

Effect of Warm Red Ginger (*Zingiber Officinale Var Rubrum*) Compresses as Pain Reliever in Hypertensive Patients

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ABSTRACT

The number of people with hypertension is increasing every year, and it is estimated that by 2025 there will be 1.15 billion people suffering from hypertension. The result of a preliminary study showed 2640 hypertensive patients in Pekauman Health Center. Interview results with five people who suffered from hypertension claimed that they experienced headaches up to the nape of the neck. Usually, they buy medicine at the nearest shop or use liniment such as balm to reduce the pain. This study aimed to determine the influence of warm red ginger (*zingiber officinale var rubrum*) compresses on reducing pain scale in hypertensive patients in the Pekauman Health Center area. The research was conducted using a pretest post-test design Quasi Experiment. The sample was 30 people with a purposive sampling technique. The treatment was given in the form of a warm red ginger compress for 15-20 minutes. Analysis using Wilcoxon test. There was a significant effect of giving red ginger (*zingiber officinale var rubrum*) warm compresses on reducing pain scale in hypertensive patients with a significant value of 0.000 ($p < \alpha 0.05$). Therefore, a warm red ginger compress could effectively reduce headaches in hypertension patients.

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1. INTRODUCTION

Hypertension is an increase in blood pressure, systolic pressure of 140, and a diastolic pressure of 90 mmHg [1]. This blood pressure makes the circulatory system and organs that receive a blood supply (including the heart and brain) tense up [2]. Symptoms that people with hypertension often feel are pain from the head to the nape of the neck. The neck feels sore or stiff in the neck muscles caused by an increase in pressure on the walls of blood vessels in the neck area, which causes a lack of O₂ and nutrients to accumulate, causing inflammation in the area of muscle and bone attachment, causing pain [3].

Headache up to the nape of the neck is a clinical symptom that is most often felt in patients with hypertension which causes discomfort. The neck feels tense or painful due to an increase in pressure on the walls of the blood vessels in the neck area where the blood vessels carry blood to the brain. When there is an increase in vascular pressure to the brain, which results in pressure on the nerve fibers of the neck muscles, the patient feels pain or discomfort in the neck. Neck. Pain felt by people with hypertension will interfere with their daily activities [4].

Pain treatment includes both pharmacological and non-pharmacological approaches. Analgesic drugs can be used to provide pharmacological therapy, while non-pharmacological treatment involves distraction therapy, deep breathing relaxation, and warm compresses [5]. One of the non-pharmacological therapies, warm compresses can be used to reduce pain. Warm compresses are one of the management of pain by providing heat energy through conduction. Vasodilation is caused by heat (widening of blood vessels). Heat also increases muscle relaxation, circulation, oxygen intake, and nutrients to the tissues [6].

Warm compresses can reduce pain and provide a sense of comfort to clients with hypertension. Warm compress therapy uses warm water or warm ingredients such as ginger [7]. Ginger has a natural substance present, with a spicy and hot taste that can relieve pain, stiffness, and muscle spasms. The benefits of using ginger will be maximized after use within 20 minutes after being applied [8].

The warm wet therapy option relieves morning stiffness, but cold compresses reduce acute pain and inflamed joints. The most effective compressing location is near the actual location of the pain, and it takes 5 to 15 minutes of cold compresses [9]. Red ginger is able to reduce pain because it contains gingerol and shogaol, which are hot and spicy compounds that have non-steroidal anti-inflammatory properties [10]. The use of ginger compresses itself is a non-pharmacological therapy in the nursing field that can be used to reduce pain degrees in patients with hypertension. The use of warm compresses with ginger does not require expensive costs and can be done independently for clients at home.

2. RESEARCH METHOD

The research used Pretest Posttest Quasi Experien; this research does not use a comparison group, only conducts observations (Pretest) which then examines the changes that occur after the intervention.

3. RESULT AND DISCUSSION

3.1. General Data

Respondent Characteristics by age

Table 1. The Age Distribution of Respondents

Age Category	Frequency	Percentage (%)
26 – 35	3	10%
36 – 45	6	20%
46 – 55	7	23%
56 - 65	14	47%
Total	30	100%

Gender characteristics of respondents

Table 2. Characteristics of Respondents by Gender

Gender	Frequency	Percentage (%)
Male	2	7%
Female	28	93%
Toal	30	100%

Respondent characterization based on their educational background

Table 3. Frequency Distribution of Education

Education	Frequency	Percentage (%)
Elementary	16	53%
Junior High	8	27%
High School	5	17%
Bachelor	1	3%
Total	30	100%

Respondent characteristics based on historical hypertension past

Table 4. Characteristics of Respondents' History of Hypertension

History of hypertension	Frequency	Percentage (%)
Available	16	53%
Not Available	14	47%
Toal	30	100%

Characteristics of respondents based on antihypertensive drugs consumed

Table 5. Characteristics of Respondents' antihypertensive drugs consumed

Antihypertensive Drug	Frequency	Percentage (%)
Available	1	3%
Not Available	29	97%
Toal	30	100%

Respondent characteristics based on analgesic drugs consumed

Table 6. Characteristics of Respondents' analgesic drugs consumed

Analgesic Drug	Frequency	Percentage (%)
Available	0	0%
Not Available	30	100%
Toal	30	100%

3.2. Specific Data

Respondent's pain scale before being treated with red ginger warm compress (zingiber officinale var rubrum)

Table 7. Respondents Pain Scale before treatment with Red Ginger (Zingiber Officinale Var Rubrum) Warm Compress

Pain Scale	Frequency	Percentage (%)
No pain	0	0%
Mild pain	0	0%
Moderate pain	28	93%
Severe pain	2	7%
Heavy pain	0	0%
Total	30	100%

The respondent's pain scale after being given warm red ginger (zingiber officinale var rubrum) compress treatment can be seen in the following table:

Table 8. Respondents' Pain Scale after Red Ginger (Zingiber Officinale Var Rubrum) Warm Compress Treatment

Pain Scale	Frequency	Percentage (%)
No pain	0	0%
Mild pain	19	63%
Moderate pain	11	37%
Severe pain	0	0%
Heavy pain	0	0%
Total	30	100%

The Wilcoxon test statistic gave a p-value of 0.000 ($p < 0.005$), indicating that H_0 was rejected and H_1 was accepted. This study found that a red ginger warm compress (Zingiber Officinale Var Rubrum) intervention has an effect on pain scales in hypertensive patients in the Pekauman Health Center work area in 2020.

3.3. Discussion

Results in table 7 showed a moderate pain scale in hypertensive patients, as many as twenty-eight people (93%), and severe pain in as many as two people (7%) before the intervention of red ginger warm compress (Zingiber Officinale Var Rubrum). Headaches even up to the neck in patients with hypertension are usually caused by vascular disorders or disturbances in blood flow. According to [11], Headaches in people with hypertension flow faster in the blood vessels in the head so that the brain's work to meet oxygen becomes greater, resulting in headaches. Pain or discomfort in the neck occurs because the blood vessels around the neck become narrowed so that the neck will experience contraction of the neck muscles and blood vessels.

Results in table 8 showed the mild pain scale in hypertensive patients who experienced mild pain as many as 19 people (63%) and moderate pain as many as 11 people (37%) after the intervention of a red ginger

warm compress (*Zingiber Officinale Var Rubrum*). Ginger has a spicy and hot taste and has a laxative, antihelmintic and antirheumatic pharmacology activity. The benefits of ginger have been known for generations as a medicine for relieving headaches, coughs, and colds [12].

Ginger (*Zingiber officinale var*) is included in the WHO priority list as the most widely used medicinal plant globally. The rhizome, which contains zingiberol and curcuminoids, has been proven to reduce inflammation and joint pain. The oleoresin in ginger possesses spicy, bitter, and fragrant qualities. Oleoresin is a powerful anti-inflammatory and antioxidant. Ginger's water and non-volatile oil content act as a diluent, allowing oleoresin to penetrate the skin without causing irritation or injury to the peripheral circulation [13].

Based on studies, ginger has benefits, among others, stimulating the release of the hormone adrenaline and widening blood vessels so that blood flows faster and smoother. This effect causes blood pressure to drop. The most important component is gingerol, an anticoagulant that prevents blood clots. Gingerol is also thought to be able to lower cholesterol levels [14].

According to the theory put forward by [15], in ginger content, hundreds of active chemical compounds are composed, each of which has certain properties for the body. Ginger contains phenolic compounds, which have been shown to have anti-inflammatory properties and are effective at preventing joint disease and muscle tension. Patients with hypertension often complain of symptoms such as headaches, aches, and discomfort in the neck [16]. Headaches are caused by crusting in the blood vessels or atherosclerosis so that the elasticity of the blood vessels decreases. Atherosclerosis causes spasms of the blood vessels (arteries), blockage, and decreased O₂ (oxygen) which will lead to headaches or distension of structures in the head or neck [17].

According to the theory of [18], giving wet hot compresses can improve blood circulation in the body, eliminate swelling (edema), increase pus drainage, and reduce pain. Warm compresses can be combined with natural ingredients such as ginger. The types of ginger known by the public are esprit ginger, elephant ginger, and red ginger. The most widely used ginger for medicine is red ginger because red ginger has a higher volatile oil content than other gingers [19].

4. CONSLUSION

The study demonstrates a notable decrease in pain scale from 5.33 to 3.40 among hypertension patients using a warm red ginger (*Zingiber Officinale Var Rubrum*) compress, indicating its effectiveness in relieving headaches. This finding suggests that red ginger compress could be a beneficial non-pharmacological intervention for headache management in these patients.

However, the research has limitations, including its scope and the specificity of the patient group studied. Future research should explore the broader applicability of this treatment, potentially including a diverse patient demographic and comparing the efficacy of red ginger compress with other non-pharmacological interventions. This will help to establish a more comprehensive understanding of its effectiveness and potential role in headache management in different contexts.

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