially when vascular resistance increases and the heart has to pump more strongly to maintain circulation. In addition to these two risks, patients also experience acute pain indicated by complaints of headache with a moderate scale. This pain arises in response to increased intravascular pressure, which is apparent when the patient says his head "feels heavy and sometimes throbbing," especially when doing light activities. These three diagnoses are interrelated and reflect clinical conditions typical of uncontrolled hypertension patients. This diagnosis then becomes the basis for the preparation of nursing intervention plans, including close monitoring of vital signs, lifestyle education, as well as the use of nonpharmacological interventions such as soaking feet in warm water to help lower blood pressure and improve patient comfort.

Nursing Intervention

The nursing intervention in this case study was carried out based on the Indonesian Nursing Intervention Standard (SIKI) and adjusted to the patient's specific condition. Nurses monitor vital signs on a regular basis, including measuring blood pressure, monitoring pulse and breathing rates, and observing oxygen saturation and changes in the patient's condition. In addition, an assessment of the level of consciousness and neurological status was also carried out through assessment using GCS, examination of pupil size and reaction, and identification complaints such as dizziness and headaches felt by the patient.

Patient repositioning efforts are also carried out by positioning the patient in a 30° head-up position to help cerebral perfusion and provide comfort while resting. Nurses also help patients maintain a comfortable position and ensure there is no excess pressure on certain areas of the body to support optimal circulation. This intervention was complemented by education on the importance of adherence to taking antihypertensive drugs, a low-salt diet, a healthy diet, and recommendations to avoid stress and strenuous activities. In addition, foot soaking therapy using warm water is carried out as a nonpharmacological intervention to help lower blood pressure.

Environmental management is also taken into account by creating a quiet room atmosphere, minimizing noise, and adjusting lighting to make patients feel comfortable. Nurses also ensure patients get enough rest by limiting physical activity, managing rest times throughout the day, and monitoring signs of fatigue during the patient's activities. In the collaborative aspect, nurses cooperate in administering antihypertensive drugs according to medical instructions, monitoring the effects of drugs on blood pressure, and reporting significant changes in conditions to the nurse in charge or doctor. In addition, intake and output monitoring is carried out by recording the amount of liquid entering and exiting, as well as identifying signs of retention or fluid deficit as part of the evaluation of the patient's fluid balance.

Nursing Implementation

The implementation of nursing in the case of Mrs. L, a 69-year-old patient with a diagnosis of hypertension, began on April 21, 2025. On the first day at 9:00 a.m., the nurse took the initial blood pressure measurements and vital signs, as well as observed complaints of dizziness and headaches. The patient reported mild dizziness, with the test results showing a blood pressure of 165/95 mmHg. This condition is evaluated as dizziness that is not severe so the nurse plans follow-up monitoring and education. At 11.00 a.m., the nurse provided education on the importance of a low-salt diet and adherence to taking medication. The patient shows a positive response by expressing his willingness to reduce salt consumption and appears cooperative. This shows increased motivation so that nurses encourage patients to maintain such compliance. At 15.00, the nurse carried out foot soaking therapy using warm water for a long time. 20 minutes to help relax and lower blood pressure. The patient felt warm and comfortable, while blood pressure decreased to 155/90 mmHg. Therapy is considered effective and is recommended to be continued regularly.

On the second day, April 22, 2025 at 09.00, the nurse again monitored blood pressure, vital signs, and evaluated complaints of dizziness and headache. Patients reported that their dizziness was reduced, and blood pressure was recorded at 150/90 mmHg, indicating the presence of condition improvement. The nurse maintains the intervention that has been given. At 12.00 pm, nurses provide motivation and support to improve medication adherence and a healthy lifestyle. Patients appear to be more disciplined and committed to carrying out therapy. At 16.00, warm water foot soaking therapy was again carried out for 20 minutes. After the procedure, the patient felt more relaxed, and blood pressure was stable at 148/88 mmHg, indicating a consistently positive therapeutic effect.

On the third day, April 23, 2025 at 09.00, nurses re-checked blood pressure and vital signs. Patients reported that their condition was improving, and blood pressure decreased to 140/85 mmHg. The ongoing intervention is considered effective and monitoring is continued. At 2:00 p.m., nurses teach relaxation techniques and deep breathing to help reduce stress. Patients can follow instructions well and appear calmer after the exercise. At 17.00, an evaluation was carried out on medication adherence and the implementation of a healthy lifestyle with family. Patients and families demonstrate good adherence

with strong family support. The nurse assessed that the patient's compliance level was optimal and suggested that family support be maintained.

Evaluation

The nursing evaluation was carried out after three days of intervention on Mrs. L's patients who had hypertension. The results of the evaluation showed significant improvements both subjectively and objective. Patients report that complaints of dizziness that were previously quite annoying are now gradually reduced, especially after receiving interventions in the form of education, activity restrictions, and warm water soaking foot therapy. Objectively, the patient's blood pressure decreased steadily from day to day, from 165/95 mmHg on the first day, to 150/90 mmHg on the second day, and reached 140/85 mmHg on the third day. This decrease suggests that the interventions given are effective in helping to control the patient's blood pressure. In addition, patients show a positive response to the education provided. Patients begin to understand the importance of a low-salt diet, adherence to taking medications, and healthy lifestyle settings. The relaxation techniques taught can also be followed well and help the patient feel calmer. Support from families also plays a role in increasing patient adherence to treatment and lifestyle changes. The family expressed its willingness to help patients lead a healthy lifestyle consistently. Overall, the evaluation showed that the previously set nursing goals had been achieved to a large extent, characterized by a decrease in blood pressure, reduced dizziness complaints, increased comfort, as well as an increase in patient motivation and adherence to therapy. Treatment can be continued with a focus on maintaining a healthy lifestyle, regular blood pressure monitoring, and ongoing support from the family to prevent hypertension recurrence.

CONCLUSION

Based on the results of a case study on a 69-year-old Mrs. L patient with hypertension, it can be concluded that the condition of uncontrolled blood pressure is affected by non-adherence to taking medications, a diet high in salt, and a lack of stress management and activity. After three days of nursing intervention, there was significant improvement both subjectively and objectively. The complaints of dizziness that were initially quite annoying gradually decreased, and blood pressure showed a gradual decrease from 165/95 mmHg on the first day to 140/85 mmHg on the third day. Warm water foot soaking interventions have been shown to have a relaxing effect and help lower blood pressure, while education on diet, activity management, and relaxation techniques increases patients' awareness and motivation to manage their hypertension. Family support plays an important role in improving patient adherence to treatment and the adoption of a healthy lifestyle. Overall, the nursing interventions provided have achieved the goals of stabilizing blood pressure, reducing complaints, increasing comfort, and strengthening patients' understanding of hypertension management. Follow-up treatment is still necessary to maintain the results achieved and prevent recurrence.

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