Jurnal Keperawatan Universitas Jambi Volume 9 Nomor 1, December 2024
p-ISSN 2588-4869, e-ISSN 3063-4342

Trends and Issues in Medication Management in Home Care for Gouty Arthritis Patients: Literature Review

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ABSTRACT

Introduction : Gouty arthritis is a prevalent and painful form of inflammatory arthritis, primarily managed through medication. Effective home care for gout patients hinges on proper medication management, including correct dosing, adherence, and monitoring of potential side effects. This literature review explores recent trends and challenges in medication management for gouty arthritis patients receiving home care, aiming to provide insights for improving patient outcomes**.**
Methods: A comprehensive search of relevant studies was conducted, analyzing findings on home management of gouty arthritis patients, treatment-related barriers, and the role of healthcare providers in patient adherence.
Results: indicate that although medication adherence is essential for effective management, numerous issues, such as patient misunderstanding, adverse effects, and accessibility of medications, contribute to non-adherence. Additionally, family involvement and ongoing healthcare support significantly impact patient outcomes in home care settings.
Conclusion: suggest that enhancing patient education, simplifying medication regimens, and increasing support from healthcare providers can improve medication adherence and efficacy in managing gouty arthritis at home. Further research is recommended to develop targeted interventions addressing these challenges in medication management for gout patients in home care.

Keywords: Gouty arthritis; medication; home care; trend & issue

INTRODUCTION

Uric acid is the end product of catabolism or the breakdown of purines in the body. Catabolism includes the body's metabolic processes that break down a complex substrate into smaller molecules. Uric acid levels are closely related to purine production and purine intake consumed. Purines in the body that have been catabolized will become uric acid. Uric acid, which is a waste product, must be excreted by the kidneys from the body through urine and a small part through feces. Normal uric acid levels depend on age and gender. In certain conditions, the kidneys cannot excrete uric acid in a balanced manner, causing congestion or excess uric acid in the blood. The accumulation of uric acid is formed in the form of crystals and can occur in the joints or in the kidneys themselves. This revealed condition is called gout or often called gout[1]

Uric acid is an acid in the form of crystals that are the result of purine metabolism, which is one of the components of nucleic acid found in the nucleus of body cells. Purine is a component of nucleic acid found in the nucleus of body cells. Purine is naturally found in the body and in various types of food from plants in the form of vegetables, fruits, nuts and from animals, meat, offal, fish and sardines. So, uric acid is a result of metabolism in the body whose levels should not be excessive[2]. Gout is a degenerative disease that has an increasing prevalence with increasing age[3]. Gout is also called gouty arthritis, including a degenerative disease that attacks the joints, and is most often found in society, especially in the elderly[4].

Gout is a type of degenerative disease that can attack joints when uric acid levels increase. Gout is called a degenerative disease because the incidence is related to the degeneration process in the elderly that occurs according to time and age. Degenerative diseases usually attack the muscles, nervous system, human bones and blood vessels. One of the diseases that often attacks joints, bones and blood vessels is increased uric acid levels[4,5].

Non-drug therapy for DM patients can be done using herbal medicine. Herbal medicine comes from natural ingredients or family medicinal plants (TOGA) which are now a healthy lifestyle choice. People tend to choose treatment by utilizing natural ingredients from TOGA. In addition, herbal medicine is affordable and easy to obtain. Therefore, the author is interested in finding out whether home treatment management can reduce pain in gout sufferers and finding out the types of herbal plants that can be used in gout treatment management by reviewing various literature.

METHODS

A comprehensive search of relevant studies was conducted, analyzing findings on home management of gouty arthritis patients, treatment-related barriers, and the role of healthcare providers in patient adherence. The search used search engines and data Based on Google Scholar, DOAJ and Pubmed using keywords Gouty arthritis; medication; home care; trend & issue

RESULTS

The results showed that although medication adherence is important for effective management, many issues, such as patient misconceptions, side effects, and medication accessibility, contribute to nonadherence. In addition, family involvement and ongoing health care support have a significant impact on patient outcomes in home care settings. The results of the article analysis are presented in Table 1.

Table 1. Article analysis

No	Title And Author, Years	Population and Sample	Method	Result
1	"The Effect of Clove Water Boiling on Reducing Gout Pain in the Elderly at the Pattiro Mampu Health Center, Dua Boccoe District, Bone Regency" Hasriyanti, Fatmawati, Arni AR, Ruslang, Masrah Hasan (2022)[6]	30 respondents	quantitative research using pre and post-test design	30 respondents who were given clove water boiling and experienced a decrease in gout pain as many as 30 respondents, 6 respondents experienced no pain, 14 respondents experienced mild pain and 10 respondents experienced moderate pain
2	"The Effect of Ginger Solution Compress on Gout Pain at the Melati Elderly Posyandu, Candisari Village." Suryani, Sutiyono, Mingle A Pistanty (2021)[7]	50 respondent	This study uses a Quasi Experimental research design with a pretest-posttest with control group design. Data collection for 3 weeks and measurements using the Bourbanis scale which begins with an examination of uric acid levels.	When the therapy was given, the respondents looked so relaxed and enjoyed the warm sensation at the location of the pain they felt. The behavior that previously seemed restless, often complaining of pain changed to calm, quiet, not complaining much as if they were concentrating on the warm sensation they felt
3	"The Effect of Giving Warm Cinnamon Compresses on	110 respondent	Quantitative research design	showed that the average pain in gout arthritis

No	Title And Author, Years	Population and Sample	Method	Result
	Pain in Gout Arthritis Patients in Binuang Village, Laboy Jaya Health Center Work Area" Nia Aprilla, Syafriani, Devi Eka Safitri, Erma Kasumayanti (2022)[8]		with a quasi-experimental design approach	sufferers before being given cinnamon infusion was 5.08 (moderate pain) with the lowest pain scale of 4 and the highest scale of 6. The difference between pain in gout arthritis sufferers before and after being given was 2.667. With a standard deviation of 0.900 before being given a warm cinnamon compress and a standard deviation of 0.793 after being given a warm cinnamon compress. For a p value = 0.000 (≤ 0.005) which means there is a significant difference in the average pain in gout arthritis sufferers before and after being given a warm cinnamon compress.
4	"Implementation of Consuming Soursop Leaf Boiled Water to Decrease Uric Acid Levels in the Elderly: Case Study" Dwi Retnaningsih, Rizki Amalia (2022)[9]	2 respondent	descriptive method with a case approach in the elderly suffering from gout from July 27 to August 2, 2020. The administration of soursop leaf therapy was given for 7 days, 2x a day in the morning and evening as much as 200ml	The average value of uric acid levels before intervention (pre-test) was 8.7 - 9.0 mg/dl and uric acid levels after intervention (post-test) were 5.5 - 5.8 mg/dl. case studies have proven effective in consuming boiled soursop leaf water to reduce uric acid levels in the blood.
5	"The Effect of Pineapple Juice on Decreasing Uric Acid Levels in the Elderly in RT 05 RW 06 Rempoa Village, Ciputat Timur District, South Tangerang City" Fika Ayu Barokah, Gaung Eka Ramadhan (2023)[10]	22 respondent	Quantitative method with Quasi Experiment with one-group pretest posttest design without control. Health education about uric acid and post test were conducted. The study was conducted for 7 days, after eating. The results of the check were conducted after	The average before the administration of pineapple juice, the uric acid level was 8.244 mg/dl with a standard deviation of 1.766. The lowest uric acid level was 6.0 mg/dl and the highest uric acid level was 12.1 mg/dl. Based on Table 4, it shows that the average after the administration of pineapple juice, the uric acid level was 6.628 mg/dl with a standard deviation of 1.226

No	Title And Author, Years	Population and Sample	Method	Result
			the 7th day (pre test).	
6	"Effectiveness of Warm Compress of Moringa Leaves on Gout Pain in the Elderly in Kenteng Village, Nogosari, Boyolali" Aris Widiyanto, Krisnanda Aditya Pradana,Faisal Hidayatullah, Joko Tri Atmojo, Ndaru Syukma Putra, Asruria Sani Fajriah (2020)[11]	40 Respondent	Questionnaire with Numeric Rating Scale (NRS) pain scale distributed directly to the elderly. The data collection method used purposive sampling. The intervention given to the elderly was a warm compress of moringa leaves given once a day in the morning for 20 minutes which was given for 3 consecutive days..	Pain scale before getting the minimum value is 4, the maximum value is 6 and the average is 5 and the pain scale after getting the minimum value is 1, the maximum value is 3 and the average is 1.The results of the Wilcoxon pain scale test in gout sufferers before and after giving warm compresses of Moringa leaves with a p value of 0.000 <0.05, which means that warm compresses of Moringa leaves are effective in reducing gout pain in the elderly

DISCUSSION

Journal 1 with the title "The Effect of Clove Water Boiling on Reducing Gout Pain in the Elderly at the Pattiro Mampu Health Center, Dua Boccoe District, Bone Regency" Based on the results of the Wilcoxon test, the calculated value was $\rho = 0.000 > \alpha = 0.05$. From the results of the analysis, it can be concluded that Ha is accepted, namely that there is an effect of clove water boiling on reducing gout pain in the elderly at the Pattiro Health Center. The researcher assumes that giving clove water boiling can reduce gout pain felt by the elderly. This is evidenced by 30 respondents who were given clove water boiling and experienced a decrease in gout pain as many as 30 respondents, 6 respondents experienced no pain, 14 respondents experienced mild pain and 10 respondents experienced moderate pain. This is because the active compounds in cloves such as volatile (eugenol, eugenyl acetate, B-caryophyllene, methylsalicylate, methyleugenol, benzaldehyde, methylamine, ketone, α-ylngene), phenyline, caryophyllin, kaempferol, campestrol, carbohydrates, oleanolic acid, stigmasterol, sitosterol, rhamnetin, vitamins, carvacrol, thymol, eugenol, and cinnamaldehyde are able to relieve local pain, warm, and help expel wind, relieve stomach cramps, antibacterial, and aromatherapy. This is in line with the theory of Naranjo (2014), 1-5 grams of cloves boiled using 400 cc to 200 cc of water can reduce uric acid levels. The results obtained evidence that cloves are one of the medicinal plants with great potential in the pharmaceutical world. This is also in line with the results of Julita Fitriani's (2019) study on the Effectiveness of Clove Water Decoction on Pain in Gout Arthritis Patients in the Secang II Health Center Work Area, it was found that there was a significant difference between pain before and after being given clove water decoction of 3.29. From the results of this study, it was concluded that there was a significant difference in giving clove water decoction to reduce gout arthritis pain. Clove water decoction is effective in reducing gout arthritis pain because cloves have more anti-inflammatory and analgesic compounds compared to pegagan with a calculated value of $\rho = 0.021 < \alpha = 0.05$ (Fitriani, 2019).

Journal 2 entitled "The Effect of Ginger Solution Compress on Gout Pain at the Melati Elderly Posyandu, Candisari Village." The effect of ginger compress can reduce joint pain because it has spicy, bitter, and aromatic properties from olerasin such as zingerol, gingerol, and shagaol. Olerasin has strong anti-inflammatory, analgesic, and antioxidant potential so that it can inhibit the synthesis of prostag glandin which can reduce pain or inflammation in the joints. Ginger itself has quite a variety of uses, including as a spice, essential oil, aromatizer, or as a medicine (Bartley & Jacobs, 2012). Ginger can

reduce pain and stiffness in one or more joints, for the treatment of gout the recommended dose is 510-1000 mg/day of ginger powder. Giving ginger extract 1gr/day for 4 weeks is more effective than placebo and as effective as ibuprofen in relieving pain (Learh & Kumar, 2008). When the therapy was given, the respondents looked so relaxed and enjoyed the warm sensation at the location of the pain they felt. The behavior that previously seemed restless, often complaining of pain changed to calm, quiet, not complaining much as if they were concentrating on the warm sensation they felt. This study was strengthened by Putri, Devi, Noor (2017), who found that giving warm compresses using red ginger can reduce the pain scale in gout patients. Another study conducted by Samsudin (2016) found that there was a significant effect of giving warm compresses using grated red ginger (Zingiber Officinale Var Rubrum) on reducing the pain scale in gout patients. Based on the results of the Wilcoxon test, the sig value or 0.003 ($p < 0.05$).

Journal 3 with the title "The Effect of Giving Warm Cinnamon Compresses on Pain in Gout Arthritis Patients in Binuang Village, Laboy Jaya Health Center Work Area" Cinnamon contains various ingredients, namely essential oils (1-4%) containing cinnamaldehyde (60-80%), eugenol (up to 10%) and trans cinnamic acid (5-10%, enol compounds (4-10%), tannins, catechins, proanthocyanidins, monoterpenes, and sesquiterpenes (pinene), calcium monoterpene oxalate, gum gum, resin, starch, sugar, and coumarin and Cinnamon also has a chemical content that plays a very important role as an anti-inflammatory. (Parwata et all 2020) The results of the study showed that the average pain scale in the experimental group was 3.00. Compresses using warm water result in vasodilation of blood vessels so that it will increase muscle relaxation, thereby reducing pain due to spasms or stiffness, and also providing a comfortable feeling. The addition of cinnamon in warm water further encourages a decrease in pain because cinnamon contains anti-inflammatory and anti-rheumatic which play a role in the joint healing process. This is supported by cinnamon powder containing cinnamaldehyde which can inhibit inflammation. Essential oils in cinnamon bark contain eugenol, where eugenol has a very spicy and hot taste so that it can open the pores of the skin. Cinnamaldehyde content can enter the body with the widening of the pores. Cinnamaldehyde can also inhibit lipoxygenase. This lipoxygenase is a mediator in the body that converts Free Arachidonic Acid into leukotrienes. If the leukotrienes decrease, the inflammation process decreases. One of the signs of inflammation is pain. So that pain can be reduced by compressing cinnamon with warm water (Amalia, 2013). The results of data analysis on the difference in pain scale before giving a warm cinnamon compress were 5.08 with after giving a warm cinnamon compress 2.42 and the average decrease value was 2.66. The results of the statistical test obtained a p value (≤ 0.05), so it can be concluded that there is a significant difference in the average pain scale in gout arthritis sufferers before and after giving warm cinnamon compresses.

Journal 4 with the title "Implementation of Consuming Soursop Leaf Boiled Water to Decrease Uric Acid Levels in the Elderly: Case Study" providing soursop leaf boiled water therapy intervention to clients suffering from gout is very effective, shown by the difference in uric acid levels in clients pre (before) given soursop leaf boiled water intervention with post (after) consuming soursop leaf boiled water has decreased. This study is not in line with the study (Nursoleha, Yani and Hermanto, 2019) which found that there was no change in uric acid levels after soursop leaf intervention. While the study (Komariyah, Ilmi and Rizani, 2018) stated that there was an influence in providing soursop leaf therapy with changes in uric acid levels in the blood of gout sufferers. There are several factors that cause uric acid levels in the blood of someone who consumes soursop leaf boiled water not to decrease, one of which is the client's diet is not in accordance with the gout sufferer's diet or the client still consumes foods that are high in purine. The decrease in uric acid levels in the research subjects was due to the acetogenin and flavonoid content in soursop leaves which can help produce urine so that it can excrete more uric acid through urine. In the study (Andri, 2017) stated that there was an effect of giving boiled soursop leaf water in reducing the pain scale of the elderly with gout arthritis. The average difference in the pain scale in respondents who consumed soursop leaves was 2. According to the study (Mono Pratiko Gustomi., 2016) showed that there was an effect before and after intervention with boiled soursop leaves on reducing pain in gout arthritis sufferers. Reducing the level of pain in sufferers can help sufferers in their health, so that sufferers can carry out activities independently and smoothly.

Journal 5 with the title "The Effect of Pineapple Juice on Decreasing Uric Acid Levels in the Elderly in RT 05 RW 06 Rempoa Village, Ciputat Timur District, South Tangerang City" According to (Untari et al., 2017) and (Arjani et al., 2018)[5] the gender of the elderly who experience increased uric acid is generally male, uric acid levels in men tend to increase in line with increasing age, besides that, men do

not have high estrogen hormones, so uric acid is difficult to excrete through urine, and can cause a higher risk of increasing uric acid levels in men, but women also have a higher risk. Women experience an increased risk of gout during or after menopause, due to hormonal changes, namely the risk of decreased estrogen hormones which cause increased uric acid. Women experience more increased uric acid levels because they are influenced by changes in estrogen hormones experienced by women after menopause. Many factors influence knowledge in terms of education that can affect the learning process. Education is very important to influence someone, by providing information through Health Education about gout, it can be a solution so that respondents with sufficient Education can change their thinking patterns and behavior patterns to be healthier. Gout sufferers still ignore their condition or respondents' non-compliance in implementing a healthy lifestyle. Handling of gout is divided into two ways, namely pharmacological and non-pharmacological management. Management by providing non-pharmacological therapy, with the intervention of giving pineapple juice to respondents can be an alternative to reduce and reduce increased uric acid levels. The results of this study showed that pineapple was able to reduce high uric acid levels. The vitamin C content in pineapple which is able to reduce uric acid levels, helps increase the excretion (disposal) of uric acid through urine, so that uric acid levels in the body are reduced. Vitamin B6 also functions to help distribute water throughout the body optimally, to prevent the deposition of uric acid crystals in the body. In addition to vitamins, pineapple also contains the enzyme bromelain which is useful for healing and preventing attacks of pain in the joints and is able to reduce swelling of the veins (Annita et al., 2018). According to (Rahatul Fitriana, 2015), the most effective thing is to control and prevent gout by limiting and reducing foods that contain high levels of purine, generally such as offal, red meat (beef, goose, duck), seafood, and melinjo seeds.

Journal 6 entitled "Effectiveness of Warm Compress of Moringa Leaves on Gout Pain in the Elderly in Kenteng Village, Nogosari, Boyolali" According to Andry. et al. (2009) that one of the causes of gout is age. The prevalence of gout is more common between the ages of 30-50 years. According to the theory put forward by Ode (2012), age can be used as a risk factor for gout because when someone gets older there will be changes (decreases) in the metabolic process in the body and gout is a disease caused by disorders of uric acid metabolism in the body. One herbal therapy can use moringa leaves. Moringa leaves can be used to treat rheumatism because they contain flavonoids, alkaloids, steroids, tannins, saponins, terpenoids (Wijaya, 2017). Flavonoids inhibit neutrophil degranulation so that they will inhibit the release of cytokines, free radicals, and enzymes that play a role in inflammation (Mohan et al., 2012). This flavonoid functions as an analgesic that inhibits the work of cyclooxygenase and lipoxygenase enzymes so that it can interfere with prostaglandin synthesis and reduce pain (Suryanto, 2012). According to research by Hilyani (2017), Moringa leaf water extract can be an analgesic. The use of herbal therapy can be done together with warm compresses. Compressing means providing a warm feeling to the client by using a liquid or tool that causes a warm feeling in certain parts of the body that need it (Fanada, 2012). Warm compresses of Moringa leaves, in the water used for therapy has a temperature of 37-39C. This temperature can treat symptoms of lack of sleep and infection, increase flexibility of connective tissue muscles, flexibility in muscles, stabilize the work of the heart and blood vessels, and have an effect on the blood vessel system so that blood flow becomes smooth (Setiyoadi & Kushariyadi, 2011). According to Pratiwi (2017), when a patient experiences pain, when the compress is placed on the painful area, the heat will move to the body or skin, so that a conduction process occurs in the body, causing vasodilation of blood vessels and reducing muscle tension so that the muscles relax and the pain will be reduced.

Gout is also called gouty arthritis, a degenerative disease that attacks the joints, and is most often found in society, especially in the elderly. One way to treat it is to use herbal medicines from natural ingredients, by reducing the scale of gout pain. From the six journals that have been analyzed, there are herbal medicines that can reduce pain such as warm Moringa leaf compresses, in the water used for therapy has a temperature of 37-39C. Clove water decoction can reduce gout pain due to the active compounds in cloves such as volatile. The effect of ginger compresses can reduce joint pain because it has spicy, bitter, and aromatic properties from olerasin such as zingerol, gingerol, and shagaol. The addition of cinnamon to warm water further encourages a decrease in pain because cinnamon contains anti-inflammatory and anti-rheumatic which play a role in the joint healing process. The vitamin C content in pineapple which can reduce uric acid levels, helps increase the excretion (disposal) of uric

acid through urine, so that uric acid levels in the body are reduced. This soursop leaf decoction therapy is very effective for gout sufferers to reduce uric acid levels in sufferers.

CONCLUSIONS

Based on several journals obtained using various studies and herbal medicines used in each journal on Trends and Issues in Drug Processing in Home Care, it can be concluded that herbal treatment or home care results in a decrease in the scale of pain and the effects of home care medicines vary for the treatment of Gout or Gout Arthritis.

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