

Original article

Effectiveness of Conservative Physiotherapy treatment in patients with osteoarthritis knee pain in the zawia

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Abstract:

Among musculoskeletal disorders knee Osteoarthritis (OA) is exceedingly prevailing articular disorder affecting people and it is a major cause of disability and socioeconomic burden. It is more common in women than men. Entities with knee OA must often undergo a variety of problems, such as pain and tenderness in joints, movement limitation, crepitus on movement, swelling, recurrent effusion, and local inflammation which ultimately leads to limitation in physical function, like lack of ability to perform Activities of Daily Living. The aim of present study seeks to assess the effect of conservative treatment in patients with knee osteoarthritis pain. Results suggested that Twenty patients with knee Osteoarthritis received treatment protocols The outcome measure Ontario and McMaster Universities index and the visual analog scale were used for data

collection before and after treatment and the physical therapy were used include pulsed ultrasound for 5 minutes ,electromagnetic therapy for 17 minutes. and exercises like isometric quadriceps, hip abduction, straight leg raising, weight, high knee extension and dorsiflexion, planter flexion) among 20 patients. In conclusion,

the physical therapy showed significant effect in reducing pain, stiffness and decrease level of disability and increase range of motion and lower extremity strength and improve health status and functional activity.

Keywords: Osteoarthritis, Ontario and McMaster Universities index, visual analog scale,

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Introduction

Osteoarthritis (OA) refers to a clinical syndrome of joint pain accompanied by varying degrees of functional limitation and reduced quality of life. It is by far the most common form of arthritis and one of the leading causes of pain and disability

worldwide. Any synovial joint can develop osteoarthritis but knees, hips and small hand joints are the peripheral sites most commonly affected. Although pain, reduced function and participation restriction can be important consequences

of osteoarthritis, structural changes commonly occur without accompanying symptoms. Such frequent discordance between osteoarthritis pathology, symptoms and disability means that each of these need separate consideration in epidemiological studies and clinical trials of osteoarthritis treatments(1).

Osteoarthritis is a degenerative joint disease, occurring primarily in older person, characterized by erosion of the articular cartilage, hypertrophy of bone at the margins (2),Osteoarthritis is considered to be the most common degenerative disease which affects more than 80% of the population above 55 years(3) ,The primary complaints of patients suffering from OA are pain, stiffness, instability, crepitus, and loss of function. In addition to this, impaired muscle function is frequently observed in patients with OA of the knee (4).The causes of osteoarthritis are believed to be multifactoral including genetic, environmental, metabolic, and biomechanical. Risk factors associated with osteoarthritis include age, obesity, low bone mineral density, joint hypermobility and instability joint trauma, immobilization, peripheral neuropathy due to syphilis, diabetes mellitus, leprosy, etc. Crystal formation in cartilage, and repetitive joint overuse. The degeneration or progressive loss of normal structure and function of articular cartilage is the fundamental tenant of osteoarthritis(5).The osteoarthritis is a widespread, slowly developing disease, with a high prevalence increasing with age. The most common large joints involved in the disease are the knees, where the disease is

particularly disabling because of difficulty in rising from a chair, climbing stairs, kneeling, standing, and walking,(6)

However, knee osteoarthritis is a major social and health problem and a cause of disability among the aging population, generating an increasingly heavy financial burden on health care systems in modern societies (7). Osteoarthritis of the knee is one of the five leading causes of physical disability in non-institutionalized elderly men and women. Knee osteoarthritis significantly contributes to functional limitations and disability in the elderly, affecting the ability to walk and climb the stairs more than any other disease. The risk for disability attributable to knee OA is as great as that attributable to cardiovascular disease and greater than that due to other medical conditions in the elderly. The incidence of symptomatic knee osteoarthritis is 1% per year, with a radiographic incidence of 2% per year (8). Medical care of patients with osteoarthritis is provided by a multidisciplinary team because of the variety of methods used to obtain a pain free knee, stable and mobile, i.e. the knee with optimum functionality.

Osteoarthritis is the single most common cause of disability in older adults, and most patients with the condition will be managed in the community and primary care.

The objective of the study to find out effect of conventional Physiotherapy in WOMAC, To find out effect of conventional Physiotherapy in PVAS And check a difference in pain and functional ability difference in pre and post by use in PVAS and WOMAC scale.

Materials and methods

A total number of 20 subjects the 3 of the male and 17 female with age above 35 (between 35 and 65 years) diagnostic with knee osteoarthritis .all patient were exposed to physical therapy program three times a week for four to seven

weeks. In this study shown effect of conventional physiotherapy treatment in patient with OA knee. And check a difference in pain and functional ability difference in pre and post by use in VAS and WOMAC scale.

Ethical approval

all patients were giving the consent form to answer the questionnaire before and after the physiotherapy program.

Data collection

All data were collected in the first session from. All patients were giving both questionnaires WOMAC and PVAS asked the level of pain they felt at knee region

and recorded . patient asked about each item in and giving them choice and choose appropriate options, repeated that in the last session of physical therapy program.

conservative management chronic knee osteoarthritis (OA). The time of PEM is 17 minute in session.

Materials Used

1. Pillows
2. Couch (Treatment bed)
3. Visual analog scale (VAS) for pain
4. Western Ontario and McMaster Universities index(WOMAC)
5. Pulsed Electromagnetic Therapy(PEM)

Pulsed Electromagnetic Therapy(PEM) has a potentially useful therapeutic tool for the

5. Continues ultrasound(US)

continuous ultrasonic waves of 1 MHz frequency and 2 W/cm² power were applied

with 5-cm diameter applicator for five min per session..

All treatments were applied once a day, for 3 days a week for 4 weeks, i.e. a total treatment duration of 12 days (12session)

Procedure

1. Isometric quadriceps exercise

The patient was asked to lie supine and relax completely. The therapist standing

side of couch and give commands to patient to press on the sand bag below her

knee and hold this position for five seconds. The patient was asked to repeat

this exercises ten times.



Figure 5: Isometric quadriceps exercise

2. High sitting knee extension

The patient was asked to high sitting position and relaxes completely. The therapist standing side of patient and give a command to do knee extension

and hold this position for five seconds. The patient was asked to repeat this exercises ten times.



FIG6: High sitting knee extension

3. Isometric quadriceps with planter and Doris flexion

The subject was asked to lie supine and relax completely. The therapist standing side of couch and give commands to patient to press on the send beg below her

knee and move towards her face and move towards floor and do 5 repetitions

of The patient was asked to repeat this exercises ten times



Figure7: isometric quadriceps with planter and dorsi flexion

4. Straight leg rising

The subject was asked to lie supine and relax completely. The therapist standing side of couch and give commands to patient to lift your leg up with straight

knee not bend your knee during lifting leg up and hold it for 5 second andthe patient was asked to repeat this exercises ten times



Figure 8: straight leg rising

5. Hip abduction

The subject was asked to side lying position and relaxes completely. The therapist standing behind the patient and give a command to patient to lift

your leg towards roof without bend your knee joint and hold it for 5 second and the patient was asked to repeat this exercises ten times



Figure 9: hip abduction exercise

Statistical analysis

All analyses were conducted using SPSS for windows (version 14). Alpha was set at

$P \leq .05$ for all comparisons.

Statistics was performed using paired t- test individual PVAS& WOMAC

- T- test taken for subjects
- Calculate p-value

Results:

An experimental study was performed in which PVAS and WOMAC was assessed in patient with OA knee and

the results shows there was a significance difference between pre and postPVAS and WOMAC in patient with OA knee.

Table1: comparison of PVAS in patient with OA knee

Variables	Mean		SD		T -Value	P Value Level of significant
	Pre	Post	Pre	Post		
NPRS					14.2	0.000
	7.40	5.86	1.05	1.20		

Table 1 show the results of PVAS for pre and post OA knee joint with a mean (SD) were 7.40 (1.05) and 5.86 1.(1.20) respectively with p-value (0.000) > 0.05.

this means that there was a significant difference between pre-and post- PVAS. The T values was 14.2.

Table2 Comparison of WOMAC (Pre and post) in patient with OA knee

Variables	Mean		SD		T Value	P Value Level of significant
	Pre	Post	Pre	Post		
WOMAC	43.40	34.60	4.55	5.84	5.6	0.000

the results of WOMAC for pre and post OA knee joint with a mean (SD) were 43.40 (4.55) and 34.60.(5.84) respectively with p-value (0.000) > 0.05. this means

that there was a significant difference between pre-and post- PVAS. The t values was 5.6.

Discussion

pain, stiffness and physical function were taken through Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) (9) .the physical therapy program which applied to the patient include pulsed ultrasound 5 minute,17 minute of electromagnetic therapy and exercise like isometric quadriceps, hip abduction, straight leg raising, straight leg rising with weight, high knee extension ,dorsiflexion and planter flexion).the short - term physical therapy program include three session a week lasts for four weeks. The descriptive data for each outcome pre and post therapy showed the mean value of WOMAC pre therapy was 43.40 with relatively small standard deviation of4.55, in the post therapy the mean was 34.60 and only 5.84 standard deviation. The NPRS in pre therapy results the mean

Osteoarthritis is most common form of arthritis. It is progressive joint disorder characterized by gradual loss of cartilage. Osteoarthritis is chronic condition of joint, the most commonly affected of which is knee. This characterized by joint pain & in more advanced stage, joint deformities contracture & muscle atrophy leading to severe disability.

The current study investigate effectiveness of short term physical therapy program on pain intensity and functional activity in knee osteoarthritis patients at National Rehabilitation Centre in Zawia,twenty patients evaluated with knee osteoarthritis among age (30 to 65 years) participant in study. visual analog scale (VAS)used to measures intensity of pain pre and post treatment Base line assessment of Patient’s

more in the KKMT group than the Conventional therapy group, but there was no statistically significant difference in these scores between the Conventional therapy and KKMT group versus Conventional Therapy group alone KKMT Mobilization, when added to Conventional KKMT Mobilization, when added to Conventional Physiotherapy greatly, improves the effectiveness of treatment of knee osteoarthritis with respect to pain, stiffness, and function and equally improve the ROM of the knee. From this evidence, it clear that Conventional Physiotherapy combined with KKMT mobilization improve the effectiveness of the treatment program for knee Osteoarthritis, the researcher recommend to the Physiotherapist to integrate KKMT mobilization in the plan of treatment of knee OA. also according to(11) showed manual therapy is highly effective and useful treatments for knee osteoarthritis. It is common observation that exercise therapy can be combined effectively with manualtherapy.results of these studies showed good effect of exercises in reduce pain and increase functional activities . this means that the results are consistent with this study in terms of the effect of exercise on patients with knee osteoarthritis .another A

The results of the present study showed that there is a reduction in knee pain and improvement in functional ability by the conservative physiotherapy treatment in patients with osteoarthritis knee joint.

The current study also revealed that there was a significant difference between

Pre and post treatment by using the PVAS and WOMAC scales.

value was 7.40 with standard deviation 1.05.in post therapy mean value was 5.86 and standard deviation is 1.20.

The pre and post intervention measurements for WOMAC and NPRS was statistically analyzed using pair t-test which showed level of significant obtained in the WOMAC pre and post measures highly significant as $P=0.000$ which is less than $P >0.005$. Similar level of significant obtained in the NPR ($P= 0.000$)which means that patients have good improvement after receiving such a multi modalities of physiotherapy in each session regarding pain complains and level of disability.

In the present study the gender distribution showed more number of females affected with osteoarthritis of knee than the male subjects. comparative with this study also showed a p-value (0.000) > 0.05 , which shows significant different between pre and post Womac score .also this study showed more number of female with knee osteoarthritis than male. Despite the different physiotherapy modalities used in this RCT compared to the current, the two studies approved using several types of physiotherapy improve the pain intensity and functional ability of the knee osteoarthritis patients. Another RCT conducted by(10) aimed to evaluating effectiveness additional Krishna's Kinetic Manual Therapy (KKMT) and conventional physiotherapy in pain, stiffness, function and knee ROM in patients with knee osteoarthritis during a period of three months Results show significant improvement of WOMAC, VAS and Knee ROM in both groups. The WOMAC, ROM and VAS scores improved

References

1. Murphy L, Schwartz TA, Helmick CG, Renner JB, Tudor G, Koch G, Dragomir A, Kalsbeek WD, Luta G, Jordan JM. Lifetime risk of symptomatic knee osteoarthritis. *Arthritis Rheum.*, 2008; 59(9):1207-1213.
2. Srinivas, PJ, Mondam, G, SyedSaib,E,Wani,K, and Surendra,SA(2012) Effect of two different manual therapy protocols on osteoarthritic knee pain & functional disability:a comparative study.
3. Vishakha M,Dekker J, Oostendorp R, Bijl D, Voorn T, LemmensJ,etal.The effectiveness of exercise therapy in patients with Osteoarthritis of the hip or knee: A Randomize control trial. *J Rheum.* 2017; 25(12):2432- 39.
4. Henrik Rogind(1998)Parment S, Lynn C, Glass RM. Osteoarthritis of the Knee. *JAMA*, 2003;289(8):1068.
5. LiikavainioDN, Petrella RJ.Is exercise effective treatment of osteoarthritis of the knee? *West J Med.* 2008; 174(3): 191–96
6. Judith,M. Epidemiology of Osteoarthritis. In: Johanne, M. P. & Jean, Understanding Osteoarthritis from bench to bedside, Research Sign Post, Kerala, India, pp. 1-26, 1992.
7. Mondam, S., Babu, V.,& Srikanth, K. B. (2012). A comparative study of proprioceptive exercises versus conventional training program on osteoarthritis of knee, 31, a35
8. Choudhary,S,&Kishor, L(2013). National Institute for Health and Care Excellence, Management of Osteoarthritis,95, 113-121.
9. Alghadir, A. &Daud, M. “A comparative study of joint mobilization and conventional physiotherapy in knee osteoarthritis”. *International Journal of Physiotherapy*, III (2), pp. 159-162, 2015.
- 10.Felson,D,T& Hunter D,J. Osteoarthritis. *BMJ* 2006; 332: 639-42.
11. Vishakha M,Dekker J, Oostendorp R, Bijl D, Voorn T, LemmensJ,etal.The effectiveness of exercise therapy in patients with Osteoarthritis of the hip or knee: A Randomize control trial. *J Rheum.* 2017; 25(12):2432- 39.