



THE EFFECT OF BROKEN WATER SIRSAK LEAVES ON PAIN IN GOUT ARRITICAL PATIENTS IN THE WORKING AREA OF PUSKESMAS ANDALAS PADANG

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ABSTRACT

Gouty arthritis often affects the elderly with symptoms in the form of unbearable pain, and can even reduce motor ability / function. Various ways will be taken by the elderly in treating the pain, both pharmacological and non-pharmacological. Pharmacological treatments pose a risk to gastric health in the elderly. Soursop leaf boiled water can be an alternative for the elderly in reducing pain, through analgesic mechanisms. This study aims to determine the effect of soursop leaf boiled water on pain reduction in the elderly with Gout Arthritis. This type of research is a quasi-experimental design with a pretest posttest one group design. The population of this study were 16 people with gout arthritis in the Andalas Public Health Center with a purposive sampling technique. The data were computerized using the dependent t-test ($\alpha = 0.05$). The results showed that the average gout arthritis pain in the elderly before treatment was 4.94 and decreased after treatment was 2.25. There is an effect of soursop leaf cooking water on reducing pain in the elderly with arthritis gout ($p = 0.000$). Based on these findings, it can be concluded that sufferers of gout arthritis are better off using soursop leaf boiled water than pharmacological drugs, because it has the same effect in reducing pain. It is hoped that the puskesmas nurses will provide counseling about soursop leaf boiled water therapy as a good alternative in reducing gout arthritis pain.

Keywords: *Soursop Leaf Decoction, Gouty Arthritis Pain*

INTRODUCTION

Gouty arthritis is one of the rheumatic diseases that occurs due to a chronic increase in the concentration of uric acid in the blood plasma (hypererusemia ≥ 7 mg / dl). Most gouty arthritis is caused by excessive swelling of uric acid. Gouty arthritis can affect both men and women, but more often it affects men is 1 to 3 per 1,000 men, while in women is 1 per 5,000 women. This disease often attacks people aged > 55 years. This disease can cause headaches and pain, especially joint pain. Pain interferes with a person's activities and pain also interferes with rest, concentration and other activities (Suratun, 2008).

Gout is an acid in the form of crystals which is the end product of

purine metabolism (a form of nucleoprotein derivatives), which is one of the components of nucleic acids found in the nucleus of body cells. Naturally, purines are present in our bodies and are found in all food from living cells, namely food from plants (vegetables, fruit and nuts) or animals (meat, offal, sardines, etc.). Normal uric acid levels in women are 2.4 - 6.0 mg / dl and men 3.0 - 7.0 mg / dl. (Sutanto, 2013). The cause of gout arthritis, consuming foods that contain lots of purine substances. The human body actually provides 85% of the purine compounds for daily needs. This means, the body's need for purines from food is only about 15%, so the body will have an excess of this substance. Consuming alcohol can also increase the risk of



developing gout. This is because alcohol causes uric acid discharge through urine to decrease, so uric acid remains in the bloodstream and accumulates in the joints (Prasetyono, 2016).

According to data from the World Health Organization or WHO in the world, there are 1000 men aged 35-45 years, 15 of whom suffer from gout. Experts say 1 in 100 people are at risk of developing gout. The incidence of gout in Indonesia continues to increase and multiply. In 2014, 24.3% of men and 11.7% of women suffered from gout. Based on the results of Basic Health Research (Riskesdas), the prevalence of joint disease based on diagnosis in Indonesia is 11.9% and based on symptoms is 24.7%. The highest prevalence of disease occurred in East Nusa Tenggara 33.1%, Bali 30%, Aceh 25% and followed by West Sumatra 21.8%. The prevalence of joint disease increases with age, the highest prevalence is at the age of 50 and over. (Riskesdas, 2013).

The impact of gout arthritis pain itself, always feeling tired and body aches, pain in the muscles, waist and shoulders, very severe pain and tingling appearing, (Yekti & Ari, 2016). Seeing the effects caused by gout, it is clear that this disease is not an ordinary disease. Gout can be classified into a dangerous type of disease. Improper handling can cause greater harm. Apart from attacking the joints, this disease can cause damage to other important organs of the body. Even gout has links to other dangerous diseases, such as heart disease (Susanto, 2013).

Pain management in gouty arthritis aims to reduce or eliminate pain and discomfort. In general, there are two types of gout pain management, namely pharmacological management (drugs) and non-pharmacological management. Managing pain experienced by patients

through pharmacological interventions is done in collaboration with other doctors or nurses. Pharmacological therapy, the therapeutic goals of gout are: reducing inflammation and joint pain during an acute attack, preventing repeated attacks and the occurrence of serious complications (kidney stones), preventing severe joint abnormalities due to the accumulation of urate crystals, preventing

Non-pharmacological treatment, there are also several ways to relieve pain symptoms due to inflammation in people with gout. The easiest natural way is to treat with natural herbs which are safer because they increase endurance and overall health. Natural medicine with herbal ingredients generally functions to further encourage and optimize the body's function to treat itself the body's immune system is the main goal in natural medicine. Non-pharmacological management can reduce pain with low risk for patients and does not cost money. Linking these approaches is the most effective way to reduce pain. One of the non-pharmacological interventions that nurses can do independently is to reduce the uric acid pain scale (Muchlis, 2015).

In this study, researchers used soursop leaves as an herbal treatment. Soursop is an annual plant that can grow and bear fruit throughout the year. People often use parts of the soursop plant to cure various diseases because soursop contains various compounds such as fructose, fat, protein, calcium, iron, vitamin A and vitamin B. All parts of soursop are useful for treating various diseases, one of which is soursop leaves. Soursop leaves are parts that contain lots of compounds including acetogenins, annocatin, annohexocin, annonacin, annomuricin, and ananol. Soursop leaves are very useful for treating arthritic gout (Lina and Juwita, 2012). In



addition, soursop leaves also contain tannins, resins, which can treat gouty arthritis pain. These compounds function as analgesic (reduce pain), and anti-inflammatory (anti-inflammatory) (Shabella, 2011).

Where the content of soursop leaves has extra ethanol which acts as an anti-inflammatory. In ethanol there is extra mangostin which has activity as an inhibitor, the release of prostaglandins as an inflammatory mediator, and methanol from soursop leaves has an effect on reducing pain that occurs in people with gout (Potter & Perry, 2005).

Based on research conducted by Gerry, et al (2015) said that there was an effect of consuming soursop leaf boiled water on reducing pain in sufferers of gout arthritis in the work area of the Pineleng Health Center. The value of $p = 0.004$ was obtained. Meanwhile, in the study by Nopik (2013), there was a significant difference in gout pain in the intervention group and the control group after being given soursop leaf decoction therapy to gout sufferers in Genuk Barat Village, West Ungaran District. There is an effect of giving soursop leaf decoction therapy on pain in gout sufferers in West Genuk Village, West Ungaran District with $p = 0.026$. Based on the phenomena described above, the research wanted to prove the effect of soursop leaf boiled water on pain in gout sufferers in the Andalas Puskesmas Padang Work Area.

RESULT

Univariate Analysis

a. The Average Gouty Arthritis Pain in the Elderly Before Giving Soursop Leaves Boiled Water

MATERIAL AND METHODS

This study uses a Quasi Experiment research type with pre post test design, which is to compare the conditions before and after being given treatment. (Saryono, 2011). The research was conducted at Puskesmas Andalas Padang, from 21 to 31 August 2017. The population in this study were people with Gout Arthritis in the work area of Puskesmas Andalas with 152 people (Puskesmas Andalas, 2016). In the treatment group there are at least 16 respondents who fit the inclusion criteria. The study chose to use 16 respondents who fit the inclusion criteria in one treatment group so that the number of research samples was 16 people. Reserves for research are 10% of the 16 respondents, so the number of reserves is 1.6 or 2 respondents are reserves. Research instrument Numerical Analog Visual (NAV) pain scale, Uric acid meter (measurement of uric acid), soursop leaf decoction. Research stages: Respondents must be in a resting state for at least 5-10 minutes after doing the activity, After measuring the pain the respondent is then given boiled water of soursop leaves (250ml) to each respondent once a day for 7 consecutive days for a week at 08.00 WIB , Re-measuring the respondent's blood pressure on day 7 as post data. Univariate analysis was performed by looking for the mean (mean) arthritis gout before and after giving soursop leaf boiled water and bivariate analysis using the dependent T-test ($\alpha = 0.05$).



Table 1

The Average of Gouty Arthritis Pain in the Elderly Before Giving Soursop Leaves Boiled Water in the Work Area of the Puskesmas Andalas Padang

| Variabel | Mean | SD | Min-Max | n |
|----------|------|-------|---------|----|
| Pretest | 4,94 | 0,854 | 4-6 | 16 |

Based on table 1, it is found that the average gouty arthritis pain in the elderly before being given soursop leaf

boiled water is 4.94 with a standard deviation of 0.854. The lowest score is 4 and the highest is 6 in the Puskesmas Andalas Padang Work Area.

b. The Average Gouty Arthritis Pain in the Elderly After Giving Soursop Leaves Boiled Water

Table 2

The Average of Gouty Arthritis Pain in the Elderly After Giving Soursop Leaves Boiled Water in the Work Area of Puskesmas Andalas Padang in 2017

| Variabel | Mean | SD | Min-Max | n |
|----------|------|-------|---------|----|
| Posttest | 2,25 | 0,775 | 1-3 | 16 |

Based on table 2, it is found that the average gouty arthritis pain in the elderly after being given soursop leaf boiled water is 2.25 with a standard

deviation of 0.775. The lowest score is 1 and the highest is 3 in the Andalas Puskesmas Padang Work Area.

Bivariate Analysis

C. The Effect of Soursop Leaves Boiled Water on Pain Decrease in the Elderly with Gout Arthritis

Table 3

The Effect of Soursop Leaves Boiled Water on Pain Reduction in the Elderly with Gouty Arthritis in the Work Area of Puskesmas Andalas Padang

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| | Mean | SD | Lower | Upper | | | |
|------------------|-------|-------|-------|-------|--------|----|-------|
| Pretest-Posttest | 2,688 | 0,602 | 2,367 | 3,008 | 17,855 | 15 | 0,000 |

Based on table 3, it is obtained that the average difference of gout arthritis pain in the elderly before and

after being given boiled water for soursop leaves is 2.688. The result of the dependent t-test statistical test



showed that the value of $p = 0.000$ ($p < 0.05$), it was seen that there was an effect of boiled water of soursop leaves on reducing pain in the elderly

DISCUSSION

a. Average Gouty Arthritis Pain in the Elderly Before Giving Soursop Leaves Boiled Water.

Based on the results of the study, the average gout arthritis pain in the elderly before being given soursop leaf boiled water was 4.94 with a standard deviation of 0.854. The lowest score was 4 and the highest was 6 in the Puskesmas Andalas Padang Work Area in 2017. This research is almost the same as Nopik's research that the average pain before being given boiled water is 5.30 with a standard deviation of 1.525. According to Potter & Perry, gout sufferers often experience joint pain which often occurs due to deposits of monosodium urate crystals that collect in the joints as a result of high levels of uric acid in the blood. When urate crystals accumulate in the tissue outside the joint, it will form tophi or tofus, which are clear lumps under the skin that contain urate crystals that cause pain. Joint pain tends to occur at the base of the thumb joint. Usually experienced at night or when you wake up in the morning. The pain will immediately increase, if the joint is in an acute state (severe), the pain will come suddenly, swelling, redness. This pain or joint pain causes activity disorders in people with gout (Nopik, 2013).

Gouty arthritis is considered a disease that is generally recognized by ordinary people. In fact, gout arthritis is a compound that is in the human body. This compound has a $C_5H_4N_4O_3$ compound and its normal ratios are 3.6 mg / dl and 8.3 mg / dl. Under normal conditions uric acid is not only harmful to human health. However, if excess (hyperuricemia) or deficiency (hypourisemia) uric acid levels in blood

with arthritis gout in the Andalas Puskesmas Padang Work Area.

plasma will be an indication of disease in the human body. According to the researcher, after being given soursop leaf decoction, there was a change in the pain scale of the respondent, which was on a scale of 2.25 with a mild pain level. The change in pain scale was caused by drinking soursop leaf extract which was given for 7 consecutive days, where the content contained in soursop leaves which act as anti-inflammatory has activity as an inhibitor or as an effect of reducing arthritis gout pain in respondents. In addition, the respondent's uric acid level also decreased for some respondents, namely by an average of 3.36 mg / dl, while the average uric acid level of female respondents was 3.01 mg / dl and male. amounting to 3.8 mg / dl. In addition, respondents said they felt more comfortable and felt less pain, where the compounds contained in soursop leaves had anti-inflammatory properties.

b. The Average Gouty Arthritis Pain in the Elderly After Giving Soursop Leaves Boiled Water

Based on the results of the study, the average gout arthritis pain in the elderly after being given soursop leaf boiled water was 2.25 with a standard deviation of 0.775. The lowest score was 1 and the highest was 3 in the Andalas Puskesmas Padang Work Area in 2017. The results of this study are in line with the research conducted by Nopik (2013) regarding the effect of giving soursop leaf decoction on pain in gout sufferers in West Genuk Village, West Ungaran District, Semarang Regency. , it was found that the pain scale before being given soursop leaf decoction was 5.30 and after being given soursop leaf



decoction, pain was found on a scale of 4.25.

Traditional gout treatment can be in the form of plants. As for traditional medicinal plants used in the treatment of gout, among others, soursop leaves. Soursop leaves themselves contain many benefits for herbal healing ingredients and to maintain body condition. The content of this compound is a compound that has a lot of benefits for the body, as a medicine for disease or to increase immunity. Soursop leaves can also be mixed to become a gout herb (Muchlis, 2015).

Soursop is an annual plant that can grow and bear fruit throughout the year. People often use parts of the soursop plant to cure various diseases because soursop contains various compounds such as fructose, fat, protein, calcium, iron, vitamin A and vitamin B. All parts of soursop are useful for treating various diseases, one of which is soursop leaves. Soursop leaves are parts that contain lots of compounds including acetogenins, annocatin, annohexocin, annonacin, anomuricin, and ananol. Soursop leaves are very useful for treating arthritic gout (Lina and Juwita, 2012). In addition, soursop leaves also contain tannins, resins, which can treat gouty arthritis pain. These compounds function as analgesic (reduce pain), and anti-inflammatory (anti-inflammatory) (Shabella, 2011).

Soursop leaves contain many benefits for herbal medicinal ingredients, and also for maintaining body condition. Behind these benefits, it turns out that it cannot be separated from the content of acetogenins, annocatin, linoleic acid, muricapentocin. The content of this compound is a compound that has many benefits for the body, it can be used as a medicine for disease or to increase immunity. Soursop leaves are very good for consumption to increase body health.

The antioxidant properties found in soursop leaves can reduce the formation of uric acid by inhibiting the production of the enzyme xanthine oxidase. The combination of analgesic and anti-inflammatory properties can reduce gout. Extracts of α -mangostin, β -mangostin and others contained in soursop leaves have been shown to be able to inhibit the overhauling of the extracellular matrix and stimulate the expression of several cartilage-building gene associations such as collagen consisting of collagen I and collagen II and aggrecan, thereby helping to regenerate cartilage tissue resulting in pain. felt in gout sufferers can be reduced (Irfa and Suwandi, 2016).

According to the researcher, after being given soursop leaf decoction, there was a change in the pain scale of the respondent, which was on a scale of 2.25 with a mild pain level. The change in the pain scale was caused by drinking soursop leaf extract which was given for 7 consecutive days, where the content contained in the soursop leaves which act as anti-inflammatory has activity as an inhibitor or as an effect of reducing arthritis gout pain in respondents.

Bivariate Analysis

c. Effect of Soursop Leaves Boiled Water on Pain Decrease in the Elderly with Gout Arthritis

Based on the results of the study, the average difference in gout arthritis pain in the elderly before and after being given soursop leaf boiled water was 2.688. The results of the dependent t-test statistical test showed that the value of $p = 0.000$ ($p < 0.05$), it was seen that there was an effect of boiled water of soursop leaves on reducing pain in the elderly with arthritis gout in the Andalas Puskesmas Padang work area in 2017.

The results of this study are in line with research conducted by Gerry et al.



(2015) which states that there is an effect of consuming soursop leaf boiled water on reducing pain in sufferers of gout arthritis in the work area of Puskesmas Pineleng with a value of $p = 0.004$.

A similar study was also conducted by Nopik (2013) regarding the effect of giving soursop leaf decoction on pain in people with gout in West Genuk Village, West Ungaran District, Semarang Regency. pain on a scale of 4.25 with a value of $p = 0.026$.

The reduction in pain in patients with gouty arthritis is due to the content of soursop leaves, namely tannins, resins, crystallizable mangostine and muricin alkaloids to treat joint pain in gout sufferers. The compounds contained in soursop leaves function as a strong analgesic (pain reliever) and are antioxidants.

The antioxidant properties contained in soursop leaves can reduce the formation of uric acid through inhibition of the production of the enzyme xanthine oxidase. This combination of analgesic and anti-inflammatory properties can reduce gout. Patients with gout reduce the damage to cartilage tissue, the cartilage consists of chondrocyte cells, in the chondrocyte cells a synthesis and extracellular matrix secretion takes place. Extra mangostine and others contained in soursop leaves (tannins, resins, muricin alkaloids) have been shown to be able to inhibit extracellular matrix damage and stimulate the expression of several cartilage-building gene associations such as callogens consisting of collagen I and galogen I as well as agrecan so as to help regenerate cartilage tissue causing pain. the feeling of gout sufferers can be reduced

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inhibitor, the release of prostaglandins as an inflammatory mediator, and methanol from soursop leaves has an effect on reducing pain that occurs in people with gout (Potter & Perry, 2005).

According to the researchers, there is an effect of soursop leaf boiled water on reducing pain in the elderly with Gout Arthritis in respondents because after being given soursop leaf decoction the pain level of the respondents experienced a faster decrease. Using soursop leaves as a traditional medicine is very good because apart from having no side effects, soursop leaves are also easy to get and can even be found anywhere and the processing of soursop leaves is so easy. In addition, the content of tannins, crystallizable resins in soursop leaves and respondents also did not show any side effects because the content in soursop leaves is not dangerous in the body and the compounds contained in soursop leaves also have an effect on reducing pain that occurs in people with arthritis. In addition, respondents also followed the advice of researchers not to do other therapies, which were also supported by the family to set a healthy diet and low purine.

CONCLUSION

From the results that have been obtained regarding the effect of boiled water soursop leaves on pain reduction in the elderly with Gout Arthritis in the Work Area of Puskesmas Andalas Padang in 2017, the following conclusions can be drawn:

1. The average gout arthritis pain in the elderly before being given soursop leaf boiled water was 4.94
2. The average gout arthritis pain in the elderly after being given soursop leaf boiled water was 2.25
3. There is an effect of soursop leaf boiled water on reducing pain in elderly with arthritis gout in the



Andalas Puskesmas Padang Work Area in 2017 ($p \leq 0.05$)

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