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Case Study on the Implementation of Evidence-Based Nursing: The Effect of Warm Lemongrass Decoction Compress on Pain Intensity in Gout Arthritis Patients

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ABSTRACT/ ABSTRAK

ABSTRACT. *Gout arthritis is a disease that causes pain in affected individuals. One non-pharmacological approach to reducing pain intensity in gout arthritis patients is warm compress therapy. Warm compresses can be combined with herbal plants to enhance their benefits, one of which is lemongrass (Cymbopogon citratus) through decoction. This case study aims to implement evidence-based warm lemongrass decoction compress therapy to reduce pain intensity in gout arthritis patients. This study employed a case study method, with a physical examination conducted using a head-to-toe assessment. Nursing diagnoses were determined based on the Indonesian Nursing Diagnosis Standard established by PPNI. The primary intervention was pain management using a non-pharmacological technique, specifically a warm lemongrass decoction compress. After six days of implementation, the pain was alleviated, with pain intensity decreasing from moderate to mild. The warm lemongrass decoction compress proved effective in reducing pain intensity in gout arthritis patients.*

Kata kunci:

Keperawatan berbasis bukti, Gout Artrhitis, Terapi Kompres Hangat, Air Rebusan Serai

ABSTRAK. Gout Artrhitis merupakan penyakit yang dapat menimbulkan rasa nyeri bagi penderitanya. Upaya penanganan yang dapat dilakukan untuk menurunkan intensitas nyeri pada penderita Gout Artrhitis yaitu dengan teknik nonfarmakologi seperti pemberian terapi kompres hangat. Pemberian kompres hangat juga dapat dikombinasikan dengan tanaman herbal untuk memberikan khasiat yang lebih, salah satunya dengan serai (*cymbopogan Citratus*) dengan cara direbus. Studi kasus ini bertujuan untuk menerapkan pemberian terapi kompres hangat air rebusan serai berbasis bukti sebagai upaya menurunkan intensitas nyeri pada pasien Gout Artrhitis. Metode yang digunakan pada penelitian ini adalah studi kasus.pemeriksaan fisik dilakukan dengan metode *head to toe* pada pasien Gout Artrhitis. Diagnose keperawatan berdasarkan Standar Diagnosis Keperawatan Indonesia yang ditetapkan oleh PPNI. Intervensi utama yang dilakukan adalah manajemen nyeri dengan tekhnik non farmakologi yaitu kompres hangat air rebusan serai. Setelah dilakukan implementasi selama 6 hari, nyeri teratasi dengan kriteria intensitas nyeri berkurang dari nyeri sedang ke nyeri ringan. Kompres hangat air rebusan serai efektif dalam menurunkan intensitas nyeri pada pasien Gout Artrhitis.

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INTRODUCTION

Degenerative diseases arise due to the deterioration of cellular functions, progressing from a normal state to a worsening condition. These diseases are among the leading causes of mortality. Epidemiologically, degenerative diseases fall under the category of non-communicable diseases, including heart disease, diabetes mellitus, obesity, cardiovascular diseases, osteoporosis, stroke, gout, and approximately 50 other degenerative conditions. These diseases commonly affect individuals as they age. Gout is one of the most prevalent degenerative conditions in Indonesia (Fatihaturahmi et al., 2023). Gout, also known as gout arthritis, is a degenerative disease that primarily affects the joints and is frequently observed in the elderly population (Wahyuni & Pariliani, 2021).

According to the World Health Organization (WHO) data from 2021, the global prevalence of gout arthritis is 34.2%. Gout is more commonly found in developed countries, such as the United States, where the prevalence reaches 26.3% of the total population. However, the incidence of gout is also increasing in developing countries, including Indonesia. The estimated prevalence of gout in Indonesia ranges between 12% and 34% among its 18.3 million residents, with this rise being attributed to unhealthy lifestyle habits (Riskesdas, 2020). In Indonesia, gout ranks as the third most prevalent non-communicable disease, affecting 51.9% of cases (Ministry of Health of the Republic of Indonesia, 2019). Additionally, in the Riau Islands Province, gout ranks as the seventh most prevalent disease, with an incidence rate of 1.9% among other diseases (Riau Islands Provincial Health Office Profile, 2021).

Gout arthritis can cause persistent pain, significantly affecting the comfort and well-being of individuals if left untreated. One non-pharmacological approach to reducing pain intensity in gout patients is warm compress therapy using lemongrass (Cymbopogon citratus) decoction (Aini et al., 2023). The use of warm compresses can be enhanced by incorporating herbal plants, such as lemongrass, which contains essential oils with beneficial components, including citronellal (32–45% antioxidant), geraniol (12–18% antioxidant), citronellyl acetate (2–4%), citral, cavicol eugenol, elemol, sesquiterpene (2–5%), kadinol, cadinene, vanillin, limonene, and camphene (Saku et al., 2019). Lemongrass decoction possesses chemical properties and pharmacological effects, characterized by its warm and slightly spicy nature. It acts as an anti-inflammatory agent, provides analgesic effects for pain relief, and improves blood circulation, making it effective in alleviating muscle and joint pain in gout patients, as well as general body aches and headaches (Salsabila, 2023).

Studies have shown the effectiveness of warm lemongrass compress therapy in reducing pain intensity. A study by Arif et al. (2023) demonstrated that applying a warm lemongrass compress once daily for three consecutive days (20 minutes per session) led to a significant reduction in pain intensity, where the first patient's pain scale decreased from 6 to 2 after the intervention. Similarly, research by Aini et al. (2023) indicated a positive effect of warm lemongrass decoction compress therapy on reducing gout arthritis pain. Likewise, Oktavianti & Anzani (2021) reported a significant impact of warm lemongrass decoction compress therapy on pain reduction in gout arthritis patients.

RESEARCH METHOD

This study employs a case study approach. Based on the implementation of Evidence-Based Nursing (EBN) in nursing practice, this case study follows five stages outlined by Polit and Beck (2019), which include formulating a question using PICO (Problem, Intervention, Comparison, Outcome), searching for relevant evidence, appraising the evidence, implementing the evidence, and evaluating the EBN implementation.

The first step in this study involves formulating the PICO question: "What is the appropriate intervention for patients with Gout Arthritis?" The next step is conducting an electronic literature search through platforms such as Google Scholar and ScienceDirect. The retrieved articles are then analyzed to identify references related to warm lemongrass decoction compress therapy for gout arthritis patients.

This study was conducted on gout arthritis patients within the Galang Baru Public Health Center service area over six days. Informed consent was obtained both verbally and in writing, ensuring that patients and their families were informed about the procedures and had given their approval. Data collection was carried out through physical examinations, medical records, observations, interviews, and relevant online literature sources. The nursing intervention to reduce pain intensity involved warm lemongrass decoction compress therapy. The procedure consisted of applying a warm lemongrass decoction compress for 10–15 minutes on the affected area. The final stage in the nursing process was evaluation, which was conducted daily following the implementation of warm lemongrass decoction compress therapy on the painful area.

RESULTS

Nursing Assessment

The assessment was conducted on a family residing within the service area of Galang Baru Public Health Center, Sembulang District, Batam City, in 2024 to collect data in accordance with the structured assessment framework. The collected family data included demographic, socio-cultural, and environmental aspects, as well as family structure and function, family stress, coping mechanisms, and family development. Individual assessments covered emotional, mental, physical, and social examinations.

The findings revealed that the patient had a history of gout for one year. Vital signs recorded included blood pressure of 128/85 mmHg, pulse rate of 84 beats per minute, respiratory rate of 21 breaths per minute, and body temperature of 36°C. The uric acid (UA) level was measured at 8 mg/dL.

According to the World Health Organization (WHO), the reference range for uric acid levels is 3.5–7 mg/dL for men and 2.6–6 mg/dL for women. Based on this reference, the patient's uric acid level exceeded the normal range, confirming a history of gout. The patient frequently experienced tingling sensations and pain in the feet and hands, which aligns with Dewi (2021), who states that gout is characterized by recurrent joint pain caused by the accumulation of monosodium urate crystals in the joints due to elevated blood uric acid levels. Under normal conditions, uric acid dissolves in the blood and is excreted through urine. However, in certain cases, the body produces excessive uric acid or fails to eliminate it

effectively, leading to buildup and subsequent joint pain. The most commonly affected joints include the big toe, knees, heels, and elbows, which appear red, swollen, inflamed, stiff, and warm, often accompanied by severe pain.

The assessment also found that the patient had a family history of gout, as their late mother had suffered from the condition. Both the patient and their family frequently consumed foods high in purines, which increases the risk of developing gout arthritis. This finding is consistent with Maria (2019), who stated that genetic factors play a significant role in the development of gout, and a high-purine diet is significantly associated with elevated uric acid levels.

Nursing Diagnosis

The primary complaint identified was that the patient frequently experienced pain in the feet and hands, along with tingling and numbness while walking. The same symptoms were also present in the hands. Several factors contributed to this condition, one of which was lifestyle. Lifestyle aspects included dietary patterns and physical activity. An uncontrolled intake of purine-rich foods was a significant dietary factor leading to elevated uric acid levels. Additionally, physical activity levels influenced the patient's lifestyle, contributing to the onset of gout.

The nursing diagnosis in this case was ineffective family health management. This issue was identified through family assessments, with data obtained from interviews and observations. The patient reported that health maintenance within the family was still very low, as family members frequently consumed foods that were restricted for gout patients and rarely had their uric acid levels checked at healthcare facilities (PPNI, 2017).

Based on observations of the patient’s family condition, an additional diagnosis was made: readiness for enhanced health management. This diagnosis was supported by data indicating that the patient’s family expressed a willingness to manage health issues and implement preventive measures by adopting a healthier lifestyle. The family planned to regulate their diet by avoiding prohibited foods and ensuring that such foods were not placed on the dining table. These daily life choices aligned with health program goals, which emphasize avoiding restricted foods and ensuring that they are not readily available within the household.

This finding aligns with Rachmita (2023), who identified ineffective family health management as a key nursing diagnosis. In that study, families lacked knowledge and understanding about the disease, including dietary restrictions and appropriate care for family members with gout. The nursing diagnoses identified in this study were based on the Indonesian Nursing Diagnosis Standard (SDKI), with characteristic limitations determined from the assessment data (PPNI, 2017).

Based on the patient assessment, the researcher concluded that the family nursing diagnoses for this case were ineffective family health management and readiness for enhanced health management.

Nursing Interventions

Nursing interventions conducted in this study share a common focus on health education, implemented in response to observed nursing problems. The interventions were developed based on the Indonesian Nursing Intervention Standards (SIKI), ensuring that each approach was grounded in theory and tailored to the patient's condition. According to SIKI (2018), the nursing interventions included health education addressing two health issues within the patient's family. The interventions aimed to resolve nursing problems through observation, therapeutic actions, education, and collaboration.

The primary nursing intervention plan for the patient's family involved assessing their knowledge of gout, observing the patient's dietary habits, providing health education on gout and dietary management, and motivating the patient to adopt appropriate dietary practices. Additional measures included monitoring uric acid levels, training the patient in warm compress therapy using boiled lemongrass water, evaluating the patient's pain intensity, and collaborating with the family to support the patient in accessing healthcare services, such as routine check-ups at the health center. Health education on gout, covering its causes, symptoms, prevention, dietary restrictions, and complementary therapies, was provided in the form of educational leaflets on gout and warm compress therapy using boiled lemongrass water.

Education is a planned learning interaction process designed to influence attitudes and skills at the individual, group, or community level, ensuring that people adopt the expected health behaviors (Parliani et al., 2021). It also serves as a means of increasing knowledge, attitudes, and skills through the reinforcement of specific practices and experiences. In nursing, health education involves providing necessary information to patients to support self-care and ensure continuity of healthcare services from medical facilities to home care (Madyaningrum et al., 2020). Healthcare professionals act as educators, where learning in health education encompasses all health stages and levels of prevention (Asniar et al., 2021). This approach aligns with Calista Roy's Adaptation Model, which explains that individuals can enhance health by maintaining adaptive behaviors and modifying maladaptive ones. The theory helps individuals adapt to physiological, self-concept, role function, and interdependence needs during health and illness (Tomey & Alligood, 2007 in Suryanti, 2018).

A key nursing intervention for reducing pain intensity was warm compress therapy using boiled lemongrass water, applied for 10–15 minutes. This intervention is supported by research conducted by Ahmad et al. (2023), which found that applying a warm lemongrass water compress once daily for three days significantly reduced pain intensity in gout patients. Similarly, Dewi (2021) reported that performing warm compress therapy for 10–15 minutes once daily for a week effectively reduced pain intensity in gout patients.

Based on this analysis, the researcher concluded that the nursing interventions implemented in the field aligned with existing theories and were supported by prior research. The application of warm compress therapy using boiled lemongrass water proved to be an effective complementary therapy for reducing pain intensity and was further reinforced by additional nursing interventions to improve patient outcomes.

Analysis of Nursing Implementation

Implementation is the step that follows program planning, aiming to foster a willingness to change within the family and promote their independence. Often, well-structured program planning is not accompanied by sufficient time to prepare for its implementation. In nursing, implementation consists of a series of activities carried out by nurses to help clients transition from their current health status to an improved condition, aligning with the expected outcome criteria (Ariyanti, Sri et al., 2023). For addressing ineffective family health management, the nursing implementation involved explaining the benefits of warm compress therapy using boiled lemongrass water. The family was encouraged to participate in the therapy process by preparing a washcloth or small towel, warm boiled lemongrass water, and a basin. After completing the therapy, the researcher advised the family to continue applying the therapy independently, with monitoring conducted over six days following the intervention. In implementing interventions for the nursing diagnosis of readiness for improved health management, the researcher provided educational materials in the form of a leaflet containing dietary guidelines for gout patients. The leaflet detailed restricted foods and those that are safe for consumption, helping the family make informed dietary choices to support the patient's condition.

Nursing Evaluation

To assess the success of the interventions carried out, an evaluation of the nursing actions was conducted. Family nursing interventions may not always be completed in a single visit; therefore, they were implemented in stages. The evaluation process utilized the SOAP (Subjective, Objective, Analysis, and Planning) approach. The evaluation results over six consecutive days showed positive outcomes. The assessment and education regarding gout and its management were well understood and accepted by the family. Mrs. R's family was able to explain and answer questions after receiving health education. Furthermore, they demonstrated a clear understanding of the warm compress therapy using boiled lemongrass water and were able to perform the procedure correctly.

Regarding the family's ability to recognize health issues related to gout, after receiving health education on gout, including its symptoms and management, Mrs. R's family demonstrated a solid understanding and was able to answer relevant questions. The evaluation of the family's role in caring for an ill member showed that after receiving education and implementing non-pharmacological management at home—applying warm compress therapy with boiled lemongrass water for six days, once per day—the patient reported a reduction in symptoms such as pain, tingling, and numbness in the hands and feet. Pain intensity measurements confirmed this improvement, decreasing from an initial score of 6 to 3.

Regarding the family's ability to make appropriate health decisions, the evaluation revealed that they successfully made dietary adjustments according to recommendations for gout patients. Additionally, in terms of utilizing healthcare services, the family demonstrated the ability to access and utilize local healthcare facilities by taking the patient to a nearby health center for further treatment.

Overall, the evaluation confirmed a significant reduction in the patient's pain intensity from an initial score of 6 to 3 after six days of warm compress therapy using boiled lemongrass water. This outcome aligns with a study conducted by Dwi, Lela, and Tini (2023),

which examined the effects of warm compress therapy with boiled lemongrass water (Cymbopogon citratus) on reducing arthritis gout pain.

DISCUSSION

On the final day of the home visit, observations were made regarding the family's understanding, the implementation of non-pharmacological therapy, and the measurement of the patient's pain intensity and uric acid levels. The results indicated that the family had fully comprehended gout and its management. The non-pharmacological therapy program was successfully implemented, resulting in a decrease in the patient's pain intensity from an initial score of 6 to 3 in the hands and feet.

This finding aligns with the study conducted by Dwi Noviyanti, Lela Aini, and Tini Yurika (2023), titled The Effect of Warm Compress Therapy Using Boiled Lemongrass Water (Cymbopogon citratus) on Reducing Arthritis Gout Pain at Merdeka Health Center, Palembang. Their study concluded that warm compress therapy with boiled lemongrass water significantly reduced arthritis gout pain in patients with hyperuricemia. Similarly, research by Oktavianti & Anzani (2021) on reducing arthritis gout pain through warm compress therapy with boiled lemongrass water in gout patients over a seven-day period also demonstrated pain reduction in the subjects.

After analyzing various related studies, it was found that the findings from these studies are consistent with existing theories and the nursing interventions applied in this study. The results reinforce the effectiveness of warm compress therapy using boiled lemongrass water as a non-pharmacological intervention for reducing pain intensity in gout patients.

CONCLUSION

The implementation of Evidence-Based Nursing (EBN) using warm compress therapy with boiled lemongrass water on gout arthritis patients for six days produced the expected results. This intervention aligned with the Indonesian Nursing Outcome Standards, demonstrating a reduction in the patient's pain intensity.

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