



EFFECTS OF STRENGTHENING AND AEROBIC EXERCISES ON PAIN SEVERITY AND FUNCTION IN PATIENTS WITH KNEE RHEUMATOID ARTHRITIS: A LITERATURE STUDY TO FULFILL CHRONIC ELECTIVE COURSE TASK: CHRONIC ILLNESS

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ABSTRACT

To investigate the effects of two types of rehabilitation techniques, incl aerobic and strengthening exercises in patients with rheumatoid arthritis (RA). **Methods:** 48 male patients with knee RA were randomly divided into 3 groups, including aerobic exercise, strengthening training, and control. The first two groups completed their treatment protocol for 8 weeks, 3 days per week. Visual Analogy Scale, WOMAC questionnaire, 6 minute walk test, goniometer standards are used to assess pain severity, functional ability, gait ability, knee joint ROM at baseline and after implementing therapeutic interventions. Data were analyzed using analysis of variance one-way (ANOVA) at a significance level of $P < 0.05$. **Results:** Participants had a mean \pm SD age of 58.6 ± 7.8 years (height 1.72 ± 0.07 m, weight 81.0 ± 6.4 kg) without any significant difference between the three groups. Both therapeutic interventions significantly reduced pain ($P < 0.001$) compared with the control group, with no significant difference between both experimental groups. The patients who fulfill aerobic exercise achieved a higher level of function and gait compared with the group that strengthened significantly ($P < 0.001$). Range of motion knee (ROM) significantly ($P < 0.001$) increased in two groups experiment compared to control, experienced reinforcement group the increase was more significant ($P < 0.001$). **Conclusion:** It can be concluded that the aerobic exercise program improves functional abilities and walking in patients with knee RA, and exercise strengthening has a more efficient effect on knee ROM, both aerobic exercise and reinforcement can both relieve pain.

Keyword : aerobic exercise, knee joint, rheumatoid arthritis, strengthening exercises.

Introduction

Rheumatoid arthritis is a chronic (long term) disease causing pain, movement stiffness, limited joint function and swelling.¹ Fatigue is common in rheumatoid arthritis of moderate intensity or high.^{2,3} Factors affecting Rheumatoid arthritis related diseases (pain, age factor joint damage, disability), cognitive and behavioral (anxiety, depression, illness, beliefs

and stress), and personal factors (work / care responsibilities, environment, health, and loss social support).⁴ So far, treatment is done only to reduce symptoms and also pain. When Rheumatoid arthritis pain appears you will feel very uncomfortable, and also hinder in doing variety activity. Another danger is excessive muscle and joint pain. This pain will appear in the joints and muscles, so it can causing excruciating pain. This will get in the way in

moving, and also forces to stop doing activities¹.

At this time modern patterns and lifestyles are expanding inside society, but on the other hand this trend can be detrimental, because it can increase the incidence of vascular and heart disease.⁵ Rheumatoid arthritis can affect many of the small joints in the hand and the feet tend to be the most involved. Inflammation in rheumatoid arthritis can sometimes affect other organs such as the eyes and lungs.⁵ Management of joint pain can be given pharmacological therapy and non pharmacological therapy.⁶ Collaboration in providing pharmacological and therapeutic non pharmacological can reduce joint pain more optimally. Result of Several studies have shown that joint pain can be reduced with using non-pharmacological therapy, one of which is by doing physical training.⁷ Physical exercise is one way to improve cardiorespiratory fitness.

Cardiorespiratory fitness is an ability heart and lungs to absorb and utilize oxygen during exercise physical. Physical exercise can be in the form of aerobic or anaerobic exercise seen from intensity of exercise.⁹ According to Nuada in his 2013 research, decreased physical fitness can occur in various age groups and types gender . A person who has good fitness does not tire easily or tired after doing daily activities. However, the current RA fatigue this cannot be known properly due to lack of knowledge about causes of fatigue, as well as a lack of knowledge about its treatment as effective as possible. ^{2,7} Has an effect intervention for the treatment of fatigue in RA is of primary interest, but evidence of effective interactions ventilation is still limited. Similar to CFS RA therapy for cognitive effectiveness by providing behavioral therapy (CBT) and exercise. ⁴ Mechanisms are underlying fatigue in RA is unknown. Previous research supporting psychological influences, including several factors, for example pain and physical activity, but not inflammation, associated with fatigue in RA. ^{4,9}

Methods

This study is a literature review of several studies. The literature search was carried out using an electronic database PubMed, Cochrane Library, Embase, 48 male patients with knee RA randomized divided into 3 groups, including aerobic exercise, strengthening exercises, and control. The first two groups completed the treatment protocol them for 8 weeks, 3 days per week. Visual Analogy Scale, questionnaire WOMAC, the test runs 6 minutes, the standard goniometer is used to assess pain severity, functional ability, gait ability, joint ROM knee respectively at baseline and after applying therapeutic interventions. Data were analyzed using one-way analysis of variance (ANOVA) at the level significance $P < 0.05$

Results and Discussion

Based on the review results of the 5 selected articles, the results of the research are 5 the article shows that aerobic exercise has an effect in people with Rheumatoid arthritis. Study literature identifies the results of this study to confirm that study described in the journal there are several limitations in this study, including;

- 1) activities of daily life differed in controls or in patients experimental group. Then, these differences can affect the results, annoy them
- 2) even though the therapist tries hard to encourage the subject in a second experimental group to follow their own specific exercise with best efforts accurately, there is a difference in patient-self motivation. However, all patients completed their 8 exercise protocol Sunday.

Conclusion

In conclusion, it can be concluded that aerobic exercise and strengthening can reduce pain, improve functional status, ability to walk, and flexion and extension of the ROM of the knee joint in patients with knee RA. Due to the more precise effect of the aerobic treatment protocol on functional abilities, the use of aerobic exercise as part A basic program of rehabilitation can be recommended for individuals with weak physical abilities.

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