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To study the effect of conventional treatment regimen in management of osteoarthritis

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Abstract
Aims & Objectives: To study effects of conventional physical therapy in patients having knee osteoarthritis Sample size: 40 patients (20 in each group), Study Design: Interventional Study, Study setting: A 1950 bedded tertiary care teaching hospital with well-equipped medical and surgical intensive care unit and musculoskeletal department, Sample and Sampling method: 40 patients were randomly selected and assigned in 2 groups, as Group 1(control group), Group 2 (Interventional group) in equal numbers **Exclusion Criteria:** The total subjects of 40 were included in the study the inclusion & exclusion criteria were Inclusion Criteria: Patient diagnosed as a case of osteoarthritis, Subjects with both grade 2 and grade 3 OA knee & Exclusion Criteria: Any inflammatory or other unilateral band bilateral Knee osteoarthritis, Patients in age group of 35-70 years, Patient with loco motor diseases, Any significant peripheral and CNS disease, Any other joint involvement, Uncontrolled hypertension and cardiac problem, Any previous knee injury, Patient less than 45 yrs and more than 65 yrs. Result: Here, in the above table shows the NPRS for pre & post of OA knee joint patient is7.400 (mean) and 5.90 (mean) respectively. (W value-210.0 p value-o.ooo1). Here, in the above table shows the WOMAC of pre & post of OA knee joint patient is 43.40 (mean) and 34.60 (mean) respectively. (W value-191.0 p value- 0.0004)
Conclusion: Conventional exercise is effective in management of osteoarthritis knee.

Keywords: conventional treatment, osteoarthritis, static quadriceps

Introduction

Osteoarthritis (OA) is a degenerative articular disease which is slowly evolving that appears to originate in the cartilage by breaking down and affects the underlying bone, soft tissues, and synovial fluid. OA is characterized by degradation of the articular cartilage, resulting in alteration of its biomechanical properties. There are alternations of the tensile, compressive, shear properties and hydraulic permeability of the cartilage, thus increased stiffness of the subchondral bone (1).

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 (2). Muscle spindles are sensory receptors within the belly of a muscle, which primarily detect changes in the length of this muscle. They convey length information to the central nervous system via sensory neurons. This information can be processed by the brain to determine the position of body parts[59]. Muscle spindles are encapsulated by connective tissue, and are aligned parallel to extrafusal muscle fibers. Muscle spindles are small sensory organs that are enclosed within a capsule. They are found throughout the body of a muscle, in parallel with extrafusal fibers (typical muscle fibers). Within a muscle spindle, there are several small, specialized muscle fibers known as intrafusal fibers. Intrafusal fibers have contractile proteins (thick and thin filaments) at either end, with a central region that is devoid of contractile proteins. The central region is wrapped by the sensory dendrites of the muscle spindle afferent.

Material and Methods

Source of data

All patients from orthopedics department and outpatient were referred to OPD of RNPC who were diagnosed as osteoarthritis knee.

Method of collection of data

Sample size: 40 patients
Study Design: Interventional.
Study setting: A 1950 bedded tertiary care teaching hospital with well-equipped medical and surgical intensive care unit and musculoskeletal department.

Sample and sampling method: 40 patients were randomly selected.

Procedure

All the participants with pain in the Knee joint and who were clinically diagnosed as Osteoarthritis of Knee were screened

after finding their suitability as per the inclusion and Exclusion Criteria. The total subjects of 40 were included in the study the inclusion & exclusion criteria were Inclusion Criteria**:** Patient diagnosed as a case of osteoarthritis, Subjects with both grade 2 and grade 3 OA knee & Exclusion Criteria were**:** Any inflammatory or other unilateral band bilateral Knee osteoarthritis, Patients in age group of 35-70 years, Patient with locomotors diseases, Any significant peripheral and CNS disease, Any other joint involvement, Uncontrolled hypertension and cardiac problem, Any previous knee injury, Patient less than 45 yrs and more than 65 yrs. The purpose of the study was the patient was unknown of the study and a signed informed consent was obtained from all the patients who volunteered for the study.

Group 2- Interventional group-conventional physical therapy (n=40).

Pre assessment was done using womac score and follow up post treatment assessment was done every week using womac score and continued till the end of fourth (4^{th}) week.

Materials used for assessment

Consent form-a signed consent form from the subjects, Assessment proforma, Western Ontario and McMaster University Osteoarthritis Index (WOMAC index),Universal Goniometer, Pillow**,** Towel, Pen, Pencil, Towel, Scale, Plinth, Sand bag, Evaluation form.

Intervention Group: Isometric quadriceps exercise.

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 hold this position for a 5 second and this exercises do 10 repetitions.

High sitting knee extension

The subject 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 a 5 second and this exercises do 10 repetitions**.** These exercises along with hot fomentation were given to the participants on alternate days (3 days in a week) for four weeks.

Strengthening of Vastus medialis

The participant was asked to be in supine position comfortably with pillow below knee so that knees bent to 30^0. 30^0 angle was measured with the help of goniometer. Patient was instructed to straighten the knee slowly with hip adduction and internal rotation and asked to maintain the contraction for 10 sec. The exercise was repeated 10 times with 10 sec rest in between each repetition. Progression of exercise was done by increasing duration of contraction and number of repetition. These exercises along with hot fomentation were given to the participants on alternate days (3 days in a week) for four weeks.

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 these exercises and this exercise do 10 repetitions.

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 and this exercises do 10 repetitions.

Result analysis

The study was performed in which NPRS and WOMAC was assessed in patient with OA knee. The pre and post values for NPRS and WOMAC were taken for patient with OA knee.

Statistics was performed using paired wilcoxan test individual NPRS & WOMAC

- WILCOXAN test taken for subjects
- Calculate w-value 210.0
- The data was analyzed by using wilcoxan and results were obtained:
- There was significance difference between pre and post

NPRS and WOMAC in patient with OA knee.

Inter group comparison of NPRS in patient with OA knee

Table 1: Inter group comparison of NPRS in patient with OA knee

Variable	Mean		SD		W value	P value	Result
	Pre	Post	Pre	Post			
NPRS	7.400	5.90	0.8208	1.021	210.0	0.0001	Significant

Here, in the above table shows the NPRS for pre & post of OA knee joint patient is 7.400 (mean) and 5.90 (mean) respectively. (W value-210.0 p value-o.ooo1)

Table 2: Inter group comparison of WOMAC in patient with OA knee

Variable	Mean		SD		W value	P value	Result
	Pre	Post	Pre	Post			
WOMAC	43.40	34.60	3.705	5.605	191.0	0.0004	Significant

Here, in the above table shows the WOMAC of pre & post of OA knee joint patient is 43.40 (mean) and 34.60 (mean) respectively. (W value-191.0 p value- 0.0004)

Discussion

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 component physical outcome measure was taken is pain and functional outcome measure taken WOMAC. The result of our resent study support the experimental hypothesis for NPRS (W- 210.0) and WOMAC (W- 191.0). The finding of these study is improve the functional ability and reduce the pain by conservative treatment in patient with OA knee.

This exercise programmed has specific exercises to help maintain your range of joint movement, and strengthen the muscles around your knee. In order to achieve these goals it is important to ensure the exercises are performed with a good technique. The following leaflet includes some exercises to help in your rehabilitation.

Osteoarthritis of the knee impair quadriceps function which in turn impairs the patient balance and gait reducing their mobility and function the intent of proprioceptive exercises in to expose people to activities that challenge the stability of the knee and balance in a controlled manner during rehabilitation. Current physical therapy interventions for knee osteoarthritis focus on decreasing pain and improving knee range of motion, muscle strength, balance, and functional mobility.

The quadriceps muscle strength in patient who with osteoarthritis of knee has also been seen to be consistency lower due to disuse atrophy secondary to joint pain, quadriceps inhibition, delayed activation of quadriceps onset and muscle impaired proprioceptive activity. Decline in the mass and strength in one prominent characteristics of natural aging. Strength loss can limit the activities of daily living and mobility increase the chance of falling and possibly even cause a loss of mechanoreceptors that can further decrease proprioception and balance and this all things are improve by the exercises and improvement in patient with OA This exercise programmed has specific exercises to help maintain your range of joint movement, and strengthen the muscles around your knee. In order to achieve these goals it is important to ensure the exercises are performed with a good technique. The following leaflet includes some exercises to help in your rehabilitation and also reduction in the pain is also improve the persons functional activity due to reduction in pain also reduction in NPRS as well as due to reduction in pain improve functional ability so reduction in WOMAC so the conservative physiotherapy treatment in patient with OA knee pain is improve patient functional activity and reduce pain.

Conclusion

The study is conducted to make an attempt to provide an effective method for the treatment of osteoarthritis knee patients so that it will be useful to find out any co-relation between the methods used for management of patients in improvement & diagnosis in case of osteoarthritis knee.

Present study shows conventional exercises is effective mode of treating patients with knee osteoarthritis in patients having knee osteoarthritis

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