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COMPARISON OF THE EFFICACY OF CONVENTIONAL PHYSICAL THERAPY MODALITIES AND KINESIO TAPING TREATMENTS IN IN OLDER OA KNEE PATIENT.

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ABSTRACT **Objective:** The aim of the present study was to compare the effectiveness of Kinesio taping (KT) treatments and conventional physical therapy (PT) modalities that are applied to reduce pain and improve physical movements and functions of patients with Osteoarthritis knee (OA Knee). **Materials And Methods:** Forty patients were randomly divided into two equal groups. The first group was assigned KT plus home exercise program (HEP) for 15 days. The second group was given 15 sessions of PT and HEP. Patients were assessed using active joint range of motion (ROM), Visual Analogue Scale (VAS; rest, movement, and night pain), at before and after treatment and at the end of the study. **Results:** Physical therapy was found to be more effective than KT when these two treatment modalities were assessed based on pain, and movement pain. PT and KT treatments have similar effects in active ROM, and rest pain. At the end of the study, they were found to have similar effects except the pain value. PT was found to be more effective for pain in conjunction with KT. **Conclusion:** Physical therapy was concluded to be more effective after treatment. However, the outcomes suggest that KT when used in conjunction with can provide a remarkable benefit.

KEYWORDS : Osteoarthritis knee, Kinesio taping, physical therapy

INTRODUCTION

Knee osteoarthritis is a prevalent condition contributing significantly to functional limitation and disability. OA is due to pain, decreased muscle strength, instability, and stiffness. Independence is affected as people with OA are not able to have a full and active work and family life: 80% of people with OA have limitations of movement, while 25% cannot perform their main daily activities.[1]

Most physical disability in the UK is caused by arthritis as almost 70% of people with this disease experience constant chronic pain.[1,2] Knee OA is one of the most frequent causes of pain and disability[3]. This public health burden is expected to increase as the population ages, obesity becomes more prevalent, less people are physically active, and the age of diagnosis drops.[1,2]. A worrying estimate that there will be 17 million people in the UK living with OA by 2030.[2]

Kinesiology taping is designed to assist and improve the body's natural healing process and has several methods of application and benefits of use, it is proposed to: (1) improve the localized effect of fluid circulation (blood and lymph); (2) decrease pain; (3) provide anatomical support; (4) enhance muscular and joint range of motion; (5) assist proprioception. (1) Impacting localized fluid circulation: Once applied to the skin Kinesiology tape is reported to lift the upper layers of skin, creating more space Compressed blood vessel Compressed lymph vessel Skin Fascia Inflamed Muscle Compressed pain receptor Dilated blood vessel Dilated lymph vessel Uncompressed pain receptor between the skin and underlying muscles.

Conservative and surgical treatments are used to stop the inflammatory process, relieve pain, maintain joint mobility, and prevent the development of progressive degenerative changes in OA Knee. Conservative treatment methods include prevention, rest, medical treatment, steroid injections to the sub acromial space, and various conventional methods of physical therapy (PT) and exercises, as well as kinesio taping (KT) application as a relatively novel method[4,5].

KT is used in to reduce edema, relieve pain, and increase joint range of motion (ROM) and muscle activity[5]. These provide cost-effective outcomes and require less treatment time for both patient and physician. Previous studies showed conflicting results about the efficacy of KT, and it is not clear whether it is an alternative treatment or a supportive treatment when compared with conventional PT modalities (PT)[6–7].

AIM: -

The aim of this study to compare the short-term efficacy between PT modalities plus home exercise program (HEP) and KT plus HEP in patients diagnosed with OA Knee.

OBJECTIVES: -

- To assess the effectiveness of PT modalities plus home exercise program (HEP) in older OA knee patient.
- To assess the effectiveness of KT plus HEP in older OA knee patient.
- To compare the efficacy between PT modalities plus home exercise program (HEP) and KT plus HEP in patients diagnosed with OA Knee.

MATERIALS AND METHODS:

Patients were numbered according to their order of admission and were randomly assigned into one of the two groups until the number of the group is equal. The ethics committee approved the study. All subjects were provided detailed information about the objective of the study and the procedures to be performed in accordingly. Informed consents were obtained from all subjects before participating in the study.

Forty patients who were clinically and radiologically diagnosed with OA Knee were included in the study. The first group (n=20), KT group (KTG), followed the HEP together with KT. The second group (n=20), PT modalities group (PTG), followed PT modalities together with the HEP treatment program. Patients were followed up by phone.

The Inclusion Criteria

- Patients were referred to the as diagnosis of OA Physiotherapy Department.
- Clinical examination and assessed the radiographic imaging.
- Determined the grade of knee OA (2–4) according to the Kellgren and Lawrence (1957) scale.

The exclusion criteria

- Rheumatoid arthritis,
- Any other surgical procedure on the lower limbs within the previous year,
- Opioid analgesia or corticosteroid or analgesic injection interventions for knee pain within the previous 6 months,

The KT group received taping on their quadriceps femoris and hamstring muscle, First, patients were taped with a Y-shaped Kinesio type at the quadriceps femoris. The tape was applied a point 5 cm inferior to the anterior superior iliac spine to the kneecap (origin to insertion), with the patient in a supine position with 25% tension.

RESULTS

Sr.no	Demographic	PTG	KTG
1	Age	54.8	49.6
2	BMI	31.7	31.6
3	Duration of pain (months)mean	12.6	14.5
4	Gender (m/f)	17/13	15/14
5	Dominant side (L/R)	15/6	17/5

A total of 40 patients were included in our study. There was no

significant difference between the demographic, clinical, and radiological characteristics shown in Table 1.

All values except for T1 VAS— pain ($p<0.05$) was homogeneous between the two groups, with no significant difference in between (Table 2). All patients complied with the treatment protocol.

Table 2. Comparison of T1 results between the groups

VAS	PTG	KTG
Rest pain	3.6	4
Movement pain	7.45	7.95
Night pain	7.45	6.45

A significant improvement was observed in all variables in the PT group ($p<0.01$) significant improvement was observed in the pain. When the groups were compared, it was found that PT was more effective than KT regarding the end-of-treatment VAS activity pain. Moreover, it was observed that significant improvements in Favor of PT continued in the rest pain.

DISCUSSION

Kinesio taping (KT) is a relatively new technique used in rehabilitation programs. Although it has been commonly used in orthopaedic and sports settings, it is increasingly becoming an adjunct treatment option for other musculoskeletal impairments. It can strengthen weakened muscles, control joint instability, assist postural alignment, and relax overused muscles. Various authors have previously reported improvements in ROM, pain, and function by KT[8,9]. Some studies have shown that KT in OA Knee relieves pain and increases ROM, especially during the early period.

This was an important advantage since the exercise performance will also improve [8,9].

The physiological mechanisms of decreasing pain and disability by KT can be explained as pain modulation via gate control or reducing mechanical irritation of the involved soft tissue structures. These effects can be derived from supporting periarticular structures as well as reducing soft tissue inflammation and pain by KT[10-12].

Cushnaghan et al.[13] reported that the results of application of kneecap medial taping to patients with degenerative knee arthritis indicated that it could be a simple and safe treatment method that could relieve pain in a short time. Lee et al.[14] reported that the results of application of kinesiology taping to the vastus medialis oblique and vastus lateralis of patients with patellofemoral pain indicated that pain was relieved, the maximum isometric contractile force (MVIC) of individual muscles was increased, and the activity of individual muscles was decreased during moving up and down stairs. In the present study, the results of analysis of pain using the VAS revealed that pain was significantly relieved in the KTG. Given this, it is assumed that application of kinesiology taping relieved the weakening of the quadriceps femoris muscle and the tonus and shortening of the gastrocnemius, improving the imbalance of muscle strength occurring in the knee joint, thereby relieving pain[15].

Limitation:

The limitation of the present study is the absence of groups in which KT is used alone, with PT, or sham taping is performed.

CONCLUSION:

Based on our study, the results revealed that conventional PT modalities are effective methods in the treatment of OA Knee, PT modalities being more effective during the early period. However, their similar end-of-the-study efficacies demonstrated that KT application provides a considerable benefit in the treatment.

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