To Study the Effects of Muscle Energy Technique with Conventional treatment along with Cellular Nutrition in Patients with Knee Osteoarthritis

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Abstract

Background: Osteoarthritis (OA) is also called Osteoarthrosis or degenerative joint diseases; itrepresents a vital cause of dejection and defects. With the help of Muscle Energy Technique (MET) claimed to be effective for improvement in flexibilityand strength along with cellular nutrition and conservative treatment in knee Joint.

Methods: According to the inclusion and exclusion criteria; 60 unilateral participation OA knee patients were randomly placed into two groups, pre and post-test calculation of KOOS scale and knee extension and flexion were done. Group A had MET with conservative treatment along with cellular nutrition.

Conclusion: Both Group A and B improves the strength and flexibility of knee joint but inGroup A was shown more improvement than Group B.

Key words: Knee osteoarthritis, MET, conservative treatment, cellular nutrition, KOOSscale, flexion, extension

Introduction

A involve the breakdown of cartilage in joints, which causes bones to rub together. Sometimes bones grow abnormal spurs in response to cartilage breakdown.[1,3] This can make joints swollen, painful and stiff. Arthritis introduce to biomechanical changes within a joint. Osteoarthritis (OA) is the most frequent kind of arthritis.[11,13] There are a number of advance factors to osteoarthritis, including age. Its most prominent feature is the progressive destruction of articular cartilage which results in impaired joint motion, severe pain, and, ultimately, disability.[1,3,16]

Cellular nutrition is providing all nutrients to the cells at optimal levels. This approach could correct nutritional deficiencies over a few months. Cellular nutrition helps to clean the cells of toxins to keep them active and be able to absorb all the essential nutrients it needs to function properly. Cellular nutrition is obtained only by a few companies worldwide. These few companies have a seed-to-feed philosophy, meaning they are growing the plants in-house, extraction of the super nutrients and manufacturing of high-quality food supplements is done in-house as well as research and innovation, in order to control quality, effectiveness and cost.[2,8,10]

Muscle energy techniques use an active contraction of deep muscles that attached near the joint and whose line of pull can cause the desired

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accessory motion. The technique requires the therapist to provide stabilization to the segment on which the distal aspects of the muscle attaches. A command for an isometric contraction of muscle is given, which causes the accessory movement of joint. [3,6,12]

Conservative treatment includes physiotherapy means. It aims at reducing the pain and symptoms and introducing active exercises. Patients with osteoarthritis of hips and knees should avoid sitting at soft, deep armchairs.They should sit on simple, hard chairs, sleep on hard beds, remember about correct posture, remain physically active and decrease stress onto the joint byhaving some rest and later by using a cane or crutches.[4,9,14]

The Knee Injury and Osteoarthritis Outcome Score (KOOS) is a questionnaire orient to assess short and long-term patient-relevant outcomes following knee injury. The KOOS is self-management and assesses five outcomes: pain, symptoms, activities of daily living, sport and recreation function, and knee-related quality of life. The KOOS meets basic criteria ofoutcome measures and can be used to analyze the course of knee injury and treatment outcome.[5]

Materials and Methods

After the baseline measurement we proceed the treatment protocol.

Include 60 patients, age group of 40-70 years random and equally divided intogroup A and group B, each group divided in n=30.

Group A having those patients who have MET+ conservative treatment +cellular nutrition.

Group B having those patients who have conservative treatment +cellularNutrition.

CONSENT: Informed consent was taken from all participants in the study for the publication work in the journal.

MET Exercise

PIR Exercise

Post Isometric Relaxation is a technique that was later expands by Karel Lewitt. Post Isometric Relaxation (PIR) is the effect of the decrease in muscle tone in a single or group of muscles, after a small period of submaximal isometric contraction of the same muscle. PIR tasks on the concept of autogenic inhibition. The PIR technique is performed as follows:

The hypertonic muscle is taken to a length just low pain, or to the pointwhere resistance to movement is first noted.[3,6,12,15]

A sub maximal (10-20%) contraction of the hypertonic muscle is act away from the barrier for between 5 and10 seconds and the therapist applies resistance in the opposite direction.[13]

The patient must inhale during this effort. After the isometric contraction, the patient is asked to relax and exhale while doing so. Following this, a forbearing stretch is applied to take up the slack till the new barrier. Starting from this fresh barrier, the procedure is repeated two or three times.[3,6,12,18]

Conservative Treatment

The moist hot pack or fermentation is a moist heating technique which holds its heat for a longer time, moist heat packs are typically used for about 10 minutes. The prolonged application of a dry heat pack has advantages for certain conditions, but moist heat packs produce more of a skin-reddening effect which can relieve internal blood congestion from inflammation. Moist heat aids in the heat's ability to penetrate into the muscles, and therefore, may provide better pain relief in some instances, and also has the beneficial effect of increasing blood circulation in the skin. The moist hot pack technique works best to relieve pain and increase flexibility when it is combine with other modalities such as physical therapy and exercise. Using hot packs isappealing to many people due to the fact that it's non-invasive and non-pharmaceutical intervention.[4,9,16]

Quadriceps Setting exercise helps to strengthen the quadriceps muscle (the big muscle on the front of the thigh), an important stabilizer of the knee. Lie on your back with the leg you want to exercise straight. Place a small rolled towel underneath the knee. Slowly tighten the muscle on top of the thigh (quadriceps) and push the back of the knee down into the rolled towel. Hold contraction for 5 seconds and then slowly release, resting 5 seconds between each contraction. Perform10 repetitions,once daily.[4,9,14]

SLR also helps to strengthen the quadriceps muscle. Lie on your back with the leg you want to exercise straight. The other knee should be bent to support your lower back. Tighten the muscle on the top of your thigh and lift to the level of your other knee. Slowly lower your leg. Perform 10 repetition,1 time daily.[4,9]

Knee OA, the hamstring muscles tend to get tight. This exercise helps to stretch the hamstring muscles, improving the range of motion of your knee and helping you feel more flexible. Lie on back with the leg to be stretched straight with a strap around the bottom of your foot. Using the strap for support, elevate your leg until you feel a gentle stretch at the back of knee and thigh.[4,9]

Hold for up to 30 seconds. Slowly lower. Perform10 repetitions,once daily.

Gluteus Strengthening exercise will help strengthen the gluteus muscles (the large muscles at the back of your hip), aiding in trunk control, leg stability and balance while you stand and walk. Lie on your stomach with hips over a pillow to support your back. Keeping the leg to be exercised straight, squeeze buttocks and lift the leg slightly off the bed. Slowly lower.[4,9], Perform10 repetitions,once daily.

Calf Stretch exercise will help lower leg and ankle stay flexible, helping to improve balance and the way walk. Stand facing a wall with the leg to be stretched behind and the other leg in front. Place hands or forearms on the wall for support. Slowly bend the front knee, keeping the heel of the leg behind down on the floor. Once feel a stretch in calf muscle at the back of ankle, hold for 30 seconds. Slowly relax. Perform 3 repetitions, once daily.[4,14]

Calcium is an essential mineral that maintains strong bones and teeth; regulates muscle. Experts recommend 1,200 mg a day for healthy adults, but people with inflammatory arthritis may need more – up to1,500 mg for men and postmenopausal women.

Low-fat milk, yogurt and cheese; leafy greens and vegetables such askale, broccoli and spinach; canned sardines and salmon with bones; calcium-fortified cereals, soy products (including tofu), orange juice and nut milks.[2,8,10]

Vitamin A is an antioxidant that maintains the immune system protects eyesight; keeps skin and tissues of the digestive tract and respiratory system healthy; and supports bone growth. Recommended dietary allowance (RDA) = 3,000 international units (IU) for men and women .Liver, eggs, fortified milk; richly colored fruits and vegetables, such a carrots, cantaloupes, sweet potatoes and spinach.[2,8,10]

Result and Discussion

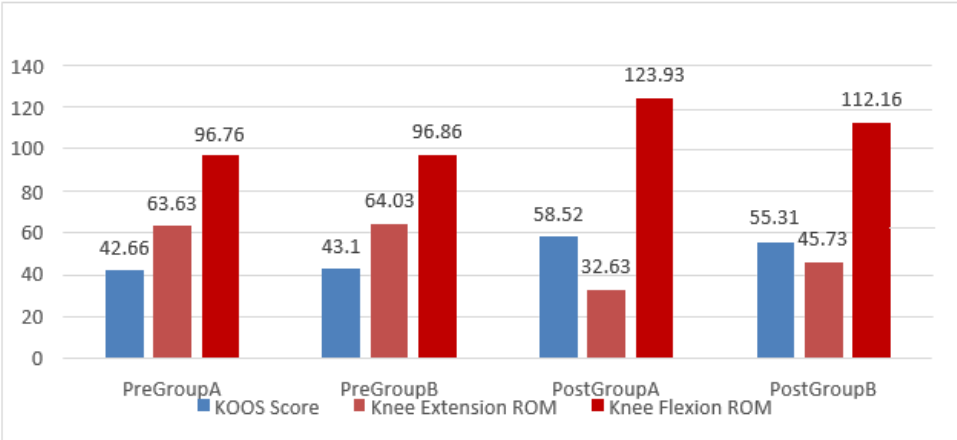
In the present study, for data analysis SPSS v25 was used. Both the groups had 30 subjects each and all the subject were assessed pre and post treatment by Knee Injury and Osteoarthritis Outcome Score (KOOS) & Goniometer for Knee Flexion -Extension ROM.

Age and Gender distribution comparison for Group A and B was done using the descriptive statistics.

As the no. of samples in one group was 30 (<100), therefore Shapiro-Wilk test was used in the study for normality test to determine the significance of data of Group A and B was done which showed in-significant values i.e., more than 0.05.

Therefore, in the present study both Group A and Group B were analyzed using parametric test. To compare the mean values within the groups Paired t-test was applied while to compare the mean values between the groups i.e., Group A and B; independent t-test was applied.

Graph 1 showing Comparison of Mean values of Pre- Pre & Post-Post data of KOOS Score, Knee Extension ROM &Knee Flexion ROM in Group A & Group B.



In the present study, for data analysis SPSS v25 was used. Both the groups had 30 subjects each and all the subject were assessed pre and post treatment by Knee Injury and Osteoarthritis Outcome Score (KOOS) & Goniometer for Knee for between group comparison Independent t-test was applied which showed significant difference in KOOS Score, Knee Extension ROM & Knee Flexion ROM post treatment as compared to baseline i.e. p=value showed 0.001. So, when post-test mean comparison was done of group A and B showed Group A more effective improvement than Group B. In future this study may leads to strengthen the joint of knee osteoarthritis patient though which patient will concern about his/her health diet and strengthening exercises of knee joints. In past article, there is some conflicts about nutrition and exercises. As per this study, in future without any help of nutrition and exercises which need in joint there is no success. MET is one of the more effective exercises for joint to flexibility and strength in joint.

MET group or experimental group is more improved than the control group. In future, MET is one of the biggest and effective exercises in any cases. Other than this the conservative treatment and cellular nutrition is

helping to control the weight and flexibility in joint, whereas MET is doing the main work in joints i.e. strengthen the muscle of knee joints.

Conclusion: Group A shows more effective improvement than Group B . Patients belonging to MET group were able to increase the range of motion in knee joint with the help of conservative treatment and cellular nutrition strength and flexibility compared to the control group.

Ethical Clearance: This study was approved by our institutional ethical committee**.**

Source of funding: Nil

Conflict of Interest: Nil

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