



A STUDY TO COMPARE AND FIND THE EFFECTIVENESS OF SCAPULAR STABILIZATION EXERCISES ALONG WITH CONVENTIONAL PHYSIOTHERAPY AND CONVENTIONAL PHYSIOTHERAPY ALONE IN THE MANAGEMENT OF PAIN AND GRIP STRENGTH AMONG CHRONIC LATERAL EPICONDYLITIS SUBJECTS.

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Abstract

Background: Lateral epicondylitis (Tennis elbow) is a clinical diagnosis made from a history of frequent type of myotendinosis of the origins of the wrist extensor muscles at the lateral epicondyle of humerus with the substantial pain and loss of function of the affected limb. The physical therapist focus on scapula stabilization exercises to reduce the pain and increase the grip strength among chronic lateral epicondylitis.

Aims and objectives of the study: To compare and find the Effectiveness of scapular stabilization exercises along with conventional physiotherapy and conventional physiotherapy alone in the management of pain and grip strength among chronic lateral epicondylitis subjects.

Method: 20 both male and female subjects with chronic lateral epicondylitis participated in the experiment study, underwent treatment duration of 3 weeks after receiving informant consent. They were evaluated and consecutively divided in to two equal groups i.e experimental group receiving scapular stabilizing exercises along with conventional therapy and control group receiving conventional therapy only. The pre and post test values of pain, grip strength were recorded at the start of the treatment and after the end of the treatment.

Conclusion : This study concluded that scapular stabilization exercises along with ultrasound therapy was found to be more effective in decreasing pain and improving grip strength in subjects with chronic lateral epicondylitis. Scapular stabilization exercises along with ultrasound therapy shows better results in reduce the pain ,grip strength among subjects.

Keywords: Lateral epicondylitis, scapular stabilization exercises, ultrasound therapy, visual analog scale(VAS),grip strength, hand held dynamometer.

Introduction :

Pain around the lateral epicondyle is known by a variety of names, and was described as periostitis, extensor carpi radialis brevis (ECRB)-tendinosis and epicondylalgia. The most commonly used names are “tennis elbow” and “lateral epicondylitis”.

A patient affected by tennis elbow will complain of pain around the lateral elbow, radiating toward the extensor region. Diminished extension forces of the forearm as well as grasp function are often noted, and clinical testing reveals painful resistance against dorsiflexion of the wrist (**Silverstein et al., 1995**)

A recent demographic study described the epidemiology of this condition and investigated its risk factors in a sample of 4783 people aged 30–64 years. The prevalence in this group was 1.3% and did not differ between men and women.

Repetitive movements and forceful activities were also positively correlated with lateral epicondylitis (**Shiri et al., 2006**).

The dominant side of the body is more frequently affected (**John 2011**).

Conventional treatment for tennis elbow has focused primarily on the pain management by anti-inflammatory medication, ultrasound, cryotherapy, laser, phonophoresis, or iontophoresis.

Physical therapy includes deep transverse friction massage, soft tissue mobilization, stretching and strengthening the extensor.

Recent research focusing on scapular muscular strength and endurance gives some indication that scapular muscles may need to be screened and treated in patients with lateral epicondylitis.

Strengthening the muscle that supports the scapula is important. The exercises that focus on these muscle groups are known as scapula stabilization exercises (**John 1990**).

Statement of the study :

A study to compare and find the effectiveness of scapula stabilization exercises along with conventional physiotherapy and conventional physiotherapy alone in the management of pain and grip strength among chronic lateral epicondylitis subjects.

Need of the study :

As lateral epicondylitis is one of the commonest health issue faced by the public the researcher has taken this condition for research. This study is aimed to find the effects of scapula stabilization exercises on pain and grip strength among chronic lateral epicondylitis subjects.

Objectives of the study :

- To find out the effectiveness of scapula stabilization exercises along with conventional physiotherapy on pain among chronic lateral epicondylitis subjects.
- To find out the effectiveness of conventional physiotherapy on pain among chronic lateral epicondylitis subjects.
- To compare the effectiveness of scapula stabilization exercises along with conventional physiotherapy and conventional physiotherapy alone on pain among chronic lateral epicondylitis subjects.
- To find out the effectiveness of scapula stabilization exercises along with conventional physiotherapy on grip strength among chronic lateral epicondylitis subjects.
- To find out the effectiveness of conventional physiotherapy on grip strength among chronic lateral epicondylitis subjects.
- To compare the effectiveness of scapula stabilization exercises along with conventional physiotherapy and conventional physiotherapy alone on grip strength among chronic lateral epicondylitis subjects.

Hypothesis :

- It is hypothesized that there is no significant difference in pain and grip strength following scapula stabilization exercises along with conventional physiotherapy among chronic lateral epicondylitis subjects.
- It is hypothesized that there is no significant difference in pain and grip strength following conventional physiotherapy alone among chronic lateral epicondylitis subjects.
- It is hypothesized that there may be significant difference between scapula stabilization exercises along with conventional physiotherapy and conventional physiotherapy alone in the management of pain and grip strength among chronic lateral epicondylitis subjects.

Methodology :**Study design:**

The study was pre -test and post- test experimental study.

Study setting:

Study was conducted in the outpatient Physiotherapy department of RVS College of Physiotherapy, Sulur, Coimbatore.

Selection of subjects:

Twenty clinically diagnosed tennis elbow subjects were selected who full filled inclusion and exclusion criteria and consecutively divided in to two equal groups.

Group A - Scapular Stabilization Exercise.

Group B - Conventional Physiotherapy.

Variables:**Dependent variables**

Pain

Grip Strength

Independent variable

Scapular stabilization exercise along with conventional physiotherapy

Conventional Physiotherapy - Ultrasound Therapy

Inclusion criteria

- Clinically diagnosed chronic lateral epicondylitis patients
- Pain during the palpation of the lateral epicondyle of elbow
- Lateral epicondylitis (more than 2 months)
- Positive Mill's test
- 30-40 Years
- Both sexes

Exclusion criteria

- Fracture around the elbow joint
- Radio-humeral bursitis
- Cervical spondylitis with radiating pain on lateral elbow
- Arthritis
- Lateral epicondylar avulsion
- Acute lateral epicondylitis
- Trauma
- Professional Athletes

Measurement tools:

Pain - Visual Analogue Scale

Grip Strength - Hand Held Dynamometer

Orientation to the patient

Before collection of data, subjects were explained about the purpose of the study. The investigator had given a detailed orientation about the test procedure visual numeric scale to measure pain and hand held dynamometer to measure grip strength. To consent and full co operation of each participant was sought after complete explanation of the condition and demonstration of the procedure involved in the study.

Statistical tool :

The collected data were analysed by paired 't' test to find out the significant difference between pre and post test values and unpaired 't' test was performed to find the significant difference between groups.

Results :

Paired 't' value between pre and post test scores of pain among group A				
Measurement	Mean	Mean Difference	Standard Deviation	Paired 't' value
Pre test	7.4	2.7	2.7	12.74*
Post test	4.7			

*0.005 level of significance

Paired 't' value between pre and post test scores of pain among group B				
Measurement	Mean	Mean Difference	Standard Deviation	Paired 't' value
Pre test	7.9	1.3	0.58	7.1*
Post test	6.6			

*0.005 level of significance

Unpaired 't' value of pain between group A and group B				
Groups	Improvement		Standard Deviation	Unpaired 't' test
	Mean	Mean Difference		
Group A	2.7	1.4	0.148	22.3*
Group B	1.3			

*0.005 level of significance

Paired 't' value between pre and post test scores of grip strength among group A				
Measurement	Mean	Mean Difference	Standard Deviation	Paired 't' value
Pre test	4.15	1.3	2.6	4.64*
Post test	5.45			

*0.005 level of significance

Paired 't' value between pre and post test scores of grip strength among group B				
Measurement	Mean	Mean Difference	Standard Deviation	Paired 't' value
Pre test	4.23	0.55	0.78	3.81*
Post test	4.78			

*0.005 level of significance

Unpaired 't' value of grip strength between group A and group B				
Groups	Improvement		Standard Deviation	Unpaired 't' test
	Mean	Mean Difference		
Group A	1.3	0.75	0.03	4.2*
Group B	0.55			

*0.005 level of significance

The results of the present study shows that there is a significant difference in pain and grip strength following both scapula stabilization exercises along with conventional physiotherapy and conventional physiotherapy alone among lateral epicondylitis subjects.

This is supported by, Day *et al.*, (2015) they did a descriptive, laboratory-based, cross-sectional stud to describe scapular musculature strength, endurance, and change in thickness in individuals with unilateral lateral epicondylalgia (LE) compared to the uninvolved limb and the corresponding limb of a matched comparison group.

Ultra sound therapy was also supported by D'Vaz *et al.*, 2005 they did a randomized, double-blind, placebo controlled trial to assess the effectiveness of Pulsed low-intensity ultrasound therapy (LIUS) vs placebo therapy daily for 12 weeks in patients with chronic lateral epicondylitis (LE). Patients

with LE of at least 6 weeks' duration were recruited from general practice, physiotherapy and rheumatology clinics, and had to have failed at least one first-line treatment including non steroidal anti-inflammatory drugs (NSAIDs) and corticosteroid injection.

In this study LIUS was more effective for a large treatment effect than placebo for recalcitrant LE. This is in keeping with other interventional studies for the condition.

Hence the hypotheses first and second were rejected and third accepted.

Conclusion:

- A comparative study was conducted to find the effectiveness of scapular stabilization exercises along with conventional physiotherapy and conventional physiotherapy alone on pain and grip strength among chronic lateral epicondylitis subjects.
- Group 'A' (n=28) was treated with scapula stabilization exercises along with conventional physiotherapy and group 'B' was treated with conventional physiotherapy alone for a period of three weeks.
- Pain and grip strength were measured before intervention and after three week by VAS and hand held dynamometer respectively.
- when comparing both scapula stabilization exercises along with conventional physiotherapy is more effective than conventional physiotherapy alone in reducing pain and improving grip strength among chronic lateral epicondylitis subjects.
- Therefore it is concluded that scapula stabilization exercises can be added as a first line management procedure along with other conventional therapies while treating chronic lateral epicondylitis subjects.

Limitations:

- Number of subjects was small
- Psychological factors were not considered
- The study was done for short period.

Suggestions:

- Similar study can be carried out for larger sample size
- Study can also be carried out for different age groups.
- A longer duration study can be done.

Source of funding: No funding was obtained for the study.

Conflict of interest : Nil

Ethical clearance :

The research was conducted in accordance to the ethical standards of R.V.S college of physiotherapy in Coimbatore, Tamil Nadu. Written informed consent were provided by all participants prior to participation.

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