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PHYSIOTHERAPY MANAGEMENT FOR DEGENERATION KNEE OSTEOARTHRITIS BILATERAL

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Abstract

Intoduction: Osteoarthritis is a degenerative disease characterized by the deterioration of joint cartilage which causes bones to rub against each other and triggers pain, stiffness and movement disorders. Osteoarthritis comes from the Greek word osteo which means bone. arthro which means joint, itis which means inflammation.

Case Presentation : A 87 years old patient with Knee osteoarthritis come to PFDA Pekalongan Clinic. The patient had pain in both knees since 1 year ago. The patient feels pain in the knee when sitting to standing position, the patient complains of aches and pains in both knees when walking long distances. Pain is felt during activity. The intensity of pain increases at night. The patient has been to the doctor and has been injected 4 times.

Management and Outcome : IR, TENS and strengthening exercises using theraband with hip extension standing position with elastic band and knee extension sitting position with elastic band was performed for 30 minutes per session, 3 times a week for 4 weeks. Before the intervention, the patient still felt pain and impaired functional activities with a NRS value of 6 and a WOMAC score of 28 . However, after a 4-week intervention, there was a decrease in pain (NRS) to 2 and functional disability increased with a WOMAC score of 23.

Discussion : Exercise is carried out repeatedly according to a predetermined dose, This is where there is a decrease in subchondral inflammation resulting in decreased pain, and increased stability. To increase functional activity, theraband exercise provides direct stimulation to the skin receptors and which affects proprioception and maximizes sensation around the knee joint thereby increasing the performance of daily activities

Conclusion : It can be concluded that in this case, the provision of a physiotherapy intervention program in the form of: *IR, TENS and Theraband Exercises* performed 3 times a week for 4 weeks was able to reduce pain, increase muscle strength and increase functional activity.

Keyword : Osteoarthritis, Infra Red, TENS, Theraband Exercise

Introduction

Osteoarthritis is the most common disease condition and one of the leading causes of disability. This progressive and degenerative joint disease affects about 250 million people worldwide and more than 27 million people in the United States in the elderly. In the UK there are 1.3 million to 1.75 million people suffering from osteoarthritis. WHO data shows that in Indonesia the prevalence of osteoarthritis is 8.1% of the total population. The prevalence of osteoarthritis in Indonesia reaches 5% at the age <40 years, 30% at the age 40-60 years, and 65% at the age >61 years (Mora, et all, 2018)

Osteoarthritis is a degenerative disease characterized by the deterioration of joint cartilage which causes bones to rub against each other and triggers pain, stiffness and movement disorders. Osteoarthritis comes from the Greek word osteo which means bone. arthro which means joint, itis which means inflammation. Osteoarthritis is a chronic joint disease characterized by abnormalities in the cartilage (cartilage) of the joints and nearby bones. Cartilage (cartilage) is the part of the joint that covers the ends of the bones, to facilitate movement of the joint. Abnormalities in cartilage will result in bones rubbing against each other, resulting in symptoms of pain, stiffness and limitations of LGS.

Method

This study had been approved by the Health Sciences Faculty, Universitas Muhammadiyah Surakarta (1292.10/C.8-III/FIK/VIII/2021).

The research method used in this study is a case study. A case study was carried out in one of the Physiotherapy Clinics in Pekajangan, Pekalongan Regency on a patient Mrs. M is 87 years old and works as a housewife. In this study, the patient was given an intervention of Infra Red which in the case of osteoarthritis, Infra Red can provide a vasodilating effect, the purpose of which is to relax and accelerate blood circulation, applied with the luminous type with a distance of 60 cm on the knee with a duration of 15 minutes. Giving TENS is used to block pain and theraband exercises can increase muscle strength by fighting the elastic band retraction force which has been proven effective. IR and TENS were administered for 15 minutes in the knee area. Theraband exercises stimulate proprioception and relay information about joint position and movement to the cerebrum to help maintain a more accurate position. The patient participated in 30 minutes consisting of warm-up, main exercise and cool down, the exercise was carried out three times a week for 4 weeks. Warm ups and cool downs are given simple stretching without burdening the joints, then for the main exercise, theraband exercises are given with extension hip standing position with elastic band and knee extension sitting position with elastic band. The focus of the exercise is to strengthen the quadriceps muscle.

Case Description

Mrs. M is an 87 year old housewife. The patient had pain in both knees since 1 year ago. The patient feels pain in the knee when sitting to standing position, the patient complains of aches and pains in both knees when walking long distances. Pain is felt during activity. The intensity of pain increases at night. The patient has been to the doctor and has been injected 4

times. Currently, the patient is undergoing routine physiotherapy at PFDA Pekalongan. The patient's current state of pain has decreased when sitting to standing.

Outcome

Examination including vital signs in the patient showed normal in all aspects. On physical examination, the patient complained of pain in both knees, pain felt when sitting to standing, walking long distances. There is a decrease in muscle strength, there is weakness in the quadriceps and tightes muscles in the hamstring muscles, and there is already a varus deformity seen from inspection.

In addition, a specific examination is an examination of pain with an NRS scale with a scale of 0 (no pain) to a value of 10 (unbearable pain). Examination of muscle strength is evaluated using Manual Muscle Testing with a value of 0 (no contraction or muscle tone at all) to 5 (able to fight gravity and able to resist maximum resistance). Examination of Special Tests such as the Ballotement Test with the aim of knowing fluid in the knee joint and examination

Pain Classification	Information
Silent Pain	0
Tenderness	3
Motion Pain	6

of functional ability using the WOMAC scale with points Pain, Stiffnes and functional activity with a score of 0 (no pain) to 4 (very painful).

Pain with NRS

From the results of the pain examination above, it was found that the patient on behalf of Mrs. M with silent pain scores 0 (no pain), then on tenderness the patient gets a score of 2 (mild pain), and on motion pain gets a score of 3 (moderate pain).

MMT

Muscle Group	muscle strength	
	Dextra	Sinistra
Knee Flexor	3	3
Knee Extensor	3	3

On examination of muscle strength, the patient got a score for the right knee flexor 4 sinistra 4. In the knee extensor muscle group, the score was dextra 3 and left 3.

Functional Ability Examination using the WOMAC Scale

Painful	1. Walk	0	1	2	3	4	
	2. Climbing up the stairs	0	1	2	3	4	
	3. Activities at night	0	1	2	3	4	
	4. Rest	0	1	2	3	4	
	5. Static standing	0	1	2	3	4	
Amount							9
Stiffnes	1. Stiff in the morning	0	1	2	3	4	
	2. Stiff the next day	0	1	2	3	4	
Amount							2
Functional Activities	1. Climbing up the stairs	0	1	2	3	4	
	2. Get up from sitting	0	1	2	3	4	
	3. Stand up	0	1	2	3	4	
	4. Bending to the floor	0	1	2	3	4	
	5. Walk on the surface	0	1	2	3	4	
	6. Wake up from bed	0	1	2	3	4	
Amount							17
Total number							28

On functional examination using the WOMAC Index, a score of 28 was obtained where the interpretation was of moderate limitation.

Result

After being given an exercise program for 4 weeks, Mrs. M there is a decrease in pain with the NRS scale which was originally tenderness 3 decreased to 1, then on motion pain which was originally 6 decreased to 3. Then in muscle strength with MMT there was also an increase which was originally 3 increased to 4 in the knee extensor and flexor muscle groups. Functional ability using the WOMAC scale obtained an initial score of 28 (moderate limitations) which decreased to 23 (mild limitations).

Discussion

Older women who suffer from osteoarthritis are usually advised to rest without doing a lot of strenuous activities such as walking long distances, standing still for long periods of time and going up and down stairs. These patients experienced significant changes in all aspects such as NRS, MMT and WOMAC Scale.

Treatment options using infrared aim to reduce pain with thermal or heat effects so that vasodilation occurs in blood vessels so that blood flow increases to the irradiated area so that substance P can be removed through the tissue. This tissue activity can reduce pain (Kharismawan et al., 2017). Treatment using TENS is the combination of a small device to direct light electrical pulses to the nerves in the area of pain. During the treatment of stimulation with TENS, electrodes are placed or attached to the skin in the area experiencing pain (trigger point). TENS works by blocking pain impulses through stimulation of large nerve fibers, causing the body to release endorphins (neurochemicals that occur naturally in the brain that have pain relieving properties) and when pain is reduced, functional abilities will increase. Furthermore, the exercises used in this program are hip and knee extension exercises using a theraband where the focus of this exercise is theraband exercises where

movements are carried out on the knee extension, concentric contractions occur in the quadricep femoris muscle, flexion movements occur eccentric contractions in the hamstring muscles, sartorius muscles, and gracilis muscles. , popliteus muscle and gastrocnemius muscle. Exercise is carried out repeatedly according to a predetermined dose, This is where there is a decrease in subchondral inflammation resulting in decreased pain, and increased stability. To increase functional activity, theraband exercise provides direct stimulation to the skin receptors and which affects proprioception and maximizes sensation around the knee joint thereby increasing the performance of daily activities (Parmar, Nishad, Kulkarni, & Shevatekar, 2018).

Conclusion

It can be concluded that in this case, the provision of a physiotherapy intervention program in the form of: *IR, TENS and Theraband Exercises* performed 3 times a week for 4 weeks was able to reduce pain, increase muscle strength and increase functional activity.

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