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THE EFFECT OF WARM RED GINGER WATER FOOT SOAKING THERAPY ON BLOOD PRESSURE OF HYPERTENSION PATIENTS

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ABSTRACT

This study aimed to examine the effect of warm red ginger foot soak therapy on blood pressure among hypertensive patients in the working area of Jembatan Kecil Public Health Center, Bengkulu City. The research employed a quasi-experimental pre-post design involving both control and intervention groups. A total of 30 participants were selected using purposive sampling based on specific inclusion criteria. Statistical analysis revealed a significant p-value of 0.001 ($p<0.05$), indicating a meaningful reduction in blood pressure following the therapy The findings suggest that warm red ginger foot soak therapy has a significant effect on lowering blood pressure in hypertensive patients at Jembatan Kecil Public Health Center. It is recommended that the health center educate the community about the benefits and procedures of using warm red ginger foot soak therapy as a complementary approach to manage hypertension.

Keywords: Warm Red Ginger Water, Hypertensive Patients, Blood Pressure

INTRODUCTION

Hypertension is defined as a condition in which systolic blood pressure exceeds 140 mmHg and diastolic blood pressure exceeds 90 mmHg, based on at least two measurements (Mursudarinah et al., 2021). When blood pressure is above normal, it is known as hypertension or the silent killer, as it can increase the risk of death if systolic blood pressure is above 140 mmHg and diastolic blood pressure exceeds 90 mmHg.

Hypertension, commonly known as high blood pressure, is a serious health condition that significantly increases the risk of heart, brain, kidney, and other diseases. It is a major risk factor for heart attacks, heart failure, and stroke, collectively known as cardiovascular disease (CVD), and contributes to chronic kidney damage. Managing hypertension is crucial to prevent long-term complications and urgent cardiovascular problems. Hypertension is recognized as one of the leading causes of premature death from cardiovascular disease (World Health Organization, 2024).

The prevalence of hypertension is projected to reach 33% by 2023, with two-thirds of this prevalence occurring in low-income and developing countries (WHO, 2023). It is predicted that the prevalence of hypertension will continue to increase, with estimates that by 2025, 29% of the global adult population will have hypertension. Hypertension causes approximately 8 million deaths annually, of which 1.5 million occur in Southeast Asia, where one-third of the population suffers from hypertension, potentially increasing the burden of healthcare costs (Tomayahu et al., 2023; Uliya & Ambarwati, 2020).

In Indonesia, the prevalence of hypertension is recorded at 30.8%. Jakarta has the highest prevalence rate, reaching 121.153 million people, while West Papua has the lowest prevalence rate, with 2,163 people. According to the Basic Health Research (Kemenkes RI, 2023).

Based on the prevalence of hypertension, Bengkulu Province ranks 26th (28.14%). The prevalence of high blood pressure in Bengkulu Province reached 168,519 cases, or 64%. The highest rate occurred in North Bengkulu Regency with a prevalence of 95%, followed by Rejang Lebong with 91%, Seluma with 83%, Lebong with 82%, Muko-muko with 81%, Kepahiang with 48%, Kaur with 31%, and South Bengkulu with 28%. Meanwhile, Bengkulu City ranks seventh with a prevalence of 41%, and the lowest is Central Bengkulu with 22% (Dinkes Provinsi Bengkulu, 2022).

The estimated number of people aged 15 or above with hypertension in 2023 is 50,898. Of this estimated total, 14,812 (40.7%) meet the health service criteria. This service figure represents a 20.6% decrease compared to 2022, when healthcare services for hypertension patients were 40.7%. This data demonstrates that disease patterns in Bengkulu City remained consistent from 2022 to 2023 (Bengkulu Health Office, 2023). The most common illnesses in 2023 were non-communicable diseases, particularly essential hypertension. The Jembatan Kecil Community Health Center recorded the highest number of healthcare services for hypertension patients, with 42,120 (Bengkulu City Health Office, 2023).

Based on a survey conducted on November 6, 2024, data obtained from the Jembatan Kecil Community Health Center showed that in 2022, there were 1,725 hypertension sufferers: 908 men (40.1%) and 1,357 women (59.9%). In 2023, there were 1,999 men (830) and 1,248 women (60.1%). In 2024, from January to December, there were 92 men (30) and 62 women (67.39%).

Drug therapy is an approach that uses various types of antihypertensive drugs that have been proven effective in lowering blood pressure, such as Amlodipine, Bendroflumethazide, Captopril, Atenolol, and Candesartan (Yuzianti et al., 2023). On the other hand, non-pharmacological approaches that prioritize a healthy lifestyle have also been shown to contribute to lowering blood pressure and are generally beneficial in reducing the risk of cardiovascular problems. The safest and most effective treatments for hypertension are natural, including the use of herbal therapies, nutrition, relaxation techniques, meditation, and hydrotherapy, including foot soaks in warm water mixed with ginger.

Soaking feet in warm ginger water is a very simple, easy-to-implement, practical, and affordable method that can be done independently at home by those suffering from hypertension. From a scientific perspective, warm water has physiological effects on the body. First, warm water acts on blood vessels, improving blood circulation. h, stabilizes blood flow and heart function, while the load factor in water can strengthen muscles and ligaments, which impact the body's joints (Effendy & Sari, 2021). Ginger, on the other hand, is rich in cations and anions such as calcium, magnesium, and phosphorus, which contribute to bone growth, muscle contraction, and nerve conduction. The minerals contained in ginger are useful for treating contracted muscles, controlling hypertension, overcoming muscle weakness, and relieving spasms. Furthermore, ginger also contains high levels of potassium, which plays an important role in regulating blood pressure and heart rhythm (Marina & Astuti, 2024).

RESEARCH METHOD

Research Type and Design

This study employed a quasi-experimental pre-post study involving a control group whose blood pressure was only measured without receiving foot soak therapy, and an intervention group. The goal was to determine the effects of the treatment. The specific characteristics of this experiment relate to the treatment or intervention. The variables identified in this study consisted of independent and dependent variables. The independent variable was foot soak therapy with warm red ginger water, while the dependent variable was blood pressure levels.

Research Results

Systolic and Diastolic Blood Pressure Characteristics of Respondents in the Intervention Group and Control Group

Table. 1
Distribution of mean systolic BP response before and after intervention

VariabeI	Mean	SD	Min	Mak	CI
Intervensi					
Tekanan Darah Pre Sistolik	146,13	7,434	130	157	142,02-150,25
Tekanan Darah Post Sistolik	137,67	10,349	112	157	131,94-143,40
KontroI					
TD Pre Sistolik	139,73	7,869	129	159	135,38-144,09
TD Post Sistolik	138,20	7,867	129	159	133,84-142,56

The results of the analysis in the intervention group showed that the average systolic blood pressure before being given warm red ginger foot soak therapy was 146.13 mmHg, the average systolic blood pressure after the warm red ginger foot soak intervention was 137.67 mmHg. The results of the analysis in the control group showed that the average systolic blood pressure before was 139.73 mmHg, the average blood pressure after was 183.20 mmHg.

Table.2
Distribution of Respondents' Mean Diastolic BP Before and After Intervention

VariabeI	Mean	SD	Min	Mak	Cl
Intervensi					
TD Pre Diastolik	86,40	7,735	73	97	82,12-90,68
TD Post Diastolik	79,80	8,126	62	92	73,30-84,30
KontroI					
TD Pre Diastolik	79,20	5,609	70	87	76,09-82,31
TD Post Diasttolik	77,73	5,509	70	87	74,68-80,78

The analysis results for the intervention group showed that the average diastolic blood pressure before the warm red ginger foot soak was 86.40 mmHg, and the average diastolic blood pressure after the warm red ginger foot soak was 79.80 mmHg. The analysis results for the control group showed that the average diastolic blood pressure before was 81.20 mmHg and after was 79.73 mmHg.

Bivariate Analysis Results

Table. 3
Effect of Systolic and Diastolic Blood Pressure Before and After Therapy

Variabel	Mean	N	SD	p-value
Sistolk SebeIum diberikan intervnsi	146.13	15	7,434	0,001
Sesudah diberkan lntervensi	137,67		10,349	
Diastolik SebeIum diberikan lntervensi	86,40	15	7,735	0,001
Sesudah Diberikan iintervensi	79,80		8,126	

Based on Table 4.8, it is known that the systolic blood pressure before therapy was 146.13 mmHg and the diastolic blood pressure was 86.40 mmHg, which is the category of stage I hypertension. After therapy, blood pressure decreased to 137.67 mmHg systolic and 79.80 mmHg diastolic, which is the prehypertension blood pressure category. The statistical test results obtained a p-value of 0.001 < 0.005, it can be concluded that there is a significant effect of the provision of intervention before and after on blood pressure in hypertensive patients.

DISCUSSION

This study revealed that soaking feet in warm red ginger water had an impact on the blood pressure of hypertensive patients at the Jembatan Kecil Community Health Center in Bengkulu City. The analysis of the intervention group showed a p-value of 0.001, indicating a difference in blood pressure before and after the warm red ginger foot soak.

The results of this study showed that the foot soak therapy using warm water mixed with red ginger in the intervention group was highly effective in reducing blood pressure compared to the untreated group. This was evident in the reduction in systolic blood pressure of 8.46 mmHg in the intervention group and 6.6 mmHg in diastolic blood pressure. Meanwhile, the control group only experienced a reduction in systolic blood pressure of 1.53 mmHg and diastolic blood pressure of 1.47 mmHg.

This study demonstrated changes in the respondents' blood pressure before and after the red ginger foot soak therapy. These results align with a study conducted by Maulita et al., (2023), which used a paired sample t-test and yielded a statistical value of 0.000 (P-Value ≤ 0.05), with a significance value of α=0.05, indicating a decrease in blood pressure before and after foot soaking therapy in warm red ginger water. Furthermore, on the effectiveness of foot soaking therapy in warm ginger water at the Pucang Gading nursing home in Semarang also demonstrated an effect on lowering blood pressure in the elderly (Laksmidewi & Mustofa, 2023).

Foot soaking therapy can be combined with various other herbal ingredients, including ginger (Sani & Fitriyani, 2021). Ginger's warming properties can trigger the release of adrenaline and dilate blood vessels, thereby increasing blood flow and reducing the burden on the heart (Nurpratiwi et al., 2024). Research by Sani et al., (2021) also noted a decrease in systolic and diastolic blood pressure both before and after foot soaking therapy with warm ginger water. Furthermore, soaking feet in red ginger water can also dilate blood vessels, which helps smooth blood flow.

Warm water foot soaking therapy is a technique in which the feet are immersed in warm water 10-15 cm above the ankles. Research conducted by Muksin et al.. (2023) showed that this method is more effective in lowering blood pressure.

Generally, foot soaking therapy with warm water mixed with red ginger is performed in the morning, due to the cooler temperature and less optimal blood flow. The soaking period lasts approximately 10-20 minutes until the water no longer feels too warm (Iswahyuni, 2017). According to I Wayan Redi Aryanta, as explained by Mishra (2018), ginger is a rhizome plant widely known as a cooking spice and medicine. Its spicy flavor comes from a ketone compound known as zingerone. Ginger also contains various antioxidants and bioactive components called zingerone. During the soaking process, the crushed ginger should be boiled to a temperature of between 60°C and 80°C, then mixed with cold water to lower the temperature to 37°C and 40°C. This warm water also has a positive effect. Next, the patient's feet are soaked in the warm ginger water for 15 minutes while gently massaging the feet and soles (Ghayur and Gilani, 2019). Some of the benefits of ginger include warming the body, improving blood circulation, relieving bloating, relieving fever and coughs, reducing headaches, curing toothaches, alleviating menstrual cramps, lowering cholesterol, and fighting cancer cells.

The principle of warm water foot soak therapy is through conduction, where heat from the water is transferred to the body. This process causes blood vessels to dilate and muscle tension to decrease, ultimately helping to improve blood flow. These changes affect blood pressure, which is regulated by baroreceptors in the carotid sinus and aortic arch. Baroreceptors send signals via nerve fibers to the brain regarding blood pressure, blood volume, and the needs of other organs, to the sympathetic nervous system in the medulla, which then stimulates ventricular muscle contraction to increase systolic pressure (Pramudyo, 2018).

Soaking feet in warm ginger water is a very simple, easy-to-implement, practical, and affordable method that can be done independently at home by those suffering from hypertension. From a scientific perspective, warm water has physiological effects on the body. First, warm water acts on blood vessels, improving blood circulation. h, stabilizes blood flow and heart function, while the load factor in water can strengthen muscles and ligaments, which impact the body's joints (Effendy & Sari, 2021). Ginger, on the other hand, is rich in cations and anions such as calcium, magnesium, and phosphorus, which contribute to bone growth, muscle contraction, and nerve conduction. The minerals contained in ginger are useful for treating contracted muscles, controlling hypertension, overcoming muscle weakness, and relieving spasms. Furthermore, ginger also contains high levels of potassium, which plays an important role in regulating blood pressure and heart rhythm (Marina & Astuti, 2024).

CONCLUSION

There is an effect of providing foot soak therapy with warm red ginger water on reducing blood pressure in hypertension sufferers in the work area of the Jembatan Kecil Community Health Center, Bengkulu City.

SUGGESTION

Based on the research results and discussion, the researcher would like to offer several recommendations to several relevant parties, including:

For other researchers

Future research can include longer days for more effective results in foot soak therapy with warm red ginger water.

For hypertension sufferers

It is recommended that hypertension sufferers undergo non-pharmacological treatment to help lower blood pressure.

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