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Efficacy of local corticosteroid Vs Sod. hyaluronate injection in the management of tennis elbow: A prospective randomized comparative study

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Abstract

Background: Lateral elbow pain being the most common cause of medical consultation for non-traumatic elbow disorders and defined as a chronic degenerative condition of extensor tendons (of wrist) involving their attachment to the lateral humeral epicondyle. In our study, we aim to compare the efficacy of local Corticosteroid Vs. Sod. Hyaluronate injection in the management of Tennis Elbow.

Material and Methods: A prospective randomized comparative study of 60 patients has been done, with complain of pain on lateral aspect of the elbow, which increased on pressure applied on lateral epicondyle of humerus. Positive results of Cozen's test and Mill's test were included in study. Two groups were made through alternate randomization, In Group I (n=30) single injection of 1 ml of Methylprednisolone Acetate (20 mg) mixed with 2 ml of 2% Lidocaine Hydrochloride was injected and In Group II (n= 30) single injection of 2 ml of Sodium Hyaluronate (20 mg) mixed with 2 ml of 2% Lidocaine Hydrochloride was injected. Criteria for evaluation of results are pain (+/-), tenderness (+/-), Cozen's test (+/-), Mill's test (+/-) and then reporting it as poor, good, and excellent results.

Results: Results were evaluated at the end of 4 weeks. In Group I, 56.66% patient (n=17) had excellent, 36.66% patient (n=11) had good and 6.66% patient (n=2) had poor results respectively. Whereas, in Group II, 33.33% patient (n=10) showed excellent, 43.33% patient (n=13) showed good and 23.33% patient (n=7) had poor outcome.

Discussion and Conclusion: As per our study, Corticosteroid injections are effective in reducing pain in the acute condition. Despite of many researches, there are no articles that favours single best treatment of tennis elbow, especially for effective long-term (≥ 52 weeks) outcomes.

Keywords: Tennis elbow, lateral epicondylitis, corticosteroid injection, sod. hyaluronate

Introduction

Lateral elbow pain being the most common cause of medical consultation for non- traumatic elbow disorders. "Tennis Elbow or Lateral Epicondylitis" being the most common diagnosis of the tendinous disorder [1]. It was first described by Runge in 1873 and in 1882, Henry Morris gave the label "Lawn Tennis Arm" while writing in the Lancet [2]. Tennis Elbow has tendency to occur in regular tennis players, when there is an association of forced wrist extension with the late back hand. Tennis Elbow or Lateral Epicondylitis has been defined as a chronic degenerative condition of extensor tendons (of wrist) involving their attachment to the lateral humeral epicondyle. A common condition involving around 1 - 3% of middle-aged population without sex predisposition [3]. Tendon of Extensor Carpi Radialis Brevis has commonly been associated in Tennis Elbow or Lateral Epicondylitis amongst the all other tendons originating from lateral humeral epicondyle region. Involvement of Extensor Carpi Radialis Brevis is mainly because of its unusual anatomy exposes it to shearing forces in almost each and every movements of the arm. Biomechanical studies by Briggs support the view that tennis elbow is primarily a mechanically induced condition [4]. Characteristic features are pain and tenderness over lateral epicondyle of humerus and pain on resisted dorsiflexion and radial deviation at the wrist joint. Risk factors of Tennis Elbow or Lateral Epicondylitis being history of manual exertion with heavy tools and straining while doing repetitive tasks [5].

It is usually a self-limiting condition resolving in half to one year irrespective of treatment [6]. Though many modalities of treatment have been described in literature, our study discusses treatment with Corticosteroid and Sod. Hyaluronate injection for Tennis Elbow or Lateral Epicondylitis and documenting a review of medical literature.

Materials and Methods

A prospective randomized comparative study of 60 patients, presented to Orthopaedics OPD at SGT Hospital, Gurugram, Haryana, has been done. All patients had complain of pain in elbow with duration vary from 4 to 18 weeks. Pain in elbow leading to significant alteration in day to day activities was being the most frequent complaint in most of the patients. Patients also gave history that they took treatment in the form of oral analgesics, local application of analgesics or ice, various physiotherapy modalities before coming to our institute (OPD). All of the patients were explained about various treatment modalities available, their risk and benefit. Detailed history and written informed consents were also obtained before commencing the treatment. The study was approved by Institutional ethical committee. Through alternate randomization, patients were divided into two groups: Group I (n=30) and Group II (n=30)

Inclusion criteria

All Patients with complain of pain on lateral aspect of the elbow which increased on pressure applied on lateral epicondyle of humerus along with positive results of Cozen’s test and Mill’s test were included in this study. Cozen’s test was performed by asking patient to hold the affected limb with elbow in semi flexed position and forearm in pronation and then/ followed by dorsiflexion of the wrist against the resistance applied by the examiner. Positive interpretation of test being severe pain on lateral aspect of the elbow. In Mill’s test, the examiner palpates the lateral epicondyle with one hand, and with the other, pronates the patient’s forearm, flexes the wrist fully, and extends the elbow. Pain at the lateral epicondyle considered as positive test.

Exclusion criteria

Any patients with duration of complain less than 4 weeks or more than 18 weeks, previous history of local administration of corticosteroid and/ sod. hyaluronate or contraindications to either corticosteroid and/ sod. hyaluronate, any associated deformities or fractures of the affected elbow or musculoskeletal disorders were excluded. Any possibility of other differential diagnoses (such as plica syndrome, radial nerve compression, and posterolateral instability) were also excluded from the study.

Procedure

Group I, Corticosteroid group (n= 30), Single injection of 1 ml of Methylprednisolone Acetate (20 mg) mixed with 2 ml of 2% Lidocaine Hydrochloride was injected at the point of maximum tenderness using a two-dimensional fanning technique under proper aseptic precautions.

Group II was defined as Sod. Hyaluronate group (n= 30). Single injection of 2 ml of Sodium Hyaluronate (20 mg) mixed with 2 ml of 2% Lidocaine Hydrochloride was injected at the point of maximum tenderness using a two-dimensional fanning technique under proper aseptic precautions.

Follow-up: Assessments were done at baseline, at the ends of 2 and 4 weeks of the procedure. Results were evaluated at the end of 4 weeks based on the criteria. (Table 1)

Table 1: Criteria for evaluation of results

Result	Pain	Tenderness	Cozen’s test	Mill’s test
Poor	Present	Superficial Tenderness	Positive	Positive
Good	Absent	Deep Tenderness	Negative	Negative
Excellent	Absent	Absent	Negative	Negative

Results

A total number of 60 patients participated in our study. Among them 63.33% patient (n=38) were female and 36.66% patient (n=22) were male patients. It was found that the condition is more common in the 25- 50 years age group population. (Table 2) (Figure 1)

Table 2: Age and Sex distribution of study population included

Age (in years)	Male population	Female population	Total
<25 years	2	6	8
25- 30 years	3	9	12
30- 40 years	6	16	22
40- 50 years	10	5	15
>50 years	1	2	3
Total	22	38	60

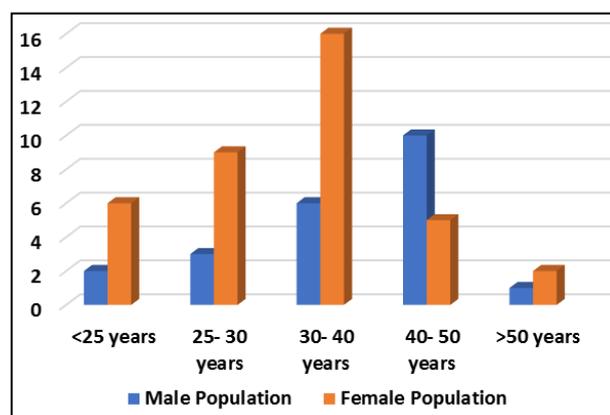


Fig 1: Age and Sex distribution of study population included

During the study it was also observed that majority of patients had their right side 65% patients (n=39) affected compared to the left side 35% patient (n=21), may be because of the fact that majority of people are right side dominant and tend to use their right hand more as compared to the left hand. (Table 3) (Figure 2)

Table 3: Side distribution of study population included

Side	Right	Left	Total
Male	8	9	17
Female	31	12	43
Total	39	21	60

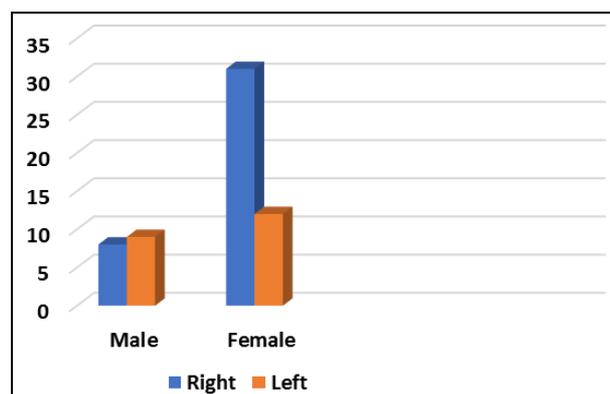


Fig 2: Side distribution of study population included

Results were evaluated at the end of 4 weeks showed that among the group I patient, 56.66% patient (n=17) had excellent, 36.66% patient (n=11) had good while 6.66% patient (n=2) had poor results respectively. Whereas among participants in group II, 33.33% patient (n=10) showed excellent, 43.33% patient (n=13) showed good and remaining 23.33% patient (n=7) had poor outcome. Majority population from the poor outcome category were followed up again after and counselled for and were administered corticosteroid injection. (Table 4) (Figure 3)

Table 4: Final follow-up results at the end of 4 weeks of treatment.

Result	Group I (Corticosteroid Group)	Group II (Sod. Hyaluronate Group)
Poor	2 (6.66%)	7 (23.33%)
Good	11 (36.66%)	13 (43.33%)
Excellent	17 (56.66%)	10 (33.33%)
Total	30 (100%)	30 (100%)

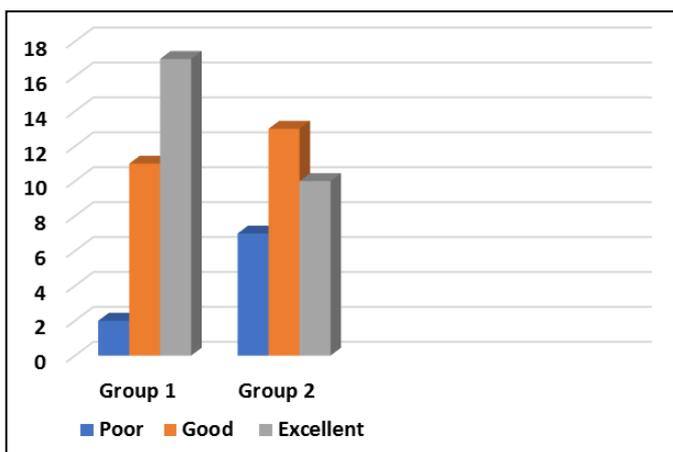


Fig 3: Final follow-up results at the end of 4 weeks of treatment

Discussion

Corticosteroid injections are a commonly prescribed intervention for the management of lateral epicondylitis [7, 8]. Corticosteroid injections are effective in reducing pain in the acute condition. Coombes *et al.* reported that there was strong evidence for the benefits of corticosteroid injections in the short term (12 weeks), compared with non-injection interventions (NSAIDs, physical therapy, and orthotic devices) for the treatment of lateral epicondylitis [9]. Despite of many researches, there are no articles that favours single best treatment of tennis elbow, especially for effective long-term (≥ 52 weeks) outcomes [10]. As absent from job and difficulty in doing daily routine work involving pronation and supination are major problems associated with this disease so the patients need an immediate and effective treatment and for that problem corticosteroid injection are one of best options in many studies. But routinely the corticosteroid injections are also favoured because corticosteroid injections are the most performed method in the treatment of lateral epicondylitis and they are the most commonly used technique for clinical studies in the literature.

Conclusion

In our study, with keeping in mind of various associated factors such as cost effectiveness, time lost from work, regaining the functional activity, we have concluded that single injection of local corticosteroid is superior and more effective than that of single injection of hyaluronidase for pain relief in acute presentation of tennis elbow.

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