

ORIGINAL ARTICLE

Efficacy of local corticosteroid injections and autologous blood injections in patients with lateral epicondylitis

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ABSTRACT:

Background: Participating in sports causes overuse of the muscles, bones, joints, ligaments, and tendons. Repetitive activities like gardening and some housework can also cause this overuse. The present study compared the efficacy of local corticosteroid injections and autologous blood injections in patients with lateral epicondylitis. **Materials & Methods:** 60 adult patients of lateral epicondylitis (Tennis elbow) of both genders were divided into 2 groups of 30 each. Group I was given local steroid injections as a single dose of 40 mg methylprednisolone mixed with 2 cc of 2% lignocaine, 3 such dosages were given at intervals of two weeks. Group II received autologous blood injections 2 mL of autologous blood was drawn from the ipsilateral upper extremity and mixed with 1 mL of 2% lignocaine. Pain was assessed as per VAS scale. **Results:** In group I and group II, 17 and 16 showed involvement of right elbow respectively and 13 and 14 of left elbow. 12 and 11 patients had pain only localized to lateral epicondyle, while 18 and 19 complained of pain radiating down the forearm in group I and group II respectively. 5 and 6 presented with <2 weeks, 11 and 10 with 2-4 weeks, 12 and 8 with 4-8 weeks and 2 and 6 with >8 weeks pain in both groups. The difference was non-significant ($P > 0.05$). In group I, 7 showed excellent, 23 had good, 8 had fair and 2 had poor results. In group II, 5 had excellent, 11 had good, 9 had fair and 4 had poor results. The difference was non-significant ($P > 0.05$). Common complications were white discoloration of skin seen in 1 patient in group I and 8 patients in group II and transient pain in 2 patients in group I and 6 patients in group II. The difference was significant ($P < 0.05$). **Conclusion:** During the follow-up period, corticosteroid injections were more successful than autologous blood injections at reducing discomfort and enhancing function. Due to its simplicity, affordability, and efficacy, it is advised as a first-line injection treatment.

Key words: Corticosteroid, PRP, lateral epicondyle

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INTRODUCTION

Injuries are rather prevalent, particularly for those who exercise frequently or are energetic, as well as for those who put in a lot of effort to learn and become proficient in new social skills.¹ Overuse and repetitive motions can cause a variety of injuries, including hamstring strains, shoulder dislocations, ankle sprains, wrist fractures, and many more. Participating in sports causes overuse of the muscles, bones, joints, ligaments, and tendons. Repetitive activities like gardening and some housework can also cause this overuse.²

A typical example of a repetitive strain injury is tennis elbow, which is brought on by a combination of long-term fatigue and irritation in the muscles and tendons on the outside of the elbow and back of the arm that lift (stretch) the wrist and fingers. Although Runge originally identified the ailment as "tennis elbow" in 1873, Morrison's 1882 description of "lawn tennis arm" is where the name originates.³ Periostitis, external carpi radialis brevis tendinosis, and epicondylalgia are some of the names for pain surrounding the lateral epicondyle. However, as histological investigations failed to detect inflammatory cells (neutrophils, lymphocytes, and macrophages) in afflicted tissues, these labels were

eventually called into question. Growth factors are believed to be present in high amounts in PRP, which may improve tendon recovery.⁴ The standard procedure includes drawing blood from the patient, centrifuging it, and then injecting the plasma again into the lateral epicondyle. Injections of corticosteroids are frequently used to treat LE. Although their exact mechanism of action is unknown, they most likely aid in pain mediation and the regulation of the local inflammatory response.⁵ The present study compared the efficacy of local corticosteroid injections and autologous blood injections in patients with lateral epicondylitis.

MATERIALS & METHODS

The present study comprised of 60 adult patients of lateral epicondylitis (Tennis elbow) of both genders. All were enrolled with their written consent. Data such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 30 each. Group I was given local steroid injections as a single dose of 40 mg methylprednisolone mixed with 2 cc of 2% lignocaine, 3 such dosages were given at intervals of two weeks. Group II received autologous blood injections 2 mL of autologous blood was drawn from the ipsilateral upper extremity and mixed with 1 mL

of 2% lignocaine. Pain was assessed as per VAS scale. Results were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Assessment of parameters

Parameters	Variables	Group I	Group I	P value
Side	Right	17	16	0.83
	Left	13	14	
Symptoms	Localized pain	12	11	0.75
	Localized+ Referred pain	18	19	
Duration	<2 weeks	5	6	0.91
	2-4 weeks	11	10	
	4-8 weeks	12	8	
	>8 weeks	2	6	

Table I shows that in group I and group II, 17 and 16 showed involvement of right elbow respectively and 13 and 14 of left elbow. 12 and 11 patients had pain only localized to lateral epicondyle, while 18 and 19 complained of pain radiating down the forearm in group I and group II respectively. 5 and 6 presented with <2 weeks, 11 and 10 with 2-4 weeks, 12 and 8 with 4-8 weeks and 2 and 6 with >8 weeks pain in both groups. The difference was non-significant (P> 0.05).

Table II Outcome of treatment

Outcome	Group I	Group II	P value
Excellent	7	5	0.05
Good	23	11	
Fair	8	9	
Poor	2	4	

Table II, graph I shows that in group I, 7 showed excellent, 23 had good, 8 had fair and 2 had poor results. In group II, 5 had excellent, 11 had good, 9 had fair and 4 had poor results. The difference was non-significant (P> 0.05).

Graph I Outcome of treatment

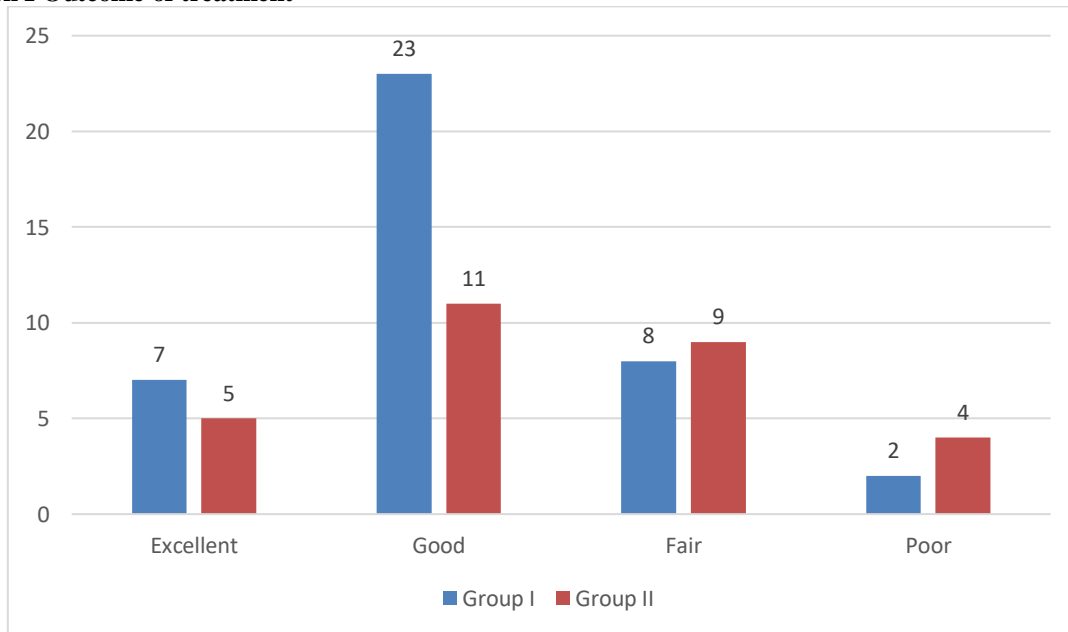


Table III Complications

Complications	Group I	Group II	P value
White discoloration of skin	1	8	0.01
Transient pain	2	6	0.04

Table III shows that common complications were white discoloration of skin seen in 1 patient in group I and 8 patients in group II and transient pain in 2 patients in group I and 6 patients in group II. The difference was significant (P< 0.05).

DISCUSSION

Lateral epicondylitis is a common cause of lateral elbow pain, with a prevalence of 1% to 3% in the general population aged 45 to 54 years.⁶ It is considered a degenerative process (rather than an inflammatory process), characterized by angiofibroblastic degeneration or hyperplasia within the common extensor tendon, particularly affecting the extensor carpi radialis brevis.^{7,8} Due to its low cost and ease of application, corticosteroid injection (CSI) is the most often used injection therapy for tendinopathy; nevertheless, its effects on function and pain reduction are only temporary. Injections of biological solutions have been utilized as a substitute more recently.^{9,10} Orthopaedic diagnoses like osteoarthritis, bone healing, muscle strain, tendinopathy, ligament, cartilage, and other soft tissue injuries have been treated with biological therapies, also known as autologous blood products (ABPs), such as autologous blood (AB) and platelet-rich plasma (PRP).¹¹ The present study compared the efficacy of local corticosteroid injections and autologous blood injections in patients with lateral epicondylitis.

In present study, in group I and group II, 17 and 16 showed involvement of right elbow respectively and 13 and 14 of left elbow. 12 and 11 patients had pain only localized to lateral epicondyle, while 18 and 19 complained of pain radiating down the forearm in group I and group II respectively. 5 and 6 presented with <2 weeks, 11 and 10 with 2-4 weeks, 12 and 8 with 4-8 weeks and 2 and 6 with >8 weeks pain in both groups. Omar AS et al¹² compared the effectiveness of local injection of autologous platelet rich plasma (PRP) and local steroid in reducing pain and improving function in a cohort of patients with tennis elbow (TE) and plantar fasciitis (PF). The study population comprised two groups; Group 1 patients with TE ($n = 30$) and Group 2 patients with PF ($n = 30$). In each group patients were allocated randomly to receive either a steroid or PRP injections. All patients filled in visual analog scale (VAS), disability of arm, shoulder and hand (DASH) score for TE and foot health status questionnaire (FHSQ) for PF at base line and after 6 weeks. Relative to TE group of patients significant differences were observed between VAS and DASH scores at base line and 6 weeks after treatment in both groups ($p < 0.001$). While no significant differences were observed relative to VAS and DASH score changes between both groups ($p > 0.05$). In PF patients, comparison of VAS and FHSQ at base line and 6 weeks after treatment between control group and PRP group showed significant differences for VAS ($p = 0.005$ and $p < 0.001$, respectively), and for FHSQ ($p = 0.03$ and $p < 0.001$, respectively). While highly significant difference were observed between both groups regarding VAS and FHSQ changes ($p = 0.001$). We found that in group I, 7 showed excellent, 23 had good, 8 had fair and 2 had poor results. In group II, 5

had excellent, 11 had good, 9 had fair and 4 had poor results. We found that common complications were white discoloration of skin seen in 1 patient in group I and 8 patients in group II and transient pain in 2 patients in group I and 6 patients in group II. Jindal N et al¹³ assessed efficacy of autologous blood injection versus local corticosteroid injection in the treatment of tennis elbow. 50 consecutive patients of untreated lateral epicondylitis were enrolled. Randomisation was done on alternate basis and two groups were constituted, first one receiving steroid injection and second one injection of autologous blood. Both groups were evaluated at 2 and 6 weeks for pain relief and stage of disease. Baseline evaluation showed no difference between the two groups (chi square test, $P > 0.05$). Between group analysis at 2 weeks showed no difference in pain relief and Nirschl stage (unpaired t test, $P > 0.05$). Evaluation at 6 weeks demonstrated a significant decrease in pain levels and stage of disease in blood group (unpaired t test, $p < 0.05$).

The limitation of the study is small sample size.

CONCLUSION

Authors found that during the follow-up period, corticosteroid injections were more successful than autologous blood injections at reducing discomfort and enhancing function. Due to its simplicity, affordability, and efficacy, it is advised as a first-line injection treatment.

REFERENCES

1. Solveborn SA, Buch F, Mallmin H, Adalberth G. Cortisone injection with anaesthetic additives for radial epicondylalgia (tennis elbow). *Clin Orthop* 1995; 316: 99-105.
2. Bisset L, Smidt N, Van der Windt DA, Bouter LM, Jull G, Brooks P, Vicenzino B. Conservative treatments for tennis elbow do subgroups of patients respond differently? *Rheumatology (Oxford)* 2007; 46(10):1601-1605.
3. Kraushaar BS, Nirschl RP. Tendinosis of the elbow (Tennis elbow): Clinical and findings of histological, immunohistochemical, and electron microscopy studies. *J Bone Joint Surg* 1999; 81A: 259-79.
4. Kazemi M, Azma K, Tavana B, Rezaiee Moghaddam F, Panahi A: Autologous blood versus corticosteroid local injection in the short-term treatment of lateral elbow tendinopathy: A randomized clinical trial of efficacy. *Am J Phys Med Rehabil* 2010; 89:660-667.
5. Arik HO, Kose O, Guler F, Deniz G, Egerci OF, Ucar M. Injection of autologous blood versus corticosteroid for lateral epicondylitis: A randomized controlled study. *Journal of Orthopaedic Surgery*. 2014 Dec; 22(3):333-7.
6. Vaquero-Picado A, Barco R, Antuña SA. Lateral epicondylitis of the elbow. *EFORT Open Rev* 2016; 1:391-397.
7. Mardani-Kivi M, Karimi-Mobarakeh M, Karimi A, Akhoondzadeh N, Saheb-Ekhtiari K, Hashemi-Motlagh K, et al. The effects of corticosteroid injection versus local anesthetic injection in the treatment of lateral

- epicondylitis: A randomized single-blinded clinical trial. *Arch Orthop Trauma Surg* 2013;133:757–63.
8. Ozturan KE, Yucel I, Cakici H, Guven M, Sungur I. Autologous blood and corticosteroid injection and extracorporeal shock wave therapy in the treatment of lateral epicondylitis. *Orthopedics*. 2010 Feb 1;33(2).
 9. Thurston AJ. Conservative and surgical treatment of tennis elbow: A study of outcome. *Aust NZJ Surg* 1998; 68 (8): 568-72.
 10. Lewis M, Hay EM, Peterson SM, Croft P. Local steroid injections for tennis elbow: Does the pain get worse before it gets better? Results from a randomised controlled trial. *Clin J Pain* 2005; 21(4): 330-4.
 11. Jobe FW CM. Lateral and medial epicondylitis of the elbow. *J Am AcadOrthop Surg* 1994;2:1– 8.
 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 Apr 1;34(2):43-9.
 13. Jindal N, Gaury Y, Banshiwal RC, Lamoria R, Bachhal V. Comparison of short term results of single injection of autologous blood and steroid injection in tennis elbow: a prospective study. *Journal of orthopaedic surgery and research*. 2013 Dec;8:1-7.