

LATERAL EPICONDYLITIS; STEROID INJECTIONS FOR THE MANAGEMENT

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ABSTRACT... Objectives: To find out effectiveness of steroid injection for early management of lateral epicondylitis. **Data Source:** One hundred and twenty Patients of both genders presenting with unilateral lateral epicondylitis of less than two weeks duration reporting at Outpatient Department at Armed Forces Institute of Rehabilitation Medicine, Rawalpindi. **Design of Study:** Quasi experimental study. **Setting:** Out patient department of Armed Forces Institute of Rehabilitation Medicine, which is the largest rehabilitation facility in the country at present offering a multidisciplinary approach in the management of disability and musculoskeletal disorders¹⁷. **Period:** 01 yrs. **Results:** Both groups had sixty cases each with a mean age of 35.1 ± 6.22 and 36.08 ± 5.98 respectively. There were 54(45 %) males and 66(55%) females. At four weeks and three months follow up assessments there was significant improvement in pain relief and pain free grip strength in the Group A(steroids) as compared to Group B (NSAIDs). **Conclusions:** Local steroid injection is an effective treatment with an advantage over non-steroidal anti-inflammatory drugs (Diclofenac). It results in a rapid and better relief of symptoms, which is sustained over a period of three months.

Key words: Lateral Epicondylitis, Tennis Elbow, Steroid Injections, Non Steroidal Anti Inflammatory Drugs

INTRODUCTION

Lateral epicondylitis is the most common overuse syndrome of elbow that affects about 1-3% of the general population and seems to be more common in women¹⁻³. This condition occurs in response to inflammation and degeneration of the tendon that attaches to the muscles of the forearm. It commonly occurs at the origin of the extensor carpi radialis brevis muscle and less commonly at the extensor carpi radialis longus, extensor digitorum communis or extensor carpi ulnaris, with eventual fibrous adherence to the capsule⁴. Lateral epicondylitis is often referred to as tennis elbow due to its common occurrence in tennis players, but in fact any sports or activity that requires gripping can cause this problem including hammering, gardening and secretarial work⁴⁻⁶.

The diagnosis is a clinical one. Patient typically presents with a history of focal elbow discomfort, including weakness of grip, pain with resisted wrist extension, and a dull aching in the lateral epicondyle. On physical examination, there is pain on palpation just distal to the lateral epicondyle. Pain is exacerbated with resisted wrist extension, with resisted extension of the third finger with the elbow extended and by forcing wrist flexion with the elbow extended².

Conservative treatment with its most important components, such as rest and activity modification, is reported to be the main therapeutic approach⁷. Treatment options include local steroid injections^{3,8}, course of non-steroidal anti-inflammatory drugs⁹ and therapeutic modalities like icing, ultrasound, phonophoresis, and deep friction massage. Newer modalities like acupuncture¹⁰, shock wave therapy¹¹, laser therapy¹² and pulsed electromagnetic field therapy¹³ have also been tried with promising results. Therapeutic exercises begin with stretching of extensor muscle progressing to strengthening exercises. Bracing of elbow can be used to reduce tension on musculotendinous junction¹⁴. Underlying occupational causes such as tool design and repetitiveness of task should also be addressed to prevent the recurrence of the disease.

Approximately 90-95% of patients respond to conservative measures⁷ and do not require surgical intervention. Surgical intervention is only indicated after 6 months of failed conservative treatment¹⁵.

The time of recovery from lateral epicondylitis can range from 6 weeks to 22 months. The goal of rehabilitation is to

return patient to his or her activity or sport as soon as is safely possible. Most people do very well with proper treatment, but the recovery period can sometimes be quite lengthy. Early and prompt management of lateral epicondylitis can lead to shorter course of treatment and decrease in morbidity¹⁶.

There is paucity of treatment protocols on management of lateral epicondylitis in our local population. Electronic search of local database (www.pakmedinet.com) with search terms "lateral epicondylitis" "elbow tendinopathy" and "tennis elbow" did not find any article addressing this issue. This Quasi experimental study was done to evaluate role of steroid injections as an effective and rapid treatment modality for early and prompt management of lateral epicondylitis and to compare it with NSAIDs (Diclofenac)

MATERIALS AND METHODS

The study was conducted in the out patient department of Armed Forces Institute of Rehabilitation Medicine, which is the largest rehabilitation facility in the country at present offering a multidisciplinary approach in the management of disability and musculoskeletal disorders¹⁷. Patients referred to the OPD with pain elbow were evaluated in detail by one of the authors and after making a diagnosis of lateral epicondylitis were enrolled in the study if they fulfilled the following inclusion criteria. The study was carried out over a period of 01 yr.

Inclusion Criteria

Adults of both genders, with ages between 18-50 yrs having unilateral lateral epicondylitis of less than two week's duration.

Exclusion Criteria

- Patients with History of inflammatory arthritis
- Previous elbow surgery
- Fracture of lower end of humerus
- Gross structural abnormality of elbow
- Patients on oral or systemic steroids
- Contraindications to non-steroidal anti-inflammatory drugs or local steroid injections

Oral informed consent was obtained from the patients at

the start of the study and they were randomly assigned to either of the two groups A and B. Severity of pain was determined on a 10 cm Visual analogue scale equally divided into 10 equal parts labeled from 0-10(0 no pain, 10 most severe pain). Pain free grip strength (PFGS) on affected arm was measured with a hand held dynamometer after explaining the procedure to the patient. Mean of three readings was recorded in kilograms.

Group 'A' was given a local steroid injection of triamcinolone 10 mg with 0.5 ml 1% plain lignocaine according to the standard aseptic technique at the most tender point of the lateral epicondyle. It was followed by home based therapeutic exercises programme which was taught by one of the physiotherapists at AFIRM.

Group 'B' was prescribed Tablet Diclofenac Sodium 50 mg twice daily for 02 weeks along with therapeutic exercises. Patients from both the groups were given acetaminophen (500 mg tid/ qid) for additional pain relief, after local steroid injection and two weeks of Diclofenac Sodium.

Patients were regularly followed up. Pain severity and PFGS was evaluated by methods described above at four weeks and three months.

Data Analysis

Data analysis was computer based, SPSS version 11 was used for analysis.

Mean \pm standard deviation was calculated for age of patients in each group. Frequencies and percentages were calculated for gender and side involved in each group.

On each visit, relevant tests of significance were applied; paired samples T test to compare results of visual analogue scale and pain free grip strength between the two groups.

P value of < 0.05 was taken as statistically significant.

RESULTS

Initially 147 patients were enrolled for the study. Twenty

Table-I. Demographic data and out come measures at baseline, 04 weeks and 03 months

Parameters	Group A	Group B	P-value	Total
Age (in years) \pm SD	35.1 \pm 6.2	36.08 \pm 5.9	-	-
Gender				
Male	29	25	-	54
Female	31	35	-	66
Side involved				
Right	43	45	-	88 (73.3%)
Left	17	15	-	32 (26.3%)
VAS (\pmSD)				
Baseline	8.23 \pm 1.51	8.10 \pm 1.30	-	-
04 weeks	3.17 \pm 1.69	4.47 \pm 1.72	< 0.005	-
03 months	2.17 \pm 1.85	3.43 \pm 1.56	0.001	-
Pain free grip strength (kg)\pmSD				
Baseline	15.25 \pm 2.92	15.25 \pm 2.98	-	-
04 weeks	19.75 \pm 2.92	18.03 \pm 2.79	< 0.005	-
03 months	21.70 \pm 2.96	18.8 \pm 2.85	0.001	-

seven had to be excluded based on the exclusion criteria mentioned above leaving behind 120 patients who were randomly divided into two groups; namely: Group "A" and Group "B". The mean age + standard deviation for the group was 35.59 \pm 6.1. Majority of the patients were females (55%) with most of them having involvement of the right side (73.3%) See Table-I.

Group "A" included 60 patients. In this group there were 31 (51.67%) females and 29 (48.33%) males with a mean age of 35.1 \pm 6.2. Pain assessed on VAS ranged from 5 to 10, and PFGS was in the range of 11 to 23kgs. The mean grip strength on the uninvolved side was 31 \pm 5 kg. Table-I.

Group "B" included 60 patients having 35(58.33 %) females and 25(41.67 %) males with a mean age of 36.08 \pm 5.9. Pain assessed on VAS ranged from 5 to 10, and baseline PFGS was in the range of 10 to 23kgs .(see Table-I) The mean grip strength on the uninvolved side was 31 \pm 5 kg.

At four weeks, out come in group 'A' receiving local steroid injection was explicitly discernable and significantly better than in group 'B' receiving NSAIDs, in both the out come criteria for the study i.e. pain on visual analogue scale and PFGS on hand held dynamometer . This improvement in pain relief and PFGS was maintained in group A at three months follow up as well (p < 0.001). Results are displayed in Table-I.

There were no NSAIDs associated complications or adverse effects of steroid injections observed in any patient.

DISCUSSION

Lateral epicondylitis, due to its painful nature, is quite a source of discomfort and disability for the patients. It has the potential to gradually restrict activities of affected people, be it a sport field or work place.

Generally, patients with lateral epicondylitis are treated with drugs like NSAIDs and therapeutic modalities and exercises and the rate of success is quite reasonable⁶⁻⁹.

In Pakistan there is no published data on management of lateral epicondylitis. A need was felt to find a modality of treatment providing prompt management of lateral epicondylitis leading to a shorter duration and course of treatment and early decrease in morbidity. This was particularly true in case of the patients belonging to remote areas and who find it time and money consuming to attend out patients department or physiotherapy department on regular basis.

Extensive research has been done internationally to see the role for local steroid injection in early treatment of lateral epicondylitis. Verhaar JA and associates¹⁸ performed a prospective, randomized trial to compare the effects of local corticosteroid injections with physiotherapy as advocated by Cyriax in the treatment of lateral epicondylitis. The result showed that at six weeks, treatment with corticosteroid injections was more effective than Cyriax physiotherapy. They recommended local steroid injection for early treatment for its rapid action, reduction of pain and absence of side effects.

Jensen et al¹⁹ compared local corticosteroid injections versus splinting in a randomized controlled design. They concluded that injections were as effective as splinting in lateral epicondylitis. But they recommended splinting in early stages of disorder because of its lack of adverse effects.

Newcomer and associates¹⁶ analyzed whether a corticosteroid injection in combination with rehabilitation early in the course of lateral epicondylitis alters the outcome up to 6 months in a randomized, controlled, double blind study. They concluded that corticosteroid injection does not provide a clinically significant improvement in the outcome of lateral epicondylitis, and rehabilitation should be the first line of treatment in patients with a short duration of symptoms.

Recently Tonks and colleagues compared steroid injections to physiotherapy in a prospective randomized

controlled trial and concluded that steroid injections should be the first line of treatment in management of lateral epicondylitis as they are cost effective, less time consuming than physiotherapy, have rapid pain relieving action and have relatively fewer side effects⁸.

Assendelft et al performed a systemic review of the 12 RCTs on corticosteroid injections for lateral epicondylitis and concluded that Corticosteroid injections appear to be relatively safe and seem to be effective in the short term (2-6 weeks)²⁰. Similar observations were made by Bisset and colleagues when they compared steroid injections to exercise and rest²¹.

We compared improvement in outcome measure for pain with those published in international literature (as no local study was available), and found our results to be on the lower side. The difference was probably because of the bias mentioned below and lack of education and poor social background of the majority of the patients.

A comparison in outcome measure with international study²² for decrease in pain showed significantly lower rates. Hay EM and associates reported that 43 (84%) out of 53 patients who received local steroid injections showed improvement (pain on visual analogue scale 3 or less than 3) at the end of study period, which was one year, while this study showed improvement in 68.33% of patient at the end of study period.

Pain-free grip strength was chosen as one of the outcome measures because it has been reported to be the most sensitive outcome measure of physical impairment in tracking change in lateral epicondylitis and should be at least one of the outcome measures used in clinical practice²³⁻²⁵.

The limitation of the study includes a possible bias on treatment assignment. Another possibility is that not all patients might have received the same level of intervention like appropriate injection techniques, failure to infiltrate the drug properly, improper positioning and lack of cooperation of patient.

CONCLUSIONS

Local corticosteroid injection is a better and more effective treatment with an advantage over NSAIDs. The initial treatment of choice for lateral epicondylitis should be local corticosteroid injection as it provides rapid relief of symptoms in a shorter span of time which is sustained for at least three months and can reduce the number of follow up visits and inconvenience to the patients.

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**A friend to all is a
friend to none.**

Aristotle