

Original Research Article

The effect of cryotherapy on the reduction of pain levels in gout arthritis patients in Jambi city

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ABSTRACT

Background: Gouty arthritis is a disease caused by metabolic disorders with an increase in uric acid concentration which causes local joint pain. The management of gouty arthritis with pharmacological therapy usually uses several conventional drugs. The high prevalence of chronic pain experienced by sufferers has made the patient undergo non-pharmacological therapy with cold compresses (cryotherapy) to be more appropriate for joints with signs of inflammation such as redness and swelling that occur in patients with rheumatoid arthritis. Ice (ice packs) and ice water in the treatment of injuries and treatment modalities commonly used in the management of pain and injuries.

Methods: This study used a quasi-experiment design with a two-group pre-test and post-test design approach. This study was conducted on patients with gout arthritis at PSTW Budi Luhur Jambi city with 16 respondent and control groups respectively. Data analysis in this study used univariate and bivariate using the independent t-test.

Results: The results showed the average decreased levels of pain in patients with gouty arthritis in the control group without treatment pretest 3:50 whereas for the average posttest 3:19 and the average value decreased levels of pain in patients with gouty arthritis in the intervention group before performed cryotherapy 3:38 while for the average after treatment is 1.38, the statistical test p value is 0.000

Conclusions: The influence cryotherapy to decrease rate gout arthritis pain in patients PSTW Budi Luhur in the city of Jambi.

Keywords: Rheumatoid arthritis, Cryotherapy, Pain

INTRODUCTION

Gouty arthritis is a disease caused by gang guan metabolic by increasing uric acid concentration. This is caused by the accumulation of joint crystals by monosodium urate and at a further stage degeneration of joint cartilage.¹ Gout arthritis is often found in the elderly, and includes four diseases that are closely related to the aging process. The world health organization declared gouty arthritis sufferers in the world per number in 1370 (33.3%), and increased in the adult population in the UK by 3.2% and the US by 9%. Indonesia alone has increased

by 11.9% in 2013 and 19.2% in 2019, while in provision Jambi own patients with gout arthritis of 8.0%.²

Hoesny et al states that in gout arthritis there is an increase in uric acid which causes pain in local joints.³ Light touch or pressure on the affected area is unacceptable during the attack. The attacks last for 3 to 14 days, after that time period, the disturbance will suddenly disappear, but will return at any time. In the end, repeated attacks will damage the joints and limit the range of motion (ROM) permanently.⁴

Management gouty arthritis can be done with pharmacological treatment and non-pharmacological. Pharmacological therapy usually uses several conventional drugs. The high prevalence of chronic pain experienced by sufferers along with the negative effects of dependence on painkillers has caused sufferers to have an interest in undergoing non-pharmacological therapy, which is an essential strategy in the management of gout arthritis.⁵ Non-pharmacological therapy in the form of interventions such as avoiding foods that contain high purine levels, including organ meats, liver, kidneys, brain, sweet breads and sardines, adequate rest, diet modification, reducing alcohol intake and losing weight in overweight patients. body proven effective, and the use of warm and cold compresses.⁶

Cold compresses are more appropriate for joints with signs of inflammation such as redness and swelling, while warm compresses are more appropriate for people with joint pain without symptoms of inflammation. If you experience joint pain accompanied by inflammatory symptoms such as rheumatism, gouty arthritis, and arthritis due to infection, choose a cold compress (cryotherapy) to reduce symptoms. While joint pain without symptoms of inflammation such as calcification of the joints, choose a warm compress to reduce the symptoms of pain.⁷

Cryotherapy is the use of ice (ice pack) and ice water in the treatment of injuries and a treatment modality commonly used in the management of injuries and pain. Physiologically ice reduces metabolic activity in tissues thereby preventing secondary tissue damage and reducing pain to the central nervous system. Cryotherapy can be applied in less than 48 hours, after the appearance of knee injury or arthritis.⁸

Research by Sastra et al explained that the results of statistical tests using the paired sample T-test obtained a p value of 0.000 ($p \leq 0.05$).⁷ The results of the study by 12 respondents obtained that the average pain intensity value before being given cryotherapy was 5.83 and after being given cryotherapy it decreased to 2.83 with a mean difference of 3. In line with the results of Rifan et al research, with the Wilcoxon cryotherapy test subjectively obtained Z value count (-3,300), with p value (0.001) < 0.05 and objectively count Z value (-3.409), with p value (0.001) < 0.05 .⁹ These results mean that H_a : accepted and H_o : rejected, which means there is a difference in pain before and after cryotherapy.

The research objective was to study the effect of cryotherapy on the reduction of pain levels in gout arthritis patients at the Tresna Werda Budi Luhur social home, Jambi city. Based on the above phenomenon, the researcher has conducted a study entitled "the effect of cryotherapy on reducing the pain level of gout arthritis patients in a novice lecturer scheme."

METHODS

Quantitative research with quasi-experimental design, control group design pre and post-test. This research was conducted at the Tresna Wherdha Budi Luhur social institution, Jambi city. The population in this study were 62 patients with gout arthritis who were in PSTW Budi Luhur Jambi city with a total sample of 16 for intervention and 16 for control. The sampling technique was purposive sampling. This study was conducted on March 10 to July 20, 2020. with inclusion criteria for the elderly with a diagnosis of gouty arthritis and the elderly who experienced pain due to rheumatoid arthritis for less than 48 hours (acute pain) and exclusion criteria for elderly with visual and hearing impairment. This study observed and examined the patient's uric acid levels. Secondary data is supporting data or complementary data from other parties taken at the PSTW Budi Luhur Jambi city agency. Research instruments: the research instrument used an observation sheet to determine the pain felt by respondents. Statistical test using t-independent.

RESULTS

According to table 1 found that more than half of the 78.13 respondents were female, the table 2 above proves that the average value of p decrees level of pain in patients with gouty arthritis in the untreated control group pre-test 3:50 whereas for the average post-test 3:19. Table 3 above proves that the average value decreased levels of pain in patients with gouty arthritis in the intervention group before performed cryotherapy 3:38 while on average after doing treatment equal to 1:38 and table 4 above shows that the statistical test to obtain p value 0.000 ($p \leq 0.05$) means that there is an effect of cryotherapy on the reduction of pain levels in people with gout arthritis at PSTW Budi Luhur Jambi city.

Table 1: Gender frequency distribution of rosella flower tea in patients with gout arthritis (n=32).

Gender	Frequency	Percentage (%)
Male	7	21.87
Female	25	78.13

Table 2: Average decreased pain levels in patients with gout arthritis pad a control group.

Variable	Mean	N
The mean reduction in pain levels in patients with pre-test arthritis gout in the control group.	3.50	16
The mean reduction in pain levels in patients with post-test gout arthritis in the control group.	3.19	

Table 3: Average decrease level of pain in patients with gout arthritis there is group I intervention.

Variable	Mean	N
The mean decreases in the level of pain in patients with gouty arthritis before performed cryotherapy	3.38	16
The mean decreases in the level of pain in patients with gouty arthritis after performed cryotherapy	1.38	

Table 4: Effect of cryotherapy on decreasing pain levels in gout arthritis patients in the control and intervention groups.

Variable	Mean	SD	P	N
The mean decreases in the level of pain in patients with gouty arthritis after performed cryotherapy in the control group and intervention	0.239	0.173	0.000	32

DISCUSSION

Based on the results of the study, the statistical test results obtained were p value 0.000 ($p \leq 0.05$) which means that there is an effect of cryotherapy on reducing pain levels in people with gout arthritis at PSTW Budi Luhur Jambi city in 2020.

This study is in line with research conducted by Khodijah regarding the effectiveness of cold compresses on reducing pain intensity in patients with gout arthritis at RSUP H. Adam Malik Medan, which concluded that patients experienced a very significant reduction in pain. Cryotherapy is the use of ice (ice pack) and ice water in medicine that is commonly used in pain management.¹⁵

The pain felt by individuals has different threshold and tolerance. Pain threshold is the point where the pain stimulus is felt as pain, whereas pain tolerance is more to the maximum intensity or duration of pain that you want to endure or endure before an action to relieve pain is taken.¹⁶

Cryotherapy is an application of low temperature or cold therapy used in pain management.¹⁷ The use of ice is very effective at reducing metabolic activity in the tissues thus preventing secondary tissue damage and reducing pain to the central nervous system.¹⁸

Sharma and Khandpur claim that cryotherapy is easy to do, safe and does not require a large amount of money even though cryotherapy has the possible risk of unwanted effects such as ice burns, nerve injury, reduced range of motion and allergic reactions, but it can be avoided by following the instructions. the use of this therapy, namely by cooling which is done periodically with intervals of intervals.¹⁹

CONCLUSION

The influence of cryotherapy to decrease rate gout arthritis pain in patients PSTW Budi Luhur in the city of Jambi.

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