



AN OBSERVATIONAL STUDY OF EFFECTIVENESS OF ANALGESICS AND PHYSIOTHERAPY VERSUS LOCAL STEROID INJECTION IN THE MANAGEMENT OF LATERAL EPICONDYLITIS.

Orthopaedics

Dr. Kella Goutham Nandan Postgraduate, Department of Orthopaedics, Great Eastern Medical School and Hospital, Ragolu, Srikakulam, Andhra Pradesh, 532484, India.

Dr. Bandi Gowtham Assistant Professor, Department of Orthopaedics, Great Eastern Medical School and Hospital, Ragolu, Srikakulam, Andhra Pradesh, 532484, India.

ABSTRACT

Background And Objective: Different conservative treatment modalities have been used for the management of lateral epicondylitis with varying results. This study was done to observe the effectiveness of analgesics and physiotherapy versus local steroid injection in lateral epicondylitis management. **Methods:** A prospective study involving Adults with lateral epicondylitis who attend to orthopaedics outpatient department in Great Eastern MEDICAL School & Hospital in the period from November 2022 -October 2024 (24 months). During this study period, about 60 cases of lateral epicondylitis were treated by analgesics and physiotherapy for 6 weeks initially, then for PRTEE score improved cases continued the same treatment and for unimproved cases corticosteroid local injections given. Then condition is assessed clinically till 24 weeks and obtained PRTEE score (Patient Rated Tennis Elbow Evaluation Questionnaire) for all patients at the end of the 24th week. **Results:** In this study, the majority of the patients were females (55%) and 41-50 age group (52%). Right side (85%) was most commonly affected. 28 of 60 patients received local corticosteroid injection. Mean $\pm$ SD of PRTEE score at 24th week for analgesics and physiotherapy group was 16.94 ± 15.44 and for the corticosteroid group was 9.3 ± 13.34 . The achieved p-value by using an independent t test was 0.04. **Interpretation and conclusion:** Analgesics and physiotherapy, as well as local steroid injection, improved the condition of patients with lateral epicondylitis in terms of the absence of clinical signs and reduction of PRTEE score at the end of the 24th week in most of the patients. In terms of reduction of PRTEE score at the end of the 24th week, local steroid injection resulted in more improvement than analgesics and physiotherapy. No patient had developed adverse reactions because of analgesics, physiotherapy and local steroid injections.

KEYWORDS

Lateral Epicondylitis, Analgesics, Physiotherapy, Local Steroid Injection, PRTEE score.

INTRODUCTION

Tennis elbow is another name for lateral epicondylitis. Incidence in the general population ranges from 1% to 3%.² More frequently in non-athletes than athletes, having a peak incidence in the early fifth decade with equal gender incidence.³ Most frequently, the dominant upper limb is impacted.⁴ LE is a condition that affects carpenters, gardeners, computer workers, and knitters who repeatedly pronate and supinate their forearms with their elbows almost fully extended. The current opinion is that lateral epicondylitis begins as a micro tear, most frequently at the origin of the extensor carpi radialis brevis (ECRB), even though it was initially described as an inflammatory condition³. The pathological process mostly affects the ECRB origin, although it may also affect the ECRL and EDC tendons.³

Microscopic observations reveal immature reparative tissue that resembles angio fibroblastic hyperplasia.⁵ The natural course of the illness is favourable, with spontaneous healing occurring in 80-90% of patients within one to two years.⁵

For LE, a variety of treatment modalities have been suggested, including rest, activity modification, non-steroidal anti-inflammatory drugs, counterforce braces, massage, physiotherapy, acupuncture, injections of botulinum toxin type A, corticosteroids, platelet-rich plasma, autologous blood, laser treatment, extracorporeal shockwave treatment, ultrasound treatment and surgical procedures.^{6,7} But, no ideal treatment has emerged. Hence we have taken up this study to observe the effectiveness of analgesics and physiotherapy (A&P) versus local steroid injection in the management of LE.

AIM: To observe the effectiveness of analgesics and physiotherapy versus local steroid injection in lateral epicondylitis management.

OBJECTIVES:

- To evaluate the effectiveness of analgesics and physiotherapy in the management of lateral epicondylitis.
- To evaluate the effectiveness of local steroid injection in the management of lateral epicondylitis.

Clinical Presentation:

The patient gives a history of repetitive twisting or grabbing movements leading to the symptoms and the onset of lateral epicondylitis is usually not associated with injuries. Typically, the condition develops gradually.

Patients typically complain about the following:

There is acute sharp localized pain at the site of the lateral epicondyle. Aggravating factors include grasping and rotating movements, morning aches, and palmar flexion of the wrist. Some patients could express fatigue or difficulty grasping objects.

Tennis elbow's clinical examination reveals the symptoms of point tenderness at the region of the common extensor tendon origin which is maximum at five milli meters anterior and immediately distal to the origin of the EDC and ECRB muscles. Reduced grip strength, limited supination, and wrist dorsiflexion are further findings. Forearm weakness might happen occasionally. In many instances, LE is diagnosed clinically.

Special Orthopaedic Tests:

Cozen's Test or Thomson's test:

The patient is told to pronate the forearm, radially deviate, and dorsiflex the wrist while holding a closed fist against the examiner's resistance. If there is pain over the lateral epicondyle, elbow pain, or muscle weakness, the test is positive.

Mill's Test:

While the patient is seated, the examiner palpates the patient's lateral epicondyle with one arm, while pronating the patient's forearm and palmar-flexing the wrist with an extended elbow with the other arm. When pain at the extensor tendon origin at the lateral epicondyle is replicated, it is considered a positive result for this test.

Diagnostic tests

Usually, a clinical examination is done to make the diagnosis of LE so diagnostic tests are typically not necessary.

Diagnostic studies are advised to identify abnormalities and the progression of lesions over the common extensor tendon in complicated cases.^{8,9,10} In around 25% of patients, a plain radiograph reveals soft tissue calcification close to the lateral epicondyle, particularly if the patient has received steroid injections in the past. The diagnosis of intra-articular pathology, the integrity of the radial collateral ligament, and any tears at the origin of the extensor tendons are advised using magnetic resonance imaging (MRI). In order to determine the sensitivity and specificity of using MRI as a diagnostic tool, some studies have been carried out. For the diagnosis of LE, MRI has a sensitivity range of 90 to 100% and a specificity range of 83 to 100%. In 90% of tennis elbow patients with pre-treatment symptoms,

MRI can detect edema and thickening. MRI displays thickening of the tendon along with elevated T1 and T2 signals. According to studies, ultrasonography has a sensitivity range of 72 to 88 percent and a specificity range of 36 to 48.5 percent in the diagnosis of symptomatic lateral epicondylitis. Ultrasound is used to find bone abnormalities, tendon thickening, and calcification. Infrared thermography has recently been found to be a highly sensitive method, with specificity ranging from 94 to 100% for the evaluation of tennis elbow.

Management:

Conservative Treatment:

Tennis elbow can be successfully treated non-operatively or with conservative measures, according to research.

Wait and Watch:

It is recommended to avoid activities for 14 to 21 days during the first phase of management. However, as immobilization results in upper limb atrophy from inactivity, it should not be advised. RICE (rest, ice, compression, and elevation) therapy is advised for the first two to three weeks.

NSAIDs:

Non-steroidal anti-inflammatory drugs are helpful for acute pain alleviation. They work by lessening the inflammation connected to the painful acute disease. But in chronic illness, where the primary disease is extensor tendon degeneration as opposed to inflammation, its success appears to be more a result of a placebo effect than through its actual pharmacological effect. Long-term use of painkillers is not advisable since it damages the liver, and kidneys, and causes gastrointestinal tract bleeding.

Injection treatment

Different injectable techniques have been researched for the management of tennis elbow. Corticosteroid, type A botulinum toxin, and complete autologous whole blood and platelet rich plasma injections are four treatments, employed in lateral epicondylitis therapy.

Corticosteroid (CS) injection:

It works by lowering inflammatory response, which lessens pain. Commonly used preparations:

1. Triamcinolone acetonide
2. Methylprednisolone
3. Betamethasone
4. Dexamethasone

Physiotherapy:

Tennis elbow is frequently treated with physiotherapy. Tennis elbow has no established standard treatment regimen for physical rehabilitation. The main goals of physiotherapy are to reduce elbow pain, increase the range of motion, strengthen the grip, and stretch the forearm muscles. Particularly in individuals with concurrent flexion contractures, Mills and Wadsworth advised manipulation under anaesthesia. The ECRB and other extensors are pulled under tension by swiftly, forcefully, fully extending the elbow while keeping the wrist, fingers flexed, and forearm pronated. If there is an audible, tangible snap during manipulation, the results are fantastic. Researchers have found that eccentric strengthening works better for tennis elbow than concentric strengthening.

Orthoses:

Proximal forearm bands and cockup wrist splints are the preferred kinds of orthoses. The orthoses are used to balance out tension and contraction forces in the muscles. In order to give the forearm extensor tendons in the elbow time to heal, these orthoses aim to reduce the intrinsic muscle force and tension there. Orthoses need to be non-elastic.

Wrist manipulation

Scaphoid thrust manipulation techniques may be used to treat lateral epicondylitis, according to preliminary research.

Laser therapy and Acupuncture:

Any of the three following modes can deliver laser waves to the tendons:

1. LLLT- Low intensity laser therapy
2. LED- Light-emitting diodes
3. SLD- Super luminous diodes

Surgical treatment:

It is the last resort. Surgery can be divided into three categories:

1. release of the common extensor origin
2. Resection of a ruptured or degenerating tendon combined with defect repair
3. Thermal disruption of the tendon's degenerated tissue

Elbow Open Surgery:

Open debridement is a surgical procedure used to remove degenerative tissue from the extensor carpi radialis brevis tendon at the elbow. It involves opening a surgical incision at the lateral epicondyle, removing the diseased tissue, and then reattaching the remaining tendon. The success rate of this operation ranges from 80 to 85%.

For the first two weeks following surgery, a sling, splint, or soft bandages is used. In four to six weeks following surgery, rehabilitation aims to increase the soft tissue strength surrounding the elbow and improve the range of motion.

METHODOLOGY:

A prospective study involving Adults with lateral epicondylitis who attend to orthopaedics outpatient department in Great Eastern MEDICAL School& Hospital in the period from November 2022 - October 2024 (24 months).

During this study period, About 60 cases of lateral epicondylitis were treated by analgesics and physiotherapy for 6 weeks initially, then for PRTEE score improved cases continued the same treatment and for unimproved cases corticosteroid local injections given. Then condition is assessed clinically till 24 weeks and obtained PRTEE score for all patients at the end of the 24th week.

Inclusion Criteria:

1. Age > 18 years and <70yrs
2. Both males and females
3. If any one of the following is present
local tenderness over lateral epicondyle or
Positive Cozen's test or
Positive mill's test

Exclusion Criteria:

1. Coexisting major illness
2. Local sepsis
3. Patients who were treated with local steroid
4. Uncontrolled diabetes.

Before recruiting a patient, informed written consent was taken from the patient. Initial workup was done by

1. routine blood investigations including ESR, CRP, TC, DC, Diabetes profile, RA factor, and HLA B27 if required.
2. Good quality X-Ray elbow AP & Lat views

The initial condition will be assessed by the Patient Rated Tennis Elbow Evaluation Questionnaire (PRTEE).¹¹ Then Analgesics for 2 weeks and physiotherapy for 6 weeks were advised for all patients. physiotherapy includes ultrasound massage and TENS (Transcutaneous electrical nerve stimulation) twice weekly and extensor tendon stretching exercises twice daily. Then condition will be reassessed with the PRTEE questionnaire.

MCID (minimum clinically important difference) Of 37% of baseline was considered to interpret outcomes.¹² after 6 weeks if PRTEE score was less than the 37% of baseline PRTEE score, the condition is considered improved.

If the condition is improved, will continue the same treatment and will do a clinical assessment by checking lateral epicondyle tenderness, cozen's and mill's test every 4 weeks for 24 weeks, and the PRTEE score obtained at the end of the 24th week.

If the condition is not improved or deteriorated, then the patients will be injected with triamcinolone acetate 1 ml (40 mg) and 2% lignocaine 1 ml.

RESULTS:

Clinical Improvement At The End Of 20th Week (26th Week From The Start Of Study)

Clinical improvement @20th Week	Type Of Treatment		Total	Fishers Exact value	p value
	Analgesics & Physiotherapy	Corticosteroid injection			
No	6(18.8)	4(14.3)	10	0.22	0.7
Yes	26(81.3)	24(85.7)	50		
Total	32	28	60		

26 of 32 patients (81%) in A&P group and 24 of 28 patients (86%) in steroid group showed clinical improvement. 6 of 32 patients (19%) in A&P group and 4 of 28 patients (14%) in steroid group showed no clinical improvement.

CLINICAL PICS:



Positive Mill's test



Positive Cozen's test



Xray right elbow AP and lateral views



Extensor stretching exercises



TENS(Transcutaneous electrical nerve stimulation)



USG therapy



1 ml Triamcinolone acetonide (40mg)



2% lignocaine



1 ml Triamcinolone(40mg) + hydrochloride and 1 ml 2% lignocaine



Injection at maximal tenderness point

CONCLUSION:

In conclusion, this observational study of the effectiveness of analgesics and physiotherapy versus local steroid injection in the management of lateral epicondylitis shows, analgesics, and physiotherapy resulted in a clinically significant reduction of PRTEE score seen in 32 (52%) of 60 patients only after short term follow up of 6 weeks.

Analgesics and physiotherapy, as well as local steroid injection, improved the condition of patients with lateral epicondylitis in terms of the absence of clinical signs and reduction of PRTEE score at the end of the 24th week in most of the patients.

In terms of reduction of PRTEE score at the end of the 24th week, local steroid injection resulted in more improvement than analgesics and physiotherapy.

6 of 32 patients in the analgesics & physiotherapy group and 4 of 28 patients in the steroid group showed recurrence of the disease.

No patient had developed adverse reactions because of analgesics, physiotherapy, and local steroid injection.

But this study has some drawbacks, including limited sample size, patients from a single ethnic group, absence of a placebo arm for comparison, and lack of long-term follow-up.

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