Efficacy of cyriax mobilization with kinesiotaping for medial epicondylitis

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ABSTRACT

Introduction and Aim: Medial epicondylitis is a tendinitis of the flexor group tendon attached to the medial epicondyle of the humerus the most sensitive region will be located near the origin of the wrist flexor group weakness in the hand and the wrist and a numb or tingling feeling in the fingers. The aim of the study was to determine the effectiveness of cyriax mobilization with Kinesio taping for medial epicondylitis. Objectively evaluate the effect of cyriax mobilization with Kinesio taping in relieving pain for medial epicondylitis patients. To improve the quality of life in patients with medial epicondylitis.

Materials and Methods: A total of 20 subjects were selected using convenient sampling technique based on inclusion and exclusion criteria. The study was explained to the patient and written consent was obtained from the subjects. Subjects were allocated in two groups (group A-10 and group B-10) using an odd-even method of sampling. The experimental group (A) and control group (B). The experimental group was treated with cyriax mobilization with Kinesio taping followed by ultrasound therapy and the control group was treated with ultrasound therapy with conservative management.

Results: From the statistical analysis made with the quantitative data revealed a statistically significant difference between Group A and Group B and also within the pre-test and post-test values of both the group. Group A- cyriax mobilization with Kinesio taping followed by conventional therapy has better statistics in pain reduction and improvement in functional status.

Conclusion: In summary, cyriax mobilization with Kinesio taping followed by conventional therapy proved to be effective than conventional therapy and Rehabilitation exercise alone in the management of medial epicondylitis.

Keywords: Cyriax mobilization; Kinesio taping; medial epicondylitis; ultrasound therapy.

INTRODUCTION

Medial epicondylitis is a tendinitis of the flexor group tendon attached to the medial epicondyle of the humerus the most sensitive region will be located near the origin of the wrist flexor group weakness in the hand and the wrist and a numb or tingling feeling in the fingers (1). The patient usually complains about pain of the elbow distal to the medial epicondyle of the humerus with radiation up and down the arm, most common on the ulnar side of the forearm, the wrist and occasionally on the fingers (2). Local tenderness over the medial epicondyle and the conjoined tendon of the flexor group, without the evidence of swelling or erythema, are also characteristics that can occur. Other symptoms are stiffness of the elbow, ring and the little finger. The pain is evoked by resisted flexion of the wrist and by pronation (3). The pain is usually accompanied by the weakness of a handgrip. Pain can begin suddenly or can develop gradually over time. Medial epicondylitis has a lower incidence than lateral epicondylitis (tennis elbow), with the former containing only 9 to 20% of all epicondylitis diagnoses. The pathology occurs as a result of high- energy valgus forces created by the overhead throw (4). However, 90 to 95% of all cases do not involve sportsmen. Because chronic repetitive concentric or eccentric contractile loading of the wrist flexors and the pronator are the most etiology, occupations such as carpentry, plumbing, and meat cutting have also been implicated (5). The pathology may also be produced by the sudden violence to these tendons in a single traumatic event. In many cases trauma at work had been identified as the cause of the symptoms more specific occupational physical factors associated with medial epicondylitis are forceful activities among men and with repetitive movements of the arm among women. We use active and resisted movement testing to evaluate tendons and muscles (6). We utilize passive movement testing to assess ligament on pain, laxity or limitation in range of motion. The effect of ultrasound via an increase in local blood flow can be used to help reduce local swelling and chronic inflammation, and, according to some studies, promote bone fracture healing (7). The intensity or power density of the ultrasound can be adjusted depending on the desired effect. A greater power density (measured in watt/cm2) is often used in cases where scar tissue breakdown is the goal.

A distinctive feature of the cyriax method is the capsular pattern. The cyriax method of orthopedic medicine is the exercise of applied or functional anatomy in which assessment of the body

movements indicates where lesions lie (8). Treatment of the lesion incorporates various distinctive techniques of manipulation, injections or physical therapy.

Kinesio taping is a therapeutic tool and has been used for a long time for the prevention and treatment of sporting injuries. It improves healing the soft tissues, facilitates proprioception and muscle group, reduces muscle fatigue and delayed-onset muscle soreness inhibits pain. It is characterized by the ability to stretch to 120-140% of its original length and recoil back towards its primary length following the application. In recent years, the application of Kinesio tape has emerged as an interesting and relatively novel method for treating musculoskeletal conditions (9). Steps to optimum taping results are skin should be free of oil, sweat, or lotion before application. After application, rub-down the tape to activate heat-sensitive glue. Avoid extreme stretching of the tape during application to avoid skin irritation. Apply approximately 1 hour before activity or shower to allow the glue to adhere properly. E) Skin irritation is extremely rare, but care should be taken with hypersensitive skin patients. Quality of tape should be 100% high-grade cotton – for comfort and air-permeability 140% Elasticity – same flexibility as human skin and muscles, heat-activated adhesive – very light, mild, and hypo-allergenic, 100% latex-free air permeable, microscopically lifts the skin, channels away moisture and Durable – average usage allows 3-5 days per application.

This elastic type purportedly mimics the thickness of the skin manufactures claim it works by lifting the skin, which increases blood circulation and lymphatic drainage leading to a reduction in the pain.

MATERIALS AND METHODS

A total of 20 subjects were selected using a convenient sampling technique based on inclusion and exclusion criteria. The study was explained to the patient and written consent was obtained from the subjects. Subjects were allocated in two groups (group A-10 and group B-10) using an odd-even method of sampling. The experimental group (A) and control group (B). The experimental group was treated with cyriax mobilization with Kinesio taping followed by ultrasound therapy and the control group was treated with ultrasound therapy with conservative management.

Training protocol

- Group A was treated with cyriax mobilization, Kinesio taping and ultrasound therapy.
- Group B was treated with ultrasound therapy and conventional therapy.

A. Experimental group

1. **Cyriax mobilization:** The patient was sitting in a relaxed position with the elbow fully supinated and 90°locate the anteromedial aspect of the medial epicondyle and identify the area of tenderness. Apply deep transverse friction (DTP) with the side of a thumb tip, applying pressure in the posterior aspect of the tendon-osseous junction. Deep transverse friction is applied for 10 minutes after the numbing effect has been achieved.

   Intervention: Cyriax mobilization is done for 10mins, deep friction massage given for 2 minutes then stopped for 1 to 2 minutes then repeat. The duration of the treatment is 7days/week, followed by ultrasound therapy.

2. **Ultrasound therapy:** The patients will be examined in a sitting position with the elbow extended and placed on the couch in a supine position.

3. **Kinesiotaping:** The length of tape was measured from 2 cm inferior to the medial epicondyle of the humerus to the wrist joint line, and multiplied by 0.85 as the length of the tape. In order to keep the stretch tension equal to 15–20 %, the tape was cut down the middle of the strip to produce 2 tails, or a "Y-strip". The Y-strip was applied to the common wrist flexor muscle from its insertion to origin. The first tail of the Y-strip was applied on the middle of the forearm with the wrist in a hyper extended position and the elbow in full extension and supination. The second tail of the Y-strip applied from insertion to origin, was placed along the medial edge of the forearm to wrap the common wrist flexor muscles.

B. Control group

1. **Ultrasound therapy:** The patients will be examined in the sitting position with the elbow extended and placed on the couch in a supine position.

2. **Medial epicondylitis rehabilitation exercises:**

- Wrist active range of motion: Flexion and extension: bend the wrist forward and backward as far as the patient can do 3 sets of 10.
- Wrist stretch: With one hand, press the back of the other hand to help bend the wrist. Hold for 15 to 30 seconds. Next, stretch the hand by pressing the fingers in a backward direction. Hold for 15 to 30 seconds. The patient is asked to keep the arm straight during this exercise. To be done 3 sets on each hand.
- Wrist flexion: the patient is asked to hold a dumbbell in hand with palm facing up. Bend the wrist upward. Slowly lower the weight and return to the starting position. To be done 3 sets

of 10. Gradually increase the weight.

- Grip strengthening: the patient is asked to squeeze a rubber ball and hold for 5 seconds. To be done 3 sets of 10. Forearm pronation and supination: the patient is asked to bend the elbow up-to 90°, turn the palm upwards and hold for 5 seconds. The patient is requested to turn the palm downward and hold for 5 seconds. To be done 3 sets of 10.
- Forearm pronation and supination strengthening: The patient is asked to hold a dumbbell in the hand and asked to bend the elbow up to 90°. Slowly asked to rotate the hand with palm facing upward and downward. To be done 3 sets of 10.

Outcome measures

Visual analog scale (VAS) The pain VAS is a one-dimensional measure of pain intensity which has been widely used in a diverse adult population. Using a ruler, the score is determined by measuring the distance (mm) on the 10 cm line between the "NO PAIN" anchor and the patient's mark, providing a range of scores indicates greater pain intensity. The scale has to be shown to the patients otherwise it is an auditory scale, not a visual scale.

Statistical analysis

The collected data were tabulated and analyzed using descriptive and interferential statistics.
A paired t-test was used to analyze significant changes between pre-test and post-test measurements in the patient.

Table 1: Comparison of the post-test values of group A and group B

(Visual Analogue Scale)

Test (Post-test)	Mean	Standard Deviation (SD)	T value	P value
Group A	82.0000	7.8900	6.5919	0.0001
Group B	56.0000	9.6000		

Table 2: Comparison between the post-test values of Group A and Group B

(Patient-Specific Function Score)

Test (Post-test)	Mean	Standard Deviation (SD)	T value	P value
Group A	9.440	0.227	28.5838	0.0001
Group B	4.860	0.453		

RESULTS

The statistical analysis made with the quantitative data revealed a statistically significant difference between group A and group B and also within the group. The post-test mean value of the visual analog scale (VAS) in group A was 56.00 and group B was 44.00. This shows that the Visual Analogue Scale scores in Group A were comparatively lesser than group B, P<0.0001. The post-test mean value of the patient-specific functional scale scores (PSFS) in group A was 9.440 and in group B it was 4.860. This shows that the Patient-Specific Functional Score (PSFS) in group B was comparatively lesser than Group A, P<0.0001.

Statistical analysis of the post-test for pain and functional performance revealed that there was a high statistically significant difference seen between group A and group B.

DISCUSSION

The cyriax method of medicine is an exercise that is applied or functional anatomy in which assessment of body movement indicates where lesions lie. This is the first study to do the cyriax mobilization with kinesio taping for the medial epicondylitis (10). This study is to compare whether a combination of cyriax mobilization with kinesio taping for 1 week of the period for subjects with medial epicondylitis would indicate any effects on functional activities of the elbow. A distinctive feature of the cyriax method is the capsular pattern. Treatment of these lesions incorporates various distinctive techniques of manipulation, injections or physical therapy (11). The parameters which followed were a pain at rest which was measured by the Visual Analogue Scale and Patient-Specific Functional Score (12-14).

Hudes studied that cyriax physiotherapy consisting of deep transverse friction at the site of the lesion and manipulation of the wrist and eccentric strength exercise is possibly beneficial especially for medial epicondylitis (15). Conservative management of medial epicondylitis using facial stripping, trigger point therapy, wrist mobilization, and a home therapy program consisting of eccentric exercise (16-18).

In group A, pre-intervention mean of VAS was 82.00 and PSFS was 1.200 after the treatment the subjects with cyriax mobilization with Kinesio taping the mean value of VAS 44.00 and PSFS improved to 9.440 which showed an extreme statistically significant difference within the group. In Group B Pre-intervention mean of VAS was 80.00 and PSFS 0.700 after the treatment session the subjects with cyriax mobilization with Kinesio taping the mean value of VAS and PSFS has improved up to 82.00 in

Group A were as 56.00 in Group B. which shows a statistically significant difference within the group. After one week of the treatment, all the above parameters showed significant improvement in group A. The present study reveals that patient who received cyriax mobilization with Kinesio taping along with conventional therapy Group A showed marked improvement in decreased pain score and improved functional performance than those who received only conventional therapy and rehabilitation exercise group B.

CONCLUSION

From the result, it can be concluded that cyriax mobilization with Kinesio taping followed by conventional therapy was found to be more effective than conventional therapy followed by rehabilitation exercise. It was found that there was an increase in functional performance and decrease in pain thereby leading to faster recovery in subjects with medial epicondylitis.

CONFLICT OF INTEREST: There is no conflict of interest among the authors.

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