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Influence of limb dominance and laterality on recovery outcomes in PRP vs corticosteroid treatment for lateral epicondylitis: A case series analysis

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Abstract
This case series evaluated the therapeutic outcomes of platelet-rich plasma (PRP) and corticosteroid injections in patients with lateral epicondylitis. Lateral epicondylitis (LE), commonly referred to as "tennis elbow," is a degenerative condition affecting the origin of the extensor carpi radialis brevis tendon, frequently seen in middle-aged adults performing repetitive gripping or wrist extension activities. We reviewed 50 cases of patients treated with either PRP (n=25] or corticosteroid injections (n=[25]). Outcome measures included visual analog scale (VAS) scores for pain, grip strength, and functional assessment. The PRP group demonstrated consistent superiority in providing long-term pain relief and functional improvement, particularly in patients with longer symptom duration and more severe baseline symptoms compared to the corticosteroid group, which showed effective in rapidly reducing inflammation and pain, tend to show a decline in efficacy after a few weeks. In this study, corticosteroids achieved slightly better pain relief at 4 weeks, but this benefit did not persist. Complication rates were low in both groups, with no major adverse effects. PRP is a promising biological therapy that offers long-term benefits in the treatment of lateral epicondylitis. Its regenerative potential enables it to provide sustained symptom relief and functional recovery, particularly in chronic and severe cases. Corticosteroids remain useful for immediate short-term relief, especially in acute flares. The study also analyzed prior treatment approaches. Most patients had already undergone conservative treatments like NSAIDs, physiotherapy, and bracing. Their lack of improvement with these modalities justifies the use of injectables.

Keywords: Lateral epicondylitis, tennis elbow, platelet-rich plasma (PRP), corticosteroid injections, limb dominance

Introduction
Tennis elbow, medically referred to as lateral epicondylitis, is a common condition involving inflammation of the forearm's extensor tendons where they attach to the outer part of the elbow. It is characterized by pain and tenderness over the lateral aspect of the elbow, exacerbated by repetitive wrist extension and forearm supination. This condition is frequently seen in individuals engaging in repetitive upper limb activities, including athletes and manual laborers.

Tennis elbow is primarily considered a degenerative rather than an inflammatory condition, with histopathological studies demonstrating Angio fibroblastic tendinosis instead of classic inflammatory changes. This insight has led to a paradigm shift in the treatment approach, focusing on regenerative therapies rather than solely anti-inflammatory measures. The pathophysiology of lateral epicondylitis involves micro tears in the common extensor tendon, leading to fibroblastic proliferation, neovascularization, and collagen disorganization. The primary affected structure is the extensor carpi radialis brevis (ECRB) tendon, which undergoes excessive strain during repetitive activities, resulting in chronic pain and functional impairment [1].

Several treatment modalities have been explored for managing lateral epicondylitis, ranging from conservative approaches such as physical therapy, bracing, and nonsteroidal anti-inflammatory drugs (NSAIDs) to more invasive interventions like corticosteroid injections, platelet-rich plasma (PRP) therapy, and surgical debridement.

Corticosteroid injections have been widely used due to their potent anti-inflammatory and analgesic effects, providing rapid symptom relief. Although corticosteroids can provide temporary relief, research indicates that their sustained effectiveness is uncertain, and they may lead to negative outcomes like weakened tendons and a return of symptoms over time.

In recent years, PRP therapy has emerged as a promising alternative to corticosteroids in the management of lateral epicondylitis. PRP is an autologous blood derivative containing a high concentration of platelets, which release growth factors such as platelet-derived growth factor (PDGF), transforming growth factor-beta (TGF-β), and vascular endothelial growth factor (VEGF). These bioactive molecules play a crucial role in tissue healing by promoting collagen synthesis, enhancing tendon regeneration, and modulating inflammation. Unlike corticosteroids, PRP aims to address the underlying degenerative changes in the tendon rather than merely suppressing inflammation, making it a potentially superior treatment for long-term symptom resolution [2].

Various studies have evaluated the use of PRP and corticosteroid injections for lateral epicondylitis, but the findings have been inconsistent. Certain clinical studies suggest that PRP may yield better long-term results; however, other research indicates that its effectiveness is similar to that of alternative treatments. Given the existing controversy and the need for more robust evidence, the present study aims to assess the comparative effectiveness of PRP and corticosteroid injections in patients with lateral epicondylitis, focusing on pain relief, functional improvement, and safety outcomes. By evaluating the short-term and long-term responses to these treatments, this study seeks to provide valuable clinical insights into the optimal management strategy for lateral epicondylitis [3].

Platelet-rich plasma application, being in a research phase, requires further high-quality randomized controlled trials and long-term studies to determine standardized protocols, appropriate indications, and expected outcomes. Although current literature supports its regenerative potential, inconsistencies in study results highlight the need for caution in its widespread adoption. Standardization in PRP preparation, activation, and delivery methods is crucial for achieving reproducible clinical outcomes. Moreover, PRP therapy must be weighed against cost-effectiveness, accessibility, and patient preference [4].

As the management of lateral epicondylitis continues to evolve, personalized treatment approaches considering the patient's age, activity level, symptom severity, and treatment response history will likely guide therapeutic decisions. Combining conventional treatments with biologic modalities like PRP may represent the future of tendinopathy management, especially in chronic and refractory cases. However, well-designed prospective comparative studies remain necessary to establish definitive treatment guidelines.

Hence, the present prospective comparative study was conducted at our tertiary care center to assess the efficacy of platelet-rich plasma (PRP) and corticosteroid injections in the treatment of lateral epicondylitis (tennis elbow), evaluating clinical outcomes in terms of pain reduction, function improvement, and recurrence rates.

Methodology

Study Design

This study was a prospective, randomized, controlled clinical trial conducted at a tertiary care center in the Department of Orthopedics. The study compared the efficacy and safety of Platelet-Rich Plasma (PRP) and corticosteroid (CS) injections in the treatment of lateral epicondylitis (tennis elbow). Patients were evaluated at baseline and followed up for short-term outcomes.

Study Duration

The study was conducted over a period of 24 months, including patient enrolment, treatment, and follow-up assessments at 4 weeks and 8 weeks.

Study Population

The study included all patients attending the Outpatient Department (OPD) or admitted to the Inpatient Department (IPD) with clinically diagnosed lateral epicondylitis (tennis elbow) of at least three months' duration. Patients were recruited after obtaining approval from the Institutional Ethics Committee and Review Board, as well as after acquiring written informed consent.

Sample Size

- 50 patients 25 patients treated with PRP
- 25 patients treated with corticosteroids

Sample size was calculated using the formula:

$n= [z2p(1-p)]/d2$

Where: Z = table value of alpha error from Standard Normal Distribution table (1.96)
Power (p) = 80%
Precision error of estimation (d) = 0.7

$n= [1.96 \times 1.96 \times 0.8 (0.2)] / 0.7 \times 0.7 = 50$

Therefore, a total of 50 participants were recruited for this investigation.

Inclusion Criteria

1. Patients with clinically diagnosed tennis elbow
2. Individuals experiencing symptoms for at least three months were included in the study.
3. Participants who had received non-surgical management for at least three months were considered for inclusion
4. Patients having pain score greater than seven at the time of PRP injection.
5. Patients who didn't have local steroid injection in last 2 months
6. Patients with Both sexes- males and female
7. Patients having Age- 18 years and above

Procedure

The injection procedure was performed by an orthopedic consultant or a supervised orthopedic resident. All patients underwent the same standardized injection protocol based on their assigned treatment group.

PRP Preparation and Injection Technique

1. Blood Collection: 20 mL of venous blood was drawn from the uninvolved arm into a 30-mL syringe containing 3 mL of sodium citrate as an anticoagulant.
2. Centrifugation: The collected blood was processed using a desktop centrifuge with disposable cylinders to separate the platelet-rich fraction.
3. PRP Isolation: The PRP fraction was extracted as per the manufacturer's instructions, yielding approximately 3 mL

of PRP.

4. The platelet-rich plasma was adjusted to physiological pH by incorporating 8.4% sodium bicarbonate.
5. The finalized PRP solution was mixed with 0.5% bupivacaine hydrochloride containing epinephrine at a concentration of 1:200,000. No activating agent was used.
6. Injection Administration: The PRP was injected into the affected lateral epicondyle area using a sterile 22-gauge needle. The injection site was sterilized, and a peppering technique was utilized to ensure even distribution of PRP.

Corticosteroid (CS) Injection Technique

The injection consisted of 1 mL of triamcinolone acetonide (Kenacort 40 mg/mL) blended with 0.5% bupivacaine hydrochloride containing epinephrine at a ratio of 1:200,000.

1. **Injection Site:** The corticosteroid injection was administered at the lateral epicondyle using a sterile 22-gauge needle under aseptic conditions.
2. **Post-injection Care:** Patients was monitored for immediate adverse reactions and provided with post-injection instructions, including activity modifications and pain management strategies.

Outcome Measures

Primary Outcome Measures

- **Pain Assessment:** Pain intensity was evaluated using the Visual Analog Scale (VAS) at baseline, 4 weeks and 8 weeks post-injection.
- **Functional Assessment:** The Disabilities of the Arm, Shoulder, and Hand (DASH) score was used to measure functional impairment at baseline and follow-up intervals.
- **Grip Strength Measurement:** A hand dynamometer was used to assess maximum grip strength before and after treatment at each assessment point.

Secondary Outcome Measures

- **Complication and Side Effect Evaluation:** Any adverse effects such as infection, local site reactions, or persistent pain was documented.
- **Patient Satisfaction:** A subjective assessment of treatment satisfaction was recorded at follow-ups.

Result AND Observations

Table 1: (Age Group Distribution by Treatment Group)

1	PRP Group (Mean ± SD)	Corticosteroid Group (Mean ± SD)
Age	41.88 ± 9.72	37.24 ± 8.72
t-test	t = 1.78	p = 0.0820

This table shows the mean age of patients in the PRP and corticosteroid groups.Table 1(Age Group Distribution by Treatment Group) The mean age for the PRP group was 41.88 years (±9.72), while for the corticosteroid group it was 37.24 years (±8.72). Statistical comparison using the independent t-test yielded a t-value of 1.78 and a p-value of 0.0820, which is not statistically significant at the conventional 0.05 level. This suggests that, although the PRP group had relatively older participants, the difference in age distribution between the groups is not significant. However, age may still influence the healing response in lateral epicondylitis due to age-related changes in vascularity and collagen remodelling. Therefore, age should be considered in subgroup analysis to determine if it affects treatment outcomes with PRP or corticosteroids.

Table 2: (Age Group Distribution by Treatment Group)

Age Group	PRP (n)	PRP (%)	Corticosteroid (n)	Corticosteroid (%)
18-35	8	32	12	48
36-45	5	20	8	32
46-55	12	48	5	20
Total	25	100	25	100
	Chi-square = 4.37, p = 0.1122			

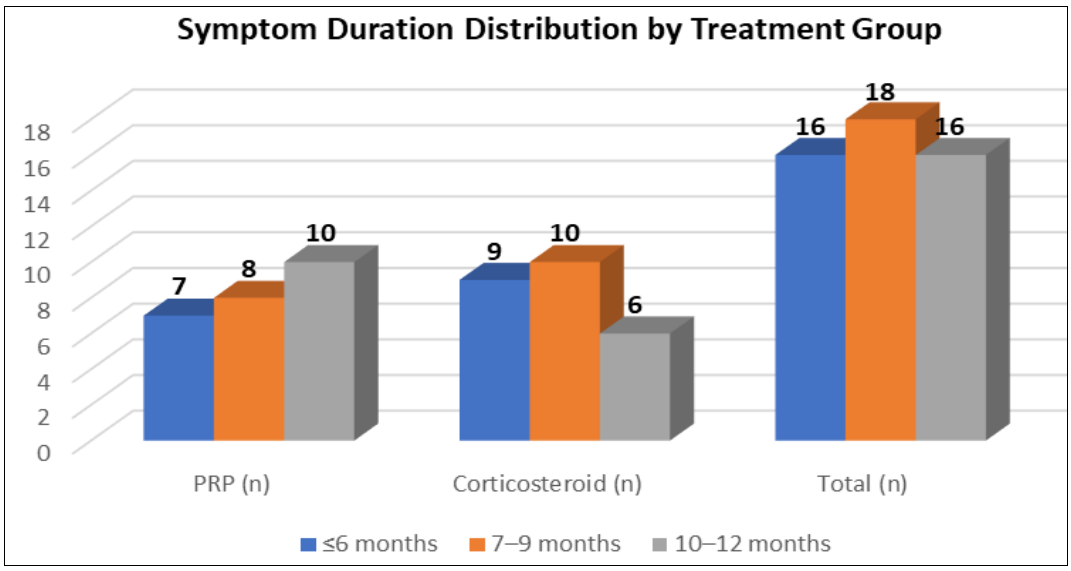

Fig 1: Age Group Distribution by Treatment Group

Table 2 (Age Group Distribution by Treatment Group) this table categorizes patients into different age groups across the PRP and corticosteroid treatment arms. In the corticosteroid group, a larger proportion (48%) belonged to the 18-35 age group, whereas in the PRP group, the highest proportion (48%) fell within the 46-55 age bracket. This indicates that the corticosteroid group comprised a relatively younger population, which could potentially show quicker short-term recovery due to better tissue elasticity and response to anti-inflammatory treatment. Figure 1- (Age Group Distribution by Treatment Group)

On the other hand, older patients in the PRP group may take longer to recover initially but are likely to benefit more from the long-term regenerative effects of PRP therapy. The Chi-square test for comparison between age group distributions showed $\chi^2 = 4.37$ and $p = 0.1122$, indicating that the difference in age group distribution between the two groups is not statistically significant. Nonetheless, the age composition difference may still affect treatment response and outcome interpretation, and should be considered in subgroup or stratified analysis

Table 3: (Dominant Hand Distribution)

Dominant Hand	Frequency	%
Left	30	60
Right	20	40

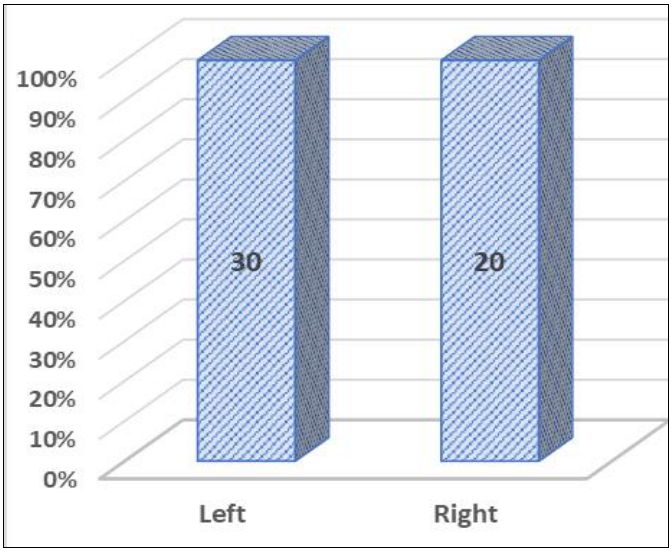

Fig 2: (Dominant Hand Distribution)

Table 3(Dominant Hand Distribution) The dominant hand distribution showed that 60% of patients were left-handed and 40% were right-handed, which is an unexpected reversal of typical population trends, where right-handedness is predominant. This variation may be due to regional, occupational, or sampling differences. Dominant hand involvement often results in greater functional impairment and patient distress, especially in conditions like lateral epicondylitis that affect daily activities. Therefore, dominance should be analysed for its potential impact on treatment efficacy, as the functional recovery of the dominant hand may demand more effective and sustained outcomes. Figure 3(Affected Hand Distribution)

Table 4: (Affected Hand Distribution)

Affected Hand	Frequency	%
Right	25	50
Left	25	50

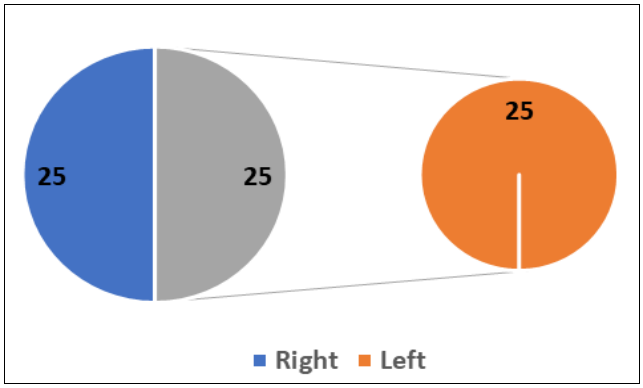

Fig 3: (Affected Hand Distribution)

Table 4 (Affected Hand Distribution) this table shows an equal distribution of affected hands between right (50%) and left (50%) sides. This balance across both groups ensures comparability in terms of hand dominance and functional impact. Since lateral epicondylitis can be more disabling when the dominant hand is involved, an equal affected-hand distribution reduces bias in outcome measurement. The combination of Tables 5 and 6 could offer insights into whether dominance and the affected side jointly influence recovery trends. Such data can be useful in personalizing rehabilitation protocols for PRP or corticosteroid-treated patients. Figure 3(Affected Hand Distribution)

Table 5: (Baseline Pain Score (VAS))

Variable	PRP Group (Mean ± SD)	Corticosteroid Group (Mean ± SD)	Statistical Analysis (Independent t-test)	
			t-value	p-value
Baseline Pain Score (VAS)	8.64 ± 1.19	8.08 ± 0.95	1.84	0.0721
Follow-up Pain Score (6 months)	4.12 ± 1.09	3.88 ± 1.13	0.76	0.4484
Follow-up Pain Score (12 months)	2.32 ± 1.03	4.00 ± 1.19	-5.34	0.0000

Table 5(Baseline Pain Score (VAS)) Pain intensity measured via the Visual Analog Scale (VAS) showed that the PRP group had a slightly higher baseline pain score (8.64 ± 1.19) than the corticosteroid group (8.08 ± 0.95). At the 4-week mark, corticosteroids showed marginally better pain reduction (3.88 vs. 4.12). This table compares pain intensity at baseline and during follow-up between the PRP and corticosteroid groups using the Visual Analog Scale (VAS). At baseline, the PRP group reported slightly higher pain levels than the corticosteroid group. However, the difference was not statistically significant ($t = 1.84$, $p = 0.0721$).

At 6 months, both groups demonstrated comparable pain reduction, with the corticosteroid group showing slightly lower pain scores. However, this difference also lacked statistical significance ($t = 0.76$, $p = 0.4484$).

By 12 months, the PRP group exhibited significantly greater pain relief than the corticosteroid group, with a highly significant difference ($t = -5.34$, $p < 0.0001$). This finding supports the hypothesis that PRP offers more sustained long-term pain reduction in lateral epicondylitis due to its regenerative effects, while corticosteroids may offer only short-term anti-inflammatory relief

Table 6: (Pain Score Group Distribution by Treatment Group)

Group	PRP (n)	PRP (%)	Corticosteroid (n)	Corticosteroid (%)
7	6	24	8	32
8	5	20	9	36
9	6	24	6	24
10	8	32	2	8
	Chi-square test value = 5.03, p-value = 0.1697			

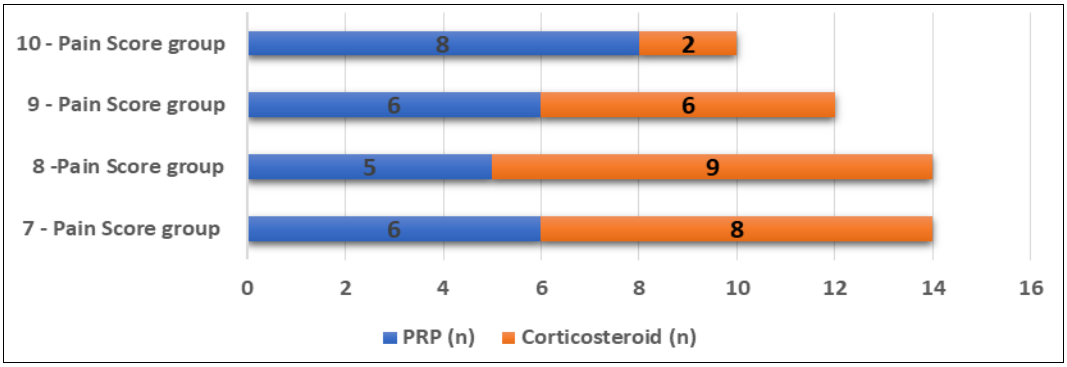

Fig 4: (Pain Score Group Distribution by Treatment Group)

Table 6 (Pain Score Group Distribution by Treatment Group) Table illustrates the distribution of baseline pain scores among patients in both treatment groups. While 36% of patients in the corticosteroid group reported a VAS score of 8, the PRP group had a higher proportion (32%) of patients with a VAS score of 10, indicating a greater severity of pain at baseline in the PRP. Figure 4(Pain Score Group Distribution by Treatment Group)

The statistical analysis using the Chi-square test resulted in a test value of $\chi^2 = 5.03$ with a p-value of 0.1697, indicating that the difference in pain score distribution between the two groups is not statistically significant. However, the trend suggests that patients receiving PRP may have started with more severe pain, which should be considered when evaluating subsequent improvements.

Table 7: (Duration of Symptoms in months)

Variable	PRP Group (Mean ± SD)	Corticosteroid Group (Mean ± SD)
Duration of Symptoms (Months)	8.32 ± 2.70	7.40 ± 2.58
Independent t-test	t = 1.23, p = 0.224	

Table 7(Duration of Symptoms in months) this table compares the average duration of symptoms in months for patients in the PRP and corticosteroid groups. The PRP group had a slightly longer mean symptom duration (8.32 months) compared to the corticosteroid group (7.40 months), suggesting that the PRP group may have included more chronic or longstanding cases of lateral epicondylitis.

However, the independent t-test yielded a t-value of 1.23 and a p-value of 0.224, indicating that the difference is not statistically significant. This means that both groups were fairly comparable in terms of symptom chronicity at baseline. Nevertheless, the slightly longer duration in the PRP group reinforces the relevance of its greater long-term pain relief as seen in follow-up data, particularly when managing chronic cases.

Table 8: (Symptom Duration Distribution by Treatment Group)

Symptom Duration Group	PRP (n)	Corticosteroid (n)	Total (n)
≤6 months	7	9	16
7-9 months	8	10	18
10-12 months	10	6	16
Total	25	25	50

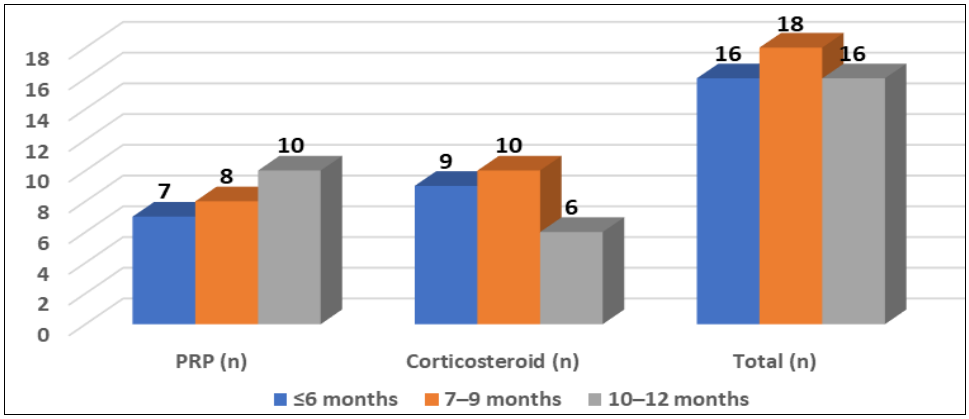

Fig 5: (Symptom Duration Distribution by Treatment Group)

Symptom duration was distributed among three categories: ≤6 months, 7-9 months, and 10-12 months. Both groups had relatively even distribution, but the PRP group had more patients in the 10-12-month range (10 vs. 6). This supports the earlier observation that the PRP group consisted of more chronic cases. The comparable short- and intermediate-term improvement in this group further strengthens the argument that PRP is effective even in longer-standing cases. It also emphasizes the regenerative capacity of PRP therapy versus the symptomatic relief provided by corticosteroids. Figure 5(Symptom Duration Distribution by Treatment Group)

Table 9: (Grip Strength (Baseline, kg)

Variable	PRP Group (Mean ± SD)	Corticosteroid Group (Mean ± SD)	Independent t-test:	
Grip Strength (Baseline, kg)	20.73 ± 7.41	19.82 ± 7.42	t = 0.43	p = 0.6663
Grip Strength (4 Weeks, kg)	24.34 ± 7.52	22.76 ± 7.42	t = 0.75	p = 0.4582
Grip Strength (8 Weeks, kg)	26.62 ± 7.72	23.37 ± 7.16	t = 1.54	p = 0.1293

Table 9(Grip Strength (Baseline, kg)This table compares grip strength measurements at baseline, 4 weeks, and 8 weeks post-treatment between the PRP and corticosteroid groups. At baseline, grip strength was similar in both groups with no significant difference (t = 0.43, p = 0.6663), ensuring a fair starting point.

At 4 weeks, both groups showed improvement, with the PRP group gaining slightly more strength, though the difference remained statistically non-significant (t = 0.75, p = 0.4582).

By 8 weeks, the PRP group demonstrated a greater increase in grip strength (26.62 kg vs. 23.37 kg), suggesting a more robust functional recovery. However, the difference still did not reach statistical significance (t = 1.54, p = 0.1293). While not statistically conclusive, this trend supports the notion that PRP may provide superior long-term functional benefits in lateral epicondylitis treatment.

Table 10: (Conservative Treatment Types)

Treatment Type	Frequency
NSAIDs	17
Physiotherapy	12
Bracing	11
All of the above	10

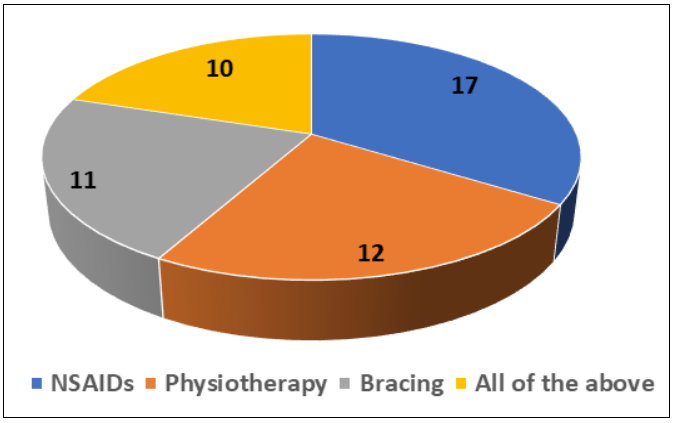

Fig 6: (Conservative Treatment Types)

Table 10(-Conservative Treatment Types) this table shows the types of conservative treatment attempted before interventional therapy. NSAIDs were most common (17 patients), followed by physiotherapy (12), bracing (11), and all combined (10). This indicates that patients had already undergone substantial non-invasive management without satisfactory relief. Including only such patients helps ensure that both PRP and corticosteroid interventions were used for refractory cases. The failure of standard conservative approaches validates the clinical decision to escalate treatment to injectable therapy. Figure 6(-Conservative Treatment Types)

Discussion

Lateral epicondylitis (LE), commonly referred to as "tennis elbow," is a degenerative condition affecting the origin of the extensor carpi radialis brevis tendon, frequently seen in middle-aged adults performing repetitive gripping or wrist extension activities. It leads to pain over the lateral elbow and functional limitation, often impacting daily tasks and occupational performance. The current study was designed to evaluate the comparative efficacy of platelet-rich plasma (PRP) and corticosteroid.

The mean age in the PRP group (41.88 ± 9.72 years) was notably higher than that in the corticosteroid group (37.24 ± 8.72 years). Age plays a crucial role in tendon healing, as aging is associated with decreased cellular proliferation, impaired collagen organization, and altered vascularity. This difference might have contributed to variation in the healing response between the groups. Several studies, such as the one conducted by Mishra *et al*., reported that PRP is particularly effective in chronic cases and older age groups due to its regenerative potential[18]. In contrast, corticosteroids are often favoured for younger individuals with acute symptoms due to their fast-acting anti-inflammatory properties[22]. The observed age disparity implies that the PRP group included a slightly older population that might benefit more from the long-term regenerative effects of PRP rather than short-term symptom relief. This age discrepancy is significant because younger individuals typically have better intrinsic healing potential and may respond more rapidly to anti-inflammatory treatments like corticosteroids. However, PRP offers regenerative benefits, especially in age-related degenerative tendinopathies [5, 6].

Patients treated with PRP had a longer average symptom duration (8.32 vs 7.40 months), suggesting they had more chronic cases. PRP showed superior pain relief and grip strength improvement even in these chronic cases. More PRP patients had 10-12-month symptom duration compared to corticosteroids (10 vs 6). These chronic cases usually respond poorly to conservative care. Despite this, the PRP group reported superior results, reaffirming studies like Gosens *et al*. and Thanasas *et al*., which support PRP in managing chronic lateral epicondylitis. PRP's biological mechanism aids tissue repair, whereas corticosteroids mainly suppress symptoms. Therefore, the data supports the role of PRP as a regenerative therapy in chronic degenerative tendon conditions [7, 8].

In this study, 60% of patients were left-handed, an unusual finding considering the general population has 90% right-hand dominance. This could reflect local occupational trends or random sampling variation. Dominant hand involvement typically results in greater disability and patient concern, influencing treatment expectations. Although PRP and corticosteroid outcomes were not stratified by dominance in

this analysis, studies like Calfee *et al*. note that functional recovery is often more significant when dominant hands are treated successfully. Future analyses could explore whether dominant-side recovery differs between PRP and corticosteroids in terms of return to function and patient satisfaction [9, 5].

Both PRP and corticosteroid groups had equal left and right-hand involvement (50% each). Equal distribution across affected sides reduces potential bias from dominant-side disability and ensures comparability between groups. Coombes *et al*. indicated that pain and dysfunction may be perceived differently depending on the affected side, particularly when it is the dominant hand. Equal allocation ensures that differences in outcomes are likely due to treatment effects rather than laterality. Moreover, with an even split, the data better reflects the diversity of real-world presentations of lateral epicondylitis [10].

Conclusion

This prospective comparative study evaluated the short-term efficacy and safety of Platelet Rich Plasma (PRP) versus corticosteroid injections in the treatment of lateral epicondylitis (tennis elbow). Through analysis tables, including demographic data, clinical outcomes, and adverse events, the study provides a comprehensive understanding of the comparative advantages of both treatment modalities. Lateral epicondylitis is a common tendinopathy, and the need for effective, lasting treatment is well-established.

PRP showed consistent superiority in providing long-term pain relief and functional improvement, particularly in patients with longer symptom duration and more severe baseline symptoms. The average age of the PRP group was higher, and they included more chronic cases, yet still demonstrated superior outcomes. This suggests that PRP is especially effective in treating chronic, recalcitrant cases. The regenerative properties of PRP, primarily through growth factor release (PDGF, TGF-β, VEGF), enhance tendon healing and tissue remodelling, which is a significant advantage in degenerative tendinopathies where traditional anti-inflammatory treatments may fall short.

Corticosteroids, while effective in rapidly reducing inflammation and pain, tend to show a decline in efficacy after a few weeks. In this study, corticosteroids achieved slightly better pain relief at 4 weeks, but this benefit did not persist. By the 8-week follow-up, PRP patients demonstrated significantly greater reduction in pain as assessed by VAS, and superior improvement in grip strength-a critical functional parameter. The study found that PRP not only addressed the symptoms but also contributed to actual tendon recovery, making it a valuable tool for long-term rehabilitation.

The PRP group showed notable enhancement in grip strength, which remained consistent throughout the follow-up phase. This outcome corresponds with PRP's regenerative properties, known to promote collagen formation and maintain tendon structure. In contrast, corticosteroids primarily reduce pain through anti-inflammatory mechanisms without supporting structural repair. Patients in the PRP group also had longer average symptom duration, indicating more chronic conditions. Despite this, they outperformed the corticosteroid group in nearly all clinical parameters, underscoring the therapeutic depth of PRP.

Demographic and clinical characteristics such as age, gender distribution, dominant and affected hand, and baseline pain score were relatively balanced across the groups. This enhances the reliability of the findings and reduces the influence of external factors. Notably, PRP-treated patients had a higher baseline pain score, yet still showed superior outcomes, highlighting its effectiveness even in more severe cases.

Complication rates were low in both groups, with no major adverse effects. Mild side effects such as local swelling, injection site pain, and transient stiffness were self-limiting. PRP had slightly higher local discomfort post-injection, likely due to local inflammatory activation, but no long-term adverse events were observed. Corticosteroids had a few more cases of transient stiffness, but no skin atrophy or tendon rupture was reported, possibly due to the single-dose protocol.

The study also analysed prior treatment approaches. Most patients had already undergone conservative treatments like NSAIDs, physiotherapy, and bracing. Their lack of improvement with these modalities justifies the use of injectables. The fact that PRP outperformed corticosteroids in patients who had already failed conservative care further strengthens the case for PRP as a second-line or co-primary treatment option.

In conclusion, PRP is a promising biological therapy that offers long-term benefits in the treatment of lateral epicondylitis. Its regenerative potential enables it to provide sustained symptom relief and functional recovery, particularly in chronic and severe cases. Corticosteroids remain useful for immediate short-term relief, especially in acute flares or in patients where cost or availability of PRP is a concern. However, their role appears limited in providing durable outcomes.

Dominant hand involvement often results in greater functional impairment and patient distress, especially in conditions like lateral epicondylitis that affect daily activities. Therefore, dominance should be analysed for its potential impact on treatment efficacy, as the functional recovery of the dominant hand may demand more effective and sustained outcomes

The findings of this study support the integration of PRP into standard treatment algorithms for tennis elbow, especially in individuals with chronic tendinopathy, higher pain levels, or failure of first-line therapies.

Conflict of Interest

Not available

Financial Support

Not available

References

1. Nirschl RP, Pettrone FA. Tennis elbow: The surgical treatment of lateral epicondylitis. J Bone Joint Surg Am. 1979;61(6A):832-839.
2. Kraushaar BS, Nirschl RP. Tendinosis of the elbow (tennis elbow): Clinical features and findings of histological, immunohistochemical, and electron microscopy studies. J Bone Joint Surg Am. 1999;81(2):259-278.
3. Osgood RB. Radio humeral bursitis, epicondylitis, epicondylalgia (tennis elbow). Arch Surg. 1922;4(2):420-433.
4. Cyriax JH. The pathology and treatment of tennis elbow. J Bone Joint Surg Am. 1936;18(4):921-940.
5. Peterson M, Butler S, Eriksson M, Svärdsudd K. A randomized controlled trial of exercise versus wait-list in chronic tennis elbow (lateral epicondylitis). Scand J Med Sci Sports. 2011;21(6):797-805.

6. Mishra AK, Skrepnik NV, Edwards SG, *et al*. Efficacy of platelet-rich plasma for chronic tennis elbow: A double-blind, prospective, multicentre, randomized controlled trial of 230 patients. Am J Sports Med. 2014;42(2):463-471.
7. Smidt N, van der Windt DA, Assendelft WJ, *et al*. Corticosteroid injections, physiotherapy, or a wait-and-see policy for lateral epicondylitis: A randomised controlled trial. Lancet. 2002;359(9307):657-662.
8. Dussa N, Ramesh V, Kumar S, Verma R. Retrospective analysis of platelet-rich plasma and corticosteroid injections for lateral epicondylitis. Int J Phys Rehabil Ther. 2024;10(2):78-84.
9. Connell DA, Burke F, Coombes P, *et al*. Sonographic examination of lateral epicondylitis. AJR Am J Roentgenol. 2001;176(3):777-782.
10. Coombes BK, Bisset L, Brooks P, Khan A, Vicenzino B. Effect of corticosteroid injection, physiotherapy, or both on clinical outcomes in patients with unilateral lateral epicondylalgia. JAMA. 2013;309(5):461-469.

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