



## CONSERVATIVE MANAGEMENT VS TRIAMCINOLONE INJECTION FOR TENNIS ELBOW

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### ABSTRACT

**BACKGROUND AND OBJECTIVE:** Lateral epicondylitis although named as tennis elbow is seen more commonly in non-athletes than athletes. Non-operative methods are the mainstay of treatment being effective in more than 95% of cases. Corticosteroid injection has shown promise in many studies as compared to steroid injection & other modes of conservative treatment. However, evidence on their combined efficacy is lacking. This study was done to evaluate the efficacy of conservative treatment and corticosteroid injection in Lateral epicondylitis. **Objective** To investigate the effectiveness of corticosteroid injection, versus conservative treatment in patients with unilateral lateral epicondylalgia.

**MATERIALS AND METHODS:** Randomized observational study was conducted at Father Muller Medical College hospital, on a total of 100 patients aged 18 years or older with unilateral lateral epicondylalgia of longer than 6 weeks duration, who presented in the out-patient department between December 2016 and November 2017. 1-year follow-up was completed in November 2018. One group received corticosteroid injection (n = 50) and the other group received physiotherapy (n = 50).

**MEASURES:** The outcomes were assessed by 1-year global rating of change scores for complete recovery or much improvement and 1-year recurrence (defined as complete recovery or much improvement at 4 or 8 weeks, but not later) analyzed on an intention-to-treat basis (P < .01).

**RESULTS:** Corticosteroid injection resulted in lower complete recovery or much improvement at 1 year (78%; relative risk [RR], 0.85 [99% CI, 0.75-0.99]; P = .01) and greater 1-year recurrence (68%; RR, 0.43 [99% CI, 0.10-0.51]; P < .001). The physiotherapy did not differ on 1-year ratings of complete recovery or much improvement (88% vs 76%, respectively; RR, 1.04 [99% CI, 0.90-1.19]; P = .56) or recurrence (12%; RR, 1.31 [99% CI, 0.73-2.35]; P = .25). Similar patterns were found at 24 weeks, with lower complete recovery or much improvement after corticosteroid injection (55%; RR, 0.79 [99% CI, 0.62-0.99]; P < .001) and no difference after physiotherapy (61%; RR, 1.22 [99% CI, 0.97-1.53]; P = .84). At 4 weeks, there was a significant interaction between corticosteroid injection and physiotherapy (P = .01), whereby patients receiving physiotherapy had greater complete recovery.

**CONCLUSION:** Among patients with chronic unilateral lateral epicondylalgia, the use of corticosteroid injection shows only temporary improvement which after 1 year becomes worse in terms of clinical outcomes as compared to physiotherapy, where the improvement persists for a longer duration.

### KEYWORDS :

#### INTRODUCTION

##### MORRIS, MOMBERG<sup>1</sup>

first described the condition tennis elbow in detail<sup>1</sup>. Tennis elbow is also known as the lateral epicondylitis, lateral epicondylalgia, lateral elbow tendinopathy, "thrower's elbow, lateral elbow pain, lateral elbow tendinosis, extensor carpi radialis brevis-tendinosis, extensor tendinosis, epicondylitis, washer women's elbow or angiofibroblastic tendinosis<sup>2</sup>. Dr. F. Runge called it writer's cramp<sup>3</sup>. Tennis elbow is primarily a clinical diagnosis based on a typical history, and clinical examination showing tenderness close to the lateral epicondyle, and pain provoked in this region by resisted wrist extension<sup>2,4</sup>. The history often includes repetitive and forceful gripping, and pain or weakness during gripping activities<sup>5</sup>. The prevalence of tennis elbow is described to be 1-2% in a general population between 30 and 64 years of age. Studies by Verhaar<sup>6</sup> and Shiri et al<sup>7</sup> showed highest incidence is between 40 and 60 years of age but no gender differences. Maffulli et al<sup>8</sup> showed that those people who played tennis get affected by tennis elbow at a younger age between 16-36 years, and this incidence also was higher as per a study by Carroll et al<sup>9</sup>. Corticosteroid injection has shown promise in many studies as compared to steroid injection & other modes of conservative treatment. This study was done to evaluate the efficacy of conservative treatment and corticosteroid injection in lateral epicondylitis.

#### MATERIALS AND METHODS

A randomized, observational study was conducted at Father Muller Medical College Hospital. A total of 100 patients aged 18 years or older with unilateral lateral epicondylalgia of longer than 6 weeks' duration were enrolled between December 2016 and November 2017. 1-year follow-up was completed in November 2018 on 100 cases who fulfilled a pre-determined inclusion & exclusion criterion. The study was initiated after obtaining an ethical clearance from the institution's ethical clearance committee. A written informed consent was taken from the patient before recruiting the patients to the study. The pre-determined inclusion & exclusion criteria were as follows: - **Inclusion criteria:** Patients of either sex with symptoms typical to lateral epicondylitis who were clinically diagnosed as suffering from tennis elbow and patients in the age group of 20-40 years. **Exclusion criteria:** Patients suffering from elbow pain due to other causes like

rheumatoid arthritis, osteochondritis dissecans, crystal arthropathies like gout, radial tunnel syndrome, cervical lesions and shoulder pathology; patients already treated by steroid injection; patients who have previously undergone surgical intervention at the elbow and patients with any local skin pathology at injection site. Patients were also subjected to specific investigations to rule out other conditions presenting with similar clinical features. Using lottery method for randomization the patients were divided into two groups, based on which the treatment was received. The one who administered the treatment and the one who collected the data were different researchers in order to ensure blinding. The same clinician gave the injection in order to ensure the way the injection was given did not interfere with the results. Group -I with 50 patients received physiotherapy. Group -II with 50 patients received 40 mg of triamcinalone injection at the affected area. After assessment of baseline parameters, the patients were given treatment according to their allotted group. The patients were evaluated with Oxford elbow score at the time of getting the injection at the end of 12 weeks & at the end of 24 weeks.

#### RESULTS AND OBSERVATIONS

In this prospective study conducted at Father Muller Medical College Hospital, the mean age in the corticosteroid and the physiotherapy groups were 38.62 years and 36.3 years respectively with a p value 0.1124. The males in the steroid and the physiotherapy groups were 13 and 10 respectively, at the and females were 37 and 40 respectively with a p value 0.869, not statistically significant hence the two groups were comparable. The most common presenting complaint seen in 100% of cases was elbow pain. The dominant side, right side involvement was seen in 94 cases and left side in 6 cases. The Oxford elbow score pre-treatment in the corticosteroid and the physiotherapy groups were 24.88 and 24.72 the p value was 0.8428; not statistically significant. Oxford elbow score at the end of 12 weeks of treatment in the corticosteroid and the physiotherapy groups were 31.78 and 35.3 the p value equaled 0 than 0.0001; extremely statistically significant indicating that physiotherapy had a better effect in control of pain than the corticosteroid injection at the end of 12 weeks. The Oxford elbow score at the end of 24 weeks of treatment in the steroid and the physiotherapy groups were 31.38 and 34.76 the p value equaled 0 than 0.0001; extremely statistically significant indicating that

physiotherapy had a better effect in control of pain than the corticosteroid injection at the end of 24 weeks. Corticosteroid injection resulted in lower complete recovery or much improvement at 1 year (78% ; relative risk [RR], 0.85 [99% CI, 0.75-0.99];  $P = .01$ ) and greater 1-year recurrence (68%; RR, 0.43 [99% CI, 0.10-0.51];  $P < .001$ ). The physiotherapy did not differ on 1-year ratings of complete recovery or much improvement (88% vs 76%, respectively; RR, 1.04 [99% CI, 0.90-1.19];  $P = .56$ ) or recurrence (12% %; RR, 1.31 [99% CI, 0.73-2.35];  $P = .25$ ).

## DISCUSSION

Ono et al<sup>10</sup> have reported female preponderance similar to our study as opposed to a study by Shiri<sup>7</sup> who found 1.3% prevalence of lateral epicondylitis without any gender difference. Chard et al<sup>11</sup> stated that lateral epicondylitis involves dominant arm more frequently; this finding is similar to our study where the commoner side involved was the dominant side. Right side involvement was seen in 94 cases and left side in 6 cases. **Aziza Sayed Omar, et al<sup>12</sup>**, has reported that the effect of corticosteroid injections lasts for about three months similar to our study. In **Gosens et al<sup>13</sup>** study, the recurrence rate and need for repeated injection or surgery was also higher in the corticosteroid group. Considering physiotherapy had a better long-term improvement with lesser recurrence, it would be ideal to combine corticosteroid injection with physiotherapy to compensate for the poor long-term outcomes of corticosteroid injection. However, the effectiveness of combined corticosteroid injection with physiotherapy regimen needs further research.

## CONCLUSION

In conclusion, tennis elbow is a common ailment, affecting females more than males, and is more commonly seen in non-athletes. This study showed a higher rate of recurrence in the corticosteroid group than the physiotherapy group. This stand to reason, that maybe corticosteroid injection may be given for immediate relief, however, once the inflammation settles, the patient should be started on physiotherapy to prevent recurrence. However, the efficacy of a combined regimen of corticosteroid injection followed by physiotherapy requires further research.

## REFERENCES

1. Robert B. Salter, MD Textbook of disorders D and injuries of the musculo skeletal system; Williams and Wilkins; 1999. pp 295-296.
2. Runge F. Zur Genese und Behandlung des Schreibekrampfes. Berliner Klin Wochenschr. 1873;10:245-248.
3. Nirschl RP, Ashman ES (2004). "Tennis elbow tendinosis (epicondylitis)". Instr Course Lect 53: 587-98.
4. Haker E. Lateral epicondylalgia: diagnosis, treatment and evaluation. Crit Rev Physical Rehabil Med 1993;5: 129-54.
5. Brukner P, Khan K, Clinical Sports Medicine Sydney: McGraw-Hill; 1993. pp. 123-124.
6. Verhaar JA, Walenkamp GH, Kester A, Van Mameren H, Van der Linden T. Lateral extensor release for tennis elbow. A prospective long-term follow-up study. The Journal of Bone & Joint Surgery. 1993 Jul 1;75(7): 1034-43.
7. Shiri R, Viikari-Juntura E, Varonen H, Heliövaara M. Prevalence and determinants of lateral and medial epicondylitis: a population study. American journal of epidemiology. 2006 Dec 1;164(11):1065-74.
8. Maffulli N, Regine R, Carrillo F, Capasso G, Minelli S. Tennis elbow: an ultrasonographic study in tennis players. British journal of sports medicine. 1990 Sep 1;24(3):151-5.
9. Carroll R. Tennis elbow: incidence in local league players. British Journal of Sports Medicine. 1981 Dec 1;15(4):250-6.
10. Ono Y, Nakamura R, Shimaoka M, Hiruta S, Hattori Y, Ichihara G, et al. Epicondylitis among cooks in nursery schools. Occup Environ Med. 1998;55:172-79.
11. Chard MD, Hazleman BL. Tennis elbow—a reappraisal. Rheumatology. 1989 Jun 1;28(3):186-90.
12. Omar AS, Ibrahim ME, Ahmed AS, Said M. Local injection of autologous platelet rich plasma and corticosteroid in treatment of lateral epicondylitis and plantar fasciitis: Randomized clinical trial. The Egyptian Rheumatologist. 2012;34:43-49.
13. Gosens T, Peerbooms JC, van Laar W, den Ouden BL. Ongoing Positive Effect of Platelet-Rich Plasma Versus Corticosteroid Injection in Lateral Epicondylitis A Double-Blind Randomized Controlled Trial With 2-year Follow-up. The American journal of sports medicine. 2011 Jun 1;39(6):1200-8.