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Effect of ultrasound therapy in reducing pain in the lateral epicondylitis along with taping technique

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Abstract
Background: Elbow joint this is synovial joint of the hinge variety. 1Articular upper surface: - The Capitulum and trochlea of the humerus. Lower: - 1upper surface of the radius articulates with the Capitulum. 2 Trochlear notch of the ulna articulates with trochlea of the humerus. The elbow joint is continuous with superior radioulnar joint are together known as Cubital articulation. Ligaments: - (1) Capsular ligament (2) anterior ligament (3) ulnar collateral ligament (4) radial collateral ligament. Clinically available for diagnostic of lateral epicondylitis are Cozen test and mill's test. Ultrasound has been used most commonly in the management of the lateral epicondylitis. Continuous Mode upon tissues increases the blood flow and Reduce muscle spam. Increase extensibility of collagen fiber and decrease the inflammatory response in order to relieve epicondylitis. Taping techniques are also used for lateral epicondylitis. Maximal muscle strain on the extensor carpi radialis brevis is obtained with elbow extension, forearm in pronation and wrist in flexioulnar deviation.
AIM: To find out the effect of ultrasound and taping techniques in a patient with lateral epicondylitis.
Methodology: Study design: Experimental study Study setting: stuti physiotherapy clinic, Ahmadabad Sampling: convenient sample technique Sapling size: 40 Study duration: 4 weeks Study population: both male and female 25 to 45 age group
Results: There was significant between pre and post PRTEE inpatient with lateral epicondylitis.
Conclusion: From the result of the present study, it can be concluded that the ultrasound and taping techniques are decreases the pain and improve function ability level in patient with lateral epicondylitis.

Keywords: ultra sound, lateral epicondylitis, taping

Introduction

Anatomy of elbow joint this is synovial joint of the hinge variety. 1Articular upper surface: - The Capitulum and trochlea of the humerus. Lower: - 1upper surface of the radius articulates with the Capitulum. 2 Trochlear notch of the ulna articulates with trochlea of the humerus. The elbow joint is continuous with superior radioulnar joint are together known as Cubital articulation. Ligaments: - (1) Capsular ligament (2) anterior ligament (3) ulnar collateral ligament (4) radial collateral ligament.

(1) Capsular ligament:-superiorly it is attached to the lower end of the humerus in such a way that the Capitulum. The trochlea, and the radial fossa the coronoid fossa and the olecranon fossa are intracapsular. Their lower ends are joined to each other by an oblique band which gives attached to the fibers of the thinner intermediate fibers of the ligament. The ligament is crossed by the ulnar nerve and gives origin to flexor digitorum superficial. It is closely related to the flexor carpi ulnaris and the triceps (2) anterior ligament: - the anterior ligament of the elbow is a broad and thin fibrous layer covering the anterior surface of the joint. It is attached to the front of the medial epicondyle and to the front of the humerus immediately above to the anterior surface of the coronoid process of the ulna and to the annular ligament being continuous on either side with the collateral ligament. Its superficial fibers pass obliquely from the medial epicondyle of the annular ligament. The middle fibers, vertical in direction, pass from the upper part of the coronoid fossa and become partly blended with the preceding but are inserted mainly into the anterior surface of the coronoid process. The deep or transverse set intersects at right angles. The ligament is in relation in front with the brachialis muscle except at its most lateral part. (3) Collateral ligament: - it consists of two portion, an anterior and posterior united by a thinner intermediate portion. Note that this ligament is also referred to as the medial collateral ligament and should not be confused with the late ulnar collateral ligament.

Need of the study

Lateral epicondylitis is defined as pain over the lateral aspect of elbow that is aggravated by active wrist extension and direct palpation over the lateral epicondyle of humerus of elbow. So the purpose of this is to know the problems of people during daily activities and to reduce pain by using ultrasound and taping techniques. There are many individuals' studies that have been done to check the effectiveness of ultrasound therapy and taping techniques to relive pain and improve the functional ability in the patient with lateral epicondylitis. So purpose of the study is effect of ultrasound and taping in patient with lateral epicondylitis.

Aim & objectives

Aim: To find out the effect of ultrasound and taping techniques in a patient with lateral epicondylitis.
Objectives: To find out the effect of ultrasound and taping techniques on PRTEE patient with lateral epicondylitis.

Hypothesis

Null hypothesis: there is no significant difference of ultrasound and taping techniques in patient with lateral epicondylitis.

Alternative hypothesis: there is significant difference of ultrasound and taping techniques in patient with lateral epicondylitis.

Review of literature

1. Dheerajlamba, Swastika Verma, Kavi Basera, Meenaksihi Tar, Aditi Biswas. A study to compare the effect of moist heat therapy with ultrasound therapy and ultrasound alone in lateral epicondylitis. Indian journal of physiotherapy and occupational therapy. April June 2012;6(2).(5)
2. According to Laiatian *et al*. the objective of this study was to test the reliability of the Turkish version of PRTEE (PRTEE-T) as a specific scale for tennis elbow (lateral epicondylitis). The results of our study have shown that the Turkish version of a specific and practical scale developed for tennis elbow can be both valid and reliable. PRTEE-T is easy to apply in a relatively short period and may prove to be valuable for evaluation and follow up of the patients in daily clinical practice.
3. A Binder, G Hodge *et al*. (1985) [4] conducted a study of finding whether there is an effectiveness of therapeutic ultrasound in a treating tennis elbow (lateral epicondylitis).
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Methodology

- **Study design:** Experimental study
- **Study setting:** clinics
- **Sampling:** convenient sample technique
- **Sapling size:** 40
- **Study duration:** 4 weeks
- **Study population:** both male and female 25 to 45 age group

Criteria for Selection

Inclusion Criteria

- Both Male and female gender.
- Patient with age group of 25 to 45 years.
- Patient with lateral epicondylitis diagnosed will conform by cozens test and mill's test.
- The subject ability to understand the PRTESS.
- Subject with lateral epicondylitis (tennis elbow) diagnosed by orthopedician.
- Subject with cozen test positive.
- Lateral elbow chronic pain.

Exclusion criteria

- Arthritis of the elbow joint.
- Recent fracture.
- Any recent injuries surround elbow joints.
- Peripheral nerve involvement in upper extremity.

Materials used in the study

- Pen
- Paper
- Ultrasound
- Towel
- Taping tape

Method

Participants were selected based on inclusion criteria for the study, a detailed procedure was informed to them and ethically providing consent from was filled up by the participants. A brief questionaries' regarding health habits, medical history and current medication was administered, after that pre and post PRTEE was filled by the participants to assess ultrasound and taping techniques on pain. Data was collection in the civil hospital, stuti physiotherapy clinic in the Ahmedabad. Whole procedure was carried out like this way

Patient position: comfortable sitting on chair. Therapist position: sitting facing in the patient's face on a chair.

Procedure: participants were given in the ultrasound.

ULTRASOUND Dosage

MODE: continues mode

Intensity: 0.8

Frequency: 3 MHZ

Duration: 7 minutes

TAPING TECHNIQUES: taping techniques are applied to very easily and carefully. In the taping techniques also know that it won't help heal your injury but it can provide support and stability for your already damaged forearm extensor muscles and tendons.

In the taping techniques there are 5 steps

STEPS 1: Band the arm at 90-degree angle and feel the outside of your elbow with your fingertips to locate the lateral epicondylitis bone. It feels like a rounded projection or small ball at the end of your humerus bone, next to your elbow, and points outward when your arm is folded and placed against your torso.

STEPS 2: Bend the affected slightly while your arm hangs at the side of your body, and apply tape around the elbow about 2 cm below the lateral epicondyle. Apply the parallel to your wrist.

STEP 3: apply the tape to the outer side of the elbow firmly and to the inner portion of the elbow gently. Taping too tightly inside your elbow can interfere with circulation. STEP 4: Remove the tape and readjust if your symptoms do not

improve or if you experience a worsening of pain. This may indicate the tape is on incorrectly.
STEP 5: Remove the tape slowly by pressing down on the skin nearest the tape mark and gently pulling the tape away from the skin. Replace the tape every 24 hours, or more often if it becomes wet or damages.

Results

An experimental study was performed in which PRTEE was assessed in patient Lateral epicondylitis. The pre and post Values for PRTEE was taken for patient with lateral epicondylitis.
Statics was performed using WILCOXON test individual PRTEE WILLCOXON test taken subjects the data analyzed by using WILLCOXON and result we obtained There was significant between pre and post PRTEE inpatient with lateral epicondylitis.

Table 1: Ratio male or female

Sr. No.	Male	Female
1	85%	15%

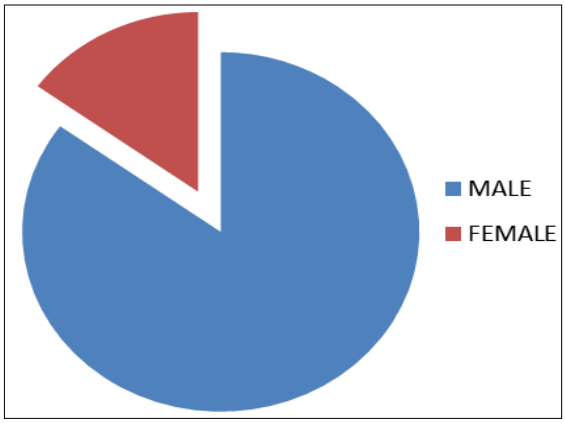

Fig 1

Table 2: Inter group comparison of PRTEE in patient with lateral epicondylitis

Variable	Mean	SD	W	Result
Pre	52.575	12.70	210	Significant
Post	22.94	8.10	210	

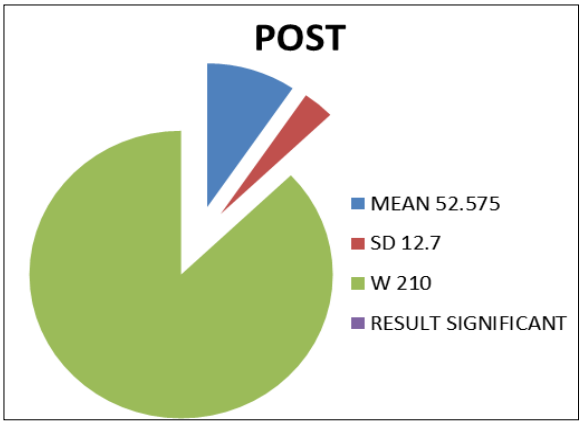

Fig 2

Here, in the above table shows the PRTEE for the pre & post of lateral epicondylitis patient is 52(mean) respectively. (W value 210).

Discussion

Lateral epicondylitis or tennis elbow is a condition in which the outer part of the elbow becomes sore and tender. Lateral epicondylitis is an acute or chronic inflammation of the tendons that join the forearm muscle on the outside of the elbow. The forearm muscle and tendons becomes damage from overuse repeating the same strenuous motion again and again. This leads to inflammation, pain and tenderness on the outside of the elbow.
Histological finding include granulation tissue, microrupture, degenerative changes, and there is nontraditional inflammation as a consequence lateral elbow tendinopathy or tendinosis is used instead of lateral epicondylitis2. Examination of lateral epicondylitis tissue reveals non-inflammatory tissue and therefore the term angio-fibroblastic tenderness is used. Longitudinal sonogram of the lateral elbow displays thickening and heterogeneity of the common extensor tendon that is consistent with tendinosis, as the ultrasound reveals calcification, intra substance tear, and marked irregulatory of the lateral epicondylitis.

Libation of the study

The study sample size was small
The study duration was small

Fur the recommendation

Study can be done with larger sample size
Study can be done for longer duration
Specification age group can be considered 25 to 45 ages

Conclusion

From the result of the present study, it can be concluded that the ultrasound and taping techniques are decreases the pain and improve function ability level in patient with lateral epicondylitis.

Summary

Lateral epicondylitis means a condition in which the extensor muscle are affected in this the repetitive use of the extensor muscle of the forearm can be cause acute or chronic tendinitis of the insertion of these muscle3. 20 pre and post data of the individual are included for the study –outcome measure was relief. The data was then tabulated and subjected to stastical analysis by unpaired t-test for outcome measure. After analyzing the data following interference was drawn. There was significant relief in pain among pre and post data of individual. From the result of present study it was concluded that tshere was an influence of ultrasound in reduction of pain.

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