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Research Article

Application of Ergonomic Gymnastics Exercises for Lowering Acid Levels Urinary Tract in Patients with Gout Arthritis With Acute Pain In The Work Area Helvetia Community Health Center, Medan

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Abstract: Gout arthritis is a metabolic disorder caused by the accumulation of uric acid crystals in the joints, causing acute pain. One non-pharmacological intervention to reduce uric acid levels is ergonomic exercise. This study aims to determine the effectiveness of ergonomic exercise in reducing uric acid levels in gout arthritis patients. Methods: A descriptive case study design was used in six respondents with gout arthritis and acute pain. The ergonomic exercise intervention was performed three times a week for 20 minutes for one week. Uric acid levels were measured before and after treatment. Results: A significant decrease in uric acid levels was observed in all respondents. Conclusion: Ergonomic exercise is effective in reducing uric acid levels in gout arthritis patients with acute pain.

Keywords: Acute Pain; Ergonomic Exercise; Gout Arthritis; Uric Acid

1. Introduction

Gout Arthritis or also known as Arthritis Pirai is one of the form disease inflammation joints consequence accumulation crystal sour tendon in fluid extracellular caused by metabolism disturbed purine. Disease This generally attack joints small like finger hands, heels, toes, elbows and wrists hand. Condition this is very painful and can cause swelling, inflammation, and limitations movement (Widyanto, 2017; Siburian & Pasaribu, 2024).

According to WHO (2021), as many as 335 million people in the world suffer from gout arthritis, with majority case occurs in women aged 45–65 years. In Indonesia, the Basic Health Research (Riskesdas, 2018) recorded more from 700 thousand case, where North Sumatra occupies number tall with 45,972 cases, including 7,826 in Medan City. Data from the Helvetia Medan Health Center in 2023 showed There were 2,685 gouty arthritis sufferers.

Improvement level sour tendon can influenced by various factors, such as consumption food tall purine (offal, seafood), obesity, history medication and activities low physical condition (Kusumayani & Dewantari , 2017; Madyaningrum et al., 2020). If not handled with well, gout can cause complications Serious like damage joints, tophi formation, kidney stones, even fail kidney (Muniroh et al., 2023; Natania & Malinti, 2020).

One of proven non - pharmacological methods effective in lower level sour tendon is ergonomic gymnastics. This gymnastics combine movement muscles and technique capable breathing increase circulation blood and metabolism body. Some study show that ergonomic gymnastics in a way significant lower level sour veins and increase quality life sufferers (Sibuian & Pasaribu, 2024; Irdiansyah & Muhaimin , 2022; Meyta et al., 2023). Therefore that, research This done For evaluate effectiveness Ergonomic exercise training for gout arthritis patients with painful acute in the work area Helvetia Community Health Center, Medan.

2. Research Methods

This study used a descriptive case study design on six respondents with gouty arthritis with acute pain. Inclusion criteria were patients with uric acid levels ≥7.0 mg/dL, cooperativeness, and willingness to participate. exclusion is patient with comorbidities weight. Every respondents Participants participated in ergonomic exercises three times a week, each

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time lasting 20 minutes. Uric acid levels were measured 15 minutes before and 15 minutes after the exercises using a digital uric acid test meter.

3. Results

Table 1. Characteristics Respondents and Acid Level Results Tendon

Respondents	Age	Gender	Uric Acid Level Before (mg/dL)	Pain Before	After (mg/dL)	Pain After
1	58	Woman	7.8	8	6.0	3
2	62	Man	8.2	9	6.3	4
3	55	Woman	7.0	1	5.8	2
4	64	Man	8.0	8	6.2	3
5	60	Woman	7.6	8	5.9	3
6	59	Woman	7.5	7	6.1	2

4. Discussion

Research result show that implementation ergonomic gymnastics exercises during One week (3 sessions, 20 minutes per session) on six gout arthritis patients with painful I give significant impact to decline level sour veins and intensity pain . Average level sour tendon before intervention is 7.68 mg/dL and decreasing to 6.05 mg/dL after intervention. Decrease This show effectiveness non- pharmacological therapy such as ergonomic gymnastics in help management level sour veins in gout arthritis patients.

Besides that , the pain felt by the patient also experienced significant decrease in pain score . before intervention range between 7–9, and after intervention decrease to numbers 2–4 on all respondents Decrease This shows an average decrease painful by 5 points on a scale numeric 0–10. This means ergonomic gymnastics No only lower level sour veins, but also effective reduce symptom the main thing that bothers quality life patient , namely painful joints I .

Decline level sour tendon can explained through improvement circulation blood and function excretion kidney during activity physique light. Physical exercise like gymnastics improves perfusion kidneys and rate glomerular filtration, so that excretion sour tendon more optimal (Choi et al., 2018). Ergonomic gymnastics that combines movement stretching light with technique breathing in also contributing lower stress oxidative and activity xanthine oxidase, an enzyme that plays a role in production sour veins (Kim & Lee, 2022; Sato et al., 2023).

In line with Zhang et al.'s (2021) research, activity physique structured lower level sour serum urate of 1.2 mg/dL in the elderly. In study this, the average decline even reached 1.63 mg/dL only in One week , shows more response fast possibility Because characteristics of ergonomic gymnastics that focus on activation circulation peripherals and settings breathing . This technique is also believed to influence balance system nerve autonomous, activating branch parasympathetic, and reduces perception pain (Smith et al., 2022).

From the side nursing, approach this is very relevant Because can implemented with minimal cost, safe for elderly, and can done in a way independent and in group. Ergonomic gymnastics can integrated to in the promotional program health at the community health center and community elderly as form therapy complementary. This is also in line with research by Martínez Martínez et al. (2021) which shows that exercise light can lower painful chronicle joints in gout patients meaningful up to 30% after a number of Sunday .

However, research This own limitations like size sample small (n=6) and not existence group comparison (control). Also, the duration One Sunday Not yet Enough For evaluate effect term length and sustainability benefit therapy this. Therefore that, it is recommended done study advanced with design quasi-experiment or clinical trials controlled trials (RCT), longer duration length , and measurement of additional parameters like C reactive protein (CRP) levels as marker inflammation systemic.

5. Conclusion

Application of ergonomic gymnastics in a way regular during One Sunday with frequency three times in a week for 20 minutes per session proven effective lower level sour veins and

pain joints in patients with gouty arthritis painful acute. Average levels sour tendon decrease from 7.68 mg/dL to 6.05 mg/dL, and the score painful decrease from an average of 8 to 3.

This matter show that ergonomic gymnastics, as form non- pharmacological interventions, capable of increase metabolism body, repair flow blood peripheral, and increase excretion sour tendon through mechanism simple physiological However effective . Besides safe and cheap, this exercise can also implemented in a way independently by the patient or in community programs in services primary health.

Ergonomic gymnastics worthy considered as part from care nursing holistic, especially in gout arthritis patients, and can used as an educational strategy in promotion health as well as prevention complications term long

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