

The Effect of Red Ginger Warm Water Foot Soak Therapy on Pain Levels in Patients with Uric Acid in Curahtakir Village Tempurejo District Jember Regency

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ABSTRACT

Background: Gout pain is concentrated in the bones, joints, muscles, and tissues around the joints, especially in the joints of the toes, fingers, heels, knees, elbows, and wrists.

Method: This study used Pre-experimental with Pretest-Posttest Group design.

Result: The results of the study on the measurement of pain levels before the intervention obtained an average value of the pain level scale of 6.75 and after the intervention obtained an average value of the pain level scale of 5.27.

Conclusion: The conclusion of this study is that there is a significant effect on pain levels in gout sufferers before and after being given red ginger warm water footbath therapy. Researchers' recommendations for future researchers, because this study still has limitations where using pre-experiments has weaknesses that cannot control other variables outside the research variables so that future researchers can use a higher research design.

Keywords: *Gout; Pain level; Footsoak*

Introduction

Uric acid buildup in the body's joints is the cause of gout illness, also known as gouty arthritis. Uric acid will permeate into the joint tissue and cause discomfort and swelling when it is present in the blood in excess and cannot be eliminated. Individuals with gouty arthritis frequently have discomfort, edema, and inflammation in the big toe's metatarsal-phalangeal joint, a condition known as podagra, which can compromise daily activities. Gouty arthritis is a kind of arthritis that can affect any joint in the body and cause pain, burning, and swelling. There are three different degrees of pain: mild, moderate, and severe. If this inflammation is not addressed, it will lead to joint deterioration that will eventually transform (Dalbeth et al., 2021).

Purine crystals in the blood can develop as a result of consuming excessive amounts of purines. Waste products, including uric acid, are normally eliminated by the kidneys or urinary tract. The body will manufacture more uric acid if this does not occur regularly, and it will build up in the tissues. Consequently, the joint region experiences excruciating pain due to the accumulation of uric acid crystals. The bones, joints, muscles, and tissues around the joints are the main locations of pain. Particularly at the wrist, elbow, knee, toe, finger, and heel joints (Aihemaitijiang et al., 2020).

According to the Basic Health Research conducted by the Indonesian Ministry of Health, the number of gout sufferers based on the diagnosis of health workers reached 713,783 residents. The incidence of gout in the East Java region in 2020 was 24.3% in men and 11.7% in women. Based on preliminary studies at Tempurejo Health Center in January 2024, it was found that the prevalence of gout sufferers was 41 sufferers divided into 4 hamlets, namely Curahrejo Hamlet 12 sufferers, Krajan I Hamlet 9 sufferers, Krajan II Hamlet 10 sufferers, Kalisanen Hamlet 10 sufferers.

Alternative therapies commonly used by the community to relieve gout pain are the use of herbal medicines such as soursop leaves, bay leaves, Chinese betel leaves, noni fruit, gotu kola, and ginger. Hydrotherapy or conductive warm water immersion is one of the complementary or alternative therapies that can be used for independent and natural interventions. Warm water hydrotherapy is easy to do by everyone, does not require high costs and has no harmful side effects that can be combined with other herbal ingredients, including red ginger or better known by the community (Endro H. &

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Ainnur R., 2022). Red ginger contains more Oleoresin and Gingerol which can inhibit prostaglandin synthesis, so that pain subsides or inflammation decreases (Wahyu Widyanto, 2018).

Scientifically, foot bath therapy with warm water at 37-39°C has many physiological effects on the body. Warm water is a therapeutic medium that can be used for treatment, its hydrostatic, hydrodynamic and warm temperature effects improve blood circulation in the body. Warm water soak therapy is easy to do by everyone, does not require high costs and has no harmful side effects (Setiyawan et al., 2019).

Ginger is a food ingredient that contains phenolic compounds that act as antioxidants. The essence of ginger known as gingerol is a potent free radical molecule and can act as an antioxidant that is useful in neutralizing the harmful effects of free radicals on the body (Meyla et al., 2022). Red ginger is a medicinal plant that is effective to help relieve coughs, sore throats, lower bad cholesterol, relieve headaches, treat rheumatism, lose weight, maintain heart health, overcome nausea and indigestion, prevent enteritis, increase endurance and cure asthma (Redi Aryanta, 2019).

Pain is a recognizable bodily experience and reflects a person's fear of a threat to their physical integrity or existence. Experiences that resemble pain, such as tingling, but are unpleasant should not be classified as pain (Raja S et al., 2021). Pain is a collective phenomenon observed in healthcare, which contributes significantly to morbidity, mortality, disability and countless burdens in the healthcare system (Balgah & Atanga, 2022).

Gouty arthritis (gout) is a disease that occurs due to too high levels of uric acid in the blood, causing an increase in uric acid levels in the blood and the production of more uric acid in the body than is excreted out. The body can develop due to genetic factors (congenital), dietary factors, and pathological factors such as leukemia (Ida Ayu Pradnyaswari & Ni Made Pitri Susanti, 2023).

Method

The research that will be used in this study uses quantitative research, this research uses a type of pre-experimental method with a pre-test and post-test approach, namely related research before and after the red ginger warm water foot soak therapy. The population in this study were all gout sufferers in Curahtakir Village, Tempurejo

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District, Jember Regency in January 2024, totaling 41 gout sufferers. The samples used in this study were gout patients in Curahtakir Village in January 2024 who met the inclusion and exclusion criteria. The fulfillment of this research sample is based on inclusion and exclusion criteria, namely: inclusion criteria are gout sufferers who are willing to become respondents, while exclusion criteria are gout sufferers who take drugs other than drugs to reduce uric acid levels.

Sampling in this study using probability sampling method with simple random sampling technique. Simple random sampling is a type of probability sampling where researchers randomly select a subset of participants from a population. Each member of the population has an equal chance of being selected. Data is then collected from the largest possible percentage of this random subset.

Results

General Data

1. Gender

Table 1. Frequency distribution of gender of gout patients in July 2024

Gender	Frequency	Percentage (%)
Male	23	62,2
Female	14	37,8
Total	37	100

Based on Table 1. about the characteristics of gout sufferers based on gender, most of the respondents were male as many as 23 people with a percentage (62.2%).

2. Last Education

Table 2. Frequency distribution of the last education of gout patients in July 2024

Last Education	Frequency	Percentage (%)
Not in School	11	29,7
Elementary School	12	32,4
Junior High School	9	24,3
High School	5	13,5
Total	37	100

Based on Table 2. about the characteristics of gout sufferers based on the latest education, most of the last education was elementary school as many as 12 people with a percentage (32.4%).

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3. Jobs

Table 3. Frequency distribution of occupations of gout patients in July 2024

Jobs	Frequency	Percentage (%)
Farmers	17	45,9
Self-employed	9	24,3
Not Working	3	8,1
Miscellaneous	8	21,6
Total	37	100

Based on Table 3. about the characteristics of gout sufferers based on work, most of them are farmers as many as 17 people with a percentage (45.9%).

Special Data

1. Pain Level of Uric Acid Patients in Curahtakir Village Before Being Given Red Ginger Warm Water Foot Soak Therapy in July 2024

Table 4. Frequency distribution of pain levels of gout patients in Curahtakir Village before being given a warm ginger foot bath in July 2024.

Min	Max	Std. Deviation	Mean
3,00	9,00	1,36	6,75

Based on Table 4. It is known that the level of pain in gout patients with gout in Curahtakir Village before being given a warm ginger foot bath, the maximum value of the pain level scale is 9 and the average value of the pain level scale is 6.75.

2. Pain Level of Uric Acid Patients in Curahtakir Village After Being Given Red Ginger Warm Water Foot Soak Therapy in July 2024

Table 5. Frequency distribution of pain levels of gout sufferers in Curahtakir Village after being given a warm water foot bath of red ginger in July 2024.

Min	Max	Std. Deviation	Mean
2,00	8,00	1,46	5,27

Based on Table 5, it is known that the level of pain in gout sufferers in Curahtakir Village after being given a warm ginger foot bath, the minimum value of the pain level scale is 2 and the average pain level scale is 5.27.

3. The Effect of Red Ginger Warm Water Foot Soak on Pain Levels in Patients with Uric Acid in Curahtakir Village

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Table 6. Effect of red ginger warm water foot bath therapy on pain levels in gout patients in Curahtakir Village in July 2024.

		Min	Max	Std. Deviation	Mean	Sig. (2-tailed)
Foot Soak Pre	Test	3,00	9,00	1,36	6,75	0,0001
Foot Soak Post	Test	2,00	8,00	1,46	5,27	

Based on Table 6. shows that before the warm ginger foot bath, the minimum scale value is 3, the maximum scale value is 9 and the average value of the pain level scale is 6.75. While after being given a warm ginger foot bath, the minimum scale value is 2, the maximum scale value is 8 and the average value of the pain level scale is 5.27. This study obtained a p value of Paired Sample T-test <0.0001 which shows that sig 0.05 is still above 0.0001, thus H1 is accepted, namely there is an effect of red ginger warm water foot soak on pain levels in gout sufferers in Curahtakir Village.

4. Normality Test of Pretest and Posttest Data on Pain Levels in Patients with Uric Acid in Curahtakir Village

Table 7. Normality test of pretest and posttest data on pain levels in gout sufferers in Curahtakir Village in July 2024.

	Kolmogorov Smirnov	
	Df	Sig
Pre intervention	37	0,053
Post intervention	37	0,062

Based on Table 7. obtained the sig value of the normality test, namely in the pre-intervention of 0.053 and post-intervention obtained results of 0.062. These results indicate that the value obtained is > 0.05, thus the results of the normality test in this study are normally distributed.

Discussion

1. Pain Level in Patients with Uric Acid in Curahtakir Village Before Given Red Ginger Warm Water Foot Soak

The results of research on pain levels in gout sufferers before being given red ginger warm water foot soak therapy obtained an average pain level scale of 6.75. Pain is a symptom that often occurs in people with gout. Uric acid

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disease generally attacks the joints of the fingers, heels, toes, elbows, knees and wrists. Pain is a condition more than just a single sensation caused by a specific stimulus. Pain is subjective and highly individualized (Rahmatica et al., 2023). Based on research conducted by Murwani (2022) pain in gout often suddenly appears, usually at night or in the morning. This pain can be very intense and make the joint feel very painful, stiff, and difficult to move. The main cause of pain in gout is the buildup of uric acid crystals in the joint. Factors that can trigger this buildup include a diet high in purines, alcoholic beverages, obesity, a family history of gout, and certain types of medications. Apart from pain, gout can also cause the joints to be swollen, reddish, and warm to the touch (Murwani et al., 2022).

Researchers assume that the level of pain experienced by individuals with gout is related to the number and distribution of uric acid crystals within the joints. Uric acid crystals can cause irritation, inflammation and damage to joint tissues, which in turn causes pain. This study showed that most gout patients experienced pain levels with pain scales of 6 and 7. Pain levels can vary between individuals, depending on factors such as sensitivity to pain, response to treatment, and other factors. Differences in pain levels that vary are age and gender

2. Pain Levels in Patients with Uric Acid in Curahtakir Village After Being Given Red Ginger Warm Water Foot Soak

The results of research on pain levels in gout sufferers after being given red ginger warm water foot soak therapy obtained an average pain level scale of 5.27. Non-pharmacological therapy is an alternative therapy commonly used by the community to relieve gout pain, namely the use of herbal medicines such as soursop leaves, bay leaves, Chinese betel leaves, noni fruit, gotu kola, and ginger (Endro H. & Ainnur R., 2022). Red ginger contains more Oleoresin and Gingerol which can inhibit prostaglandin synthesis, so that pain subsides or inflammation decreases (Zuraiyahya et al., 2020). This research is in line with Yunita Liana's research which examines the effectiveness of foot soak therapy with warm ginger water on gouty arthritis pain in the elderly. It can be

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concluded that there is an effect of giving foot soaks with warm ginger water on reducing gouty arthritis pain in the elderly with an average decrease in pain felt after warm ginger compresses 1.95 and a significant p value of $0.000 < 0.05$. So it can be concluded that there is an effect of foot soaking with warm ginger water on reducing gouty arthritis pain in the elderly (Liana, 2021).

Researchers assume that a decrease in pain levels can be influenced by two ways of therapy, namely pharmacological and non-pharmacological. Warm water foot soak causes the body to respond locally, sending impulses from the periphery to the hypothalamus, which ultimately results in peripheral vasodilation. Gingerol in ginger essence is an antioxidant that can prevent free radicals in the body, this topical treatment not only has local effects but also affects tissues directly under the skin such as joints and also systemic effects

3. The Effect of Red Ginger Warm Water Foot Soak on Pain Levels in Patients with Uric Acid in Curahtakir Village

Based on the results of research on the effect of red ginger warm water foot soak using the Paired Sample T-test statistical test, it can be seen that from the significance value of p value < 0.05 , the test result value is 0.000, which means that H_1 is accepted, meaning that there is an effect of red ginger warm water foot soak on pain levels in gout sufferers in Curahtakir Village. The results showed that before being given a warm red ginger foot bath, the average value of the pain level scale was 6.75, while after being given a warm red ginger foot bath, the average value of the pain level scale was 5.27.

Warm water soak therapy will produce a local response to warmth where this stimulus sends impulses from the periphery to the hypothalamus. Changes in blood vessel size are regulated by the vasomotor center of the brainstem medulla, under the influence of the anterior hypothalamus, resulting in vasodilation (Zuraiyahya et al., 2020). This research is in line with Indraswati's research which examines the Effect of Warm Water Foot Soak Hydrotherapy on Pain Scales in Patients with Gout Arthritis. It can be concluded that there is an effect of warm water foot soak hydrotherapy on the pain scale in patients with gouty arthritis with an average decrease after hydrotherapy 3.66 and a significant

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p value of $0.000 < 0.05$. So it can be concluded that there is an effect of warm water foot soak hydrotherapy on the pain scale in patients with gouty arthritis (Indraswati, 2021).

Researchers assume that red ginger warm water foot soak can help reduce pain levels in gout sufferers because warm water increases blood circulation which can help reduce the buildup of monosodium urate which is the main cause of pain in gout sufferers. While red ginger has Gingerol content or anti-inflammatory properties located in its skin which can help reduce inflammation in the joints, the combination of red ginger warm water foot soak provides a relaxing effect and soothes stiffness or tension in muscles and joints which can help reduce pain perception.

Conclusion

Based on the research that has been carried out, the following conclusions are obtained:

1. The level of pain in gout sufferers in Curahtakir Village, Tempurejo District, Jember Regency before being given a warm water foot soak of red ginger with an average high pain level.
2. The level of pain in patients with gout in Curahtakir Village, Tempurejo District, Jember Regency before being given a warm red ginger foot bath with an average decrease in pain levels.
3. There is an effect of warm red ginger foot bath on the level of pain in gout patients in Curahtakir Village, Tempurejo District, Jember Regency.
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