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Original Research Paper

Medical Science

TO STUDY THE EFFECTIVENESS OF STEROID INJECTION IN EARLY MANAGEMENT OF LATERAL EPICONDYLITIS

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ABSTRACT

Objectives: To study the effectiveness of steroid injection in early management of lateral epicondylitis.

Study population: One hundred and twenty Patients presenting with unilateral lateral epicondylitis of less than two weeks duration reporting at Outpatient Department in department of Physical Medicine & Rehabilitation, AIIMS Patna, and Study **Design:** Prospective comparative study, for Period of 01 year, Results: There were 54(45 %) males and 66(55%) females. At one month and three months follow up assessments, there was significant improvement in VAS Score and pain free grip strength in the Group A (steroids) as compared to Group B (NSAIDs),

Conclusion: Local steroid injection is an effective treatment with an advantage of better relief of symptoms, which is sustained over a period of three months.

KEYWORDS : : 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 women[1-3]. It commonly occurs at the origin of the extensor carpi radialis brevis muscle and less commonly at the other extensors, with eventual fibrous adherence to the capsule[4]. 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 and gardening.[5-6]

The diagnosis is mainly clinical. Patient typically presents with a history of focal elbow discomfort, including weakness of grip, pain with resisted wrist extension, and a dull ache 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 extended[2] Conservative treatment with its most important components, such as rest and activity modification, is reported to be the main therapeutic approach[7]. Treatment options include course of non-steroidal anti-inflammatory drugs[8], local steroid injections[9], and therapeutic modalities like icing, ultrasound, phonophoresis, and deep friction massage. Newer modalities like acupuncture[10], shock wave therapy[11], laser therapy[12] and pulsed electromagnetic field therapy[13] 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 junction[14].

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 responds to conservative measures[7] and do not require surgical intervention. Surgical intervention is only indicated after 6 months of failed conservative treatment[15].

The time of recovery from lateral epicondylitis can range from 6 weeks to 22 months. The goal of rehabilitation is to return patient safely to his or her activity or sport as soon as possible. Early and prompt management of lateral epicondylitis can lead to shorter course of treatment and decrease in morbidity[16].

There is paucity of treatment protocols on management of lateral epicondylitis in our local population.

MATERIALS AND METHODS

The study was conducted in the outpatient department of Physical Medicine and Rehabilitation of AIIMS Patna, after taking clearance from institutional ethics committee. Patients came to the OPD with pain at outer elbow, were evaluated by Cozen's Test(elbow extension test), Mill's Test and confirmed by Maudsley's test. After making a diagnosis of lateral epicondylitis the patients were enrolled in the study, over a period of 01 year on fulfilling the following inclusion criteria.

Inclusion Criteria

1. Age-18-50 years
2. Sex-both genders
3. Laterality-unilateral lateral epicondylitis
4. Duration-less than two weeks

Exclusion Criteria

1. Patients with History of inflammatory arthritis
2. Previous elbow surgery
3. Fracture of lower end of humerus

4. Gross structural abnormality of elbow
5. Contraindications to non-steroidal anti-inflammatory drugs or local steroid injections

Written 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 labelled 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 2% plain lignocaine according to the standard aseptic technique at the most tender point of the lateral epicondyle. It was followed by home based therapeutic exercise programme.

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 bd) for additional pain relief.

Patients were regularly followed up. Outcomes were evaluated by VAS and PFGS at four weeks and three months.

Data Analysis

Statistical analyses were performed by SPSS statistical software version 21. The pre-treatment and post-treatment outcomes within the group were compared using paired t- test. Comparison between the two groups was done by independent samples t-test for quantitative data and chi-square test and Fisher exact test for qualitative data. P-value of <0.05 was taken as statistically significant.

RESULTS

Initially 157 patients were enrolled for the study. Based on the exclusion criteria, 37 patients were excluded. So 120 patients who were randomly allocated into two groups; named: Group "A" and "B". 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 ± 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 ± 5 kg.

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

Table-1

Parameters	Group A	Group B	P-value	Total
Age (in years) +SD	35.1 ± 6.2	36.08±5.9		-
Male	29	25	-	54
Female	31	35	-	66
Side involved				
Right	43	45	-	88 (73.3%)
Left	17	15	-	32 (26.3%)

Table2 Visual Analogue Scale

	Group A	Group B	P value
Baseline	8.23 ± 1.51	8.10 ± 1.30	0.21
04 weeks	3.17 ± 1.69	4.47 ± 1.72	< 0.005
12 weeks	2.17 ± 1.85	4.43 ± 1.56	0.001

Table 3 Pain free grip strength (PFGS)

	Group A	Group B	P value
Baseline	15.25 ± 2.92	15.25 ± 2.98	0.62
04 weeks	19.75 ± 2.92	18.03 ± 2.79	< 0.005
12 weeks	21.70 ± 2.96	18.08 ± 2.85	0.001

Table-2,3 shows that at four weeks, outcome in group 'A' receiving local steroid injection was significantly better than in group 'B' receiving NSAIDs, in both the outcome 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 also maintained in group A at 12 weeks follow up ($p < 0.001$). No patient reported NSAIDs associated complications or adverse effects of steroid injections.

DISCUSSION

Lateral epicondylitis, due to its painful nature, is a source of discomfort and disability for the patients. It can gradually restrict activities of affected people[6-9]. This is particularly true in case of the patients belonging to remote areas and who find time and money consuming to visit hospitals on regular basis.

Extensive research has been done internationally to see the role of local steroid injection in early treatment of lateral epicondylitis. Verhaar JA and associates[18] found that at six weeks, treatment with corticosteroid injections was more effective than Cyriax physiotherapy.

Newcomer and associates[16] analysed and 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.

Tonks JH et al had done a 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 effects[8].

Assendelft et al concluded that Corticosteroid injections appear to be relatively safe and seem to be effective in the short term (2-6 weeks)[20].

We compared improvement in outcome measure for pain by VAS and functional improvement by PFGS.

Pain-free grip strength was chosen as one of the outcome measures because it has been reported to be the most sensitive outcome measure and should be at least one of the outcome measures used in clinical practice[21-23].

The limitation of the study includes a possible bias on treatment assignment due to non-blinding. Another possibility is that not all patients might have received the same level of intervention because no guidance was used.

CONCLUSIONS

Local corticosteroid injection is a better and more effective treatment. 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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