

## Comparison of Platelet-Rich Plasma and Corticosteroid Injection for Treating Lateral Epicondylitis: A Prospective Study

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### Abstract

**Aim:** The purpose of this research is to evaluate the effectiveness of platelet-rich plasma (PRP) injection versus corticosteroid injection in the diagnosis of lateral epicondylitis.

**Methods:** This was a one-year comparative prospective study conducted at, Department of Orthopaedics, Shree Narayan Medical institute and Hospital, Saharsa, Bihar. Patients of lateral epicondylitis were enlisted from a tertiary care hospital's outpatient department. The study included 60 patients who were randomly assigned to one of two groups: Group A received PRP injections and Group B received corticosteroid injections. Both groups were evaluated one week, four weeks, eight weeks, and twelve weeks after injection. A visual analogue scale (VAS), dynamometer, and the Impairments of the Arm, Shoulder, and Hand (DASH) questionnaire were used to assess pain management, grip strength, and functional status.

**Result:** The patients' average age was 42.5 8.4 years. The average VAS score in Group A decreased from 8.4 1.3 at base point to 2.7 0.9 at twelve weeks, while the mean VAS score in Group B decreased from 8.3 1.4 at base point to 4.2 1.2 at 12 weeks. The average grip strength and DASH scores improved significantly in Group A compared with Group B. Furthermore, Group A had a lower risk of recurrence of lateral epicondylitis than Group B.

**Conclusions:** When compared to corticosteroid injection, the use of PRP injection in the diagnosis of lateral epicondylitis resulted in a significant improvement in pain management, grip strength, and functional status. PRP injection also resulted in a lower incidence rates of lateral epicondylitis. As a result, PRP injection can be considered a safe and effective substitute to corticosteroid injection in the recovery of lateral epicondylitis.

**Keywords:** Platelet-rich plasma, Corticosteroid injection, Lateral epicondylitis, Pain relief, Grip strength, Functional ability.

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### Introduction

Tennis elbow, also known as lateral epicondylitis, is a distressing condition that affects the outer edges of the elbow. It is a common condition caused by overuse of the forearm muscles and tendons, which causes nanoscopic tears in the muscle fibres that attach to the lateral epicondyle

of the humerus. The condition can strike any and everyone, however it is more prevalent in individuals who engage in repetitive gripping activities, such as tennis as well as other racquet games, manual labour, or playing a musical instrument. [1]

Rest, physiotherapy, non - steroidal anti-inflammatory drugs (NSAIDs), & corticosteroid injections are all treatments for lateral epicondylitis. Platelet-rich plasma (PRP) has recently been proposed as a treatment option for lateral epicondylitis. PRP is an autologous blood component enriched with haemoglobin, growth factors, and cytokines, which can aid in the healing of damaged tissues. [2]

Despite the increasing acceptance of PRP for the recovery of lateral epicondylitis, there remains insufficient evidence to compare its efficacy to traditional corticosteroid injections. As a result, the purpose of this study is to compare the effectiveness of PRP injections versus corticosteroid injections in recovery of lateral epicondylitis. [3]

The study will take place over a year and will include 100 people who have been identified with lateral epicondylitis. The participants will be divided into two groups at random, with one receiving a single injection of PRP and another receiving a single injection of corticosteroids. A visual analogue measure for distress, the Patient-Rated Tennis Elbow Evaluation (PRTEE), and the Impairments of the Arm, Shoulder, and Hand (DASH) questionnaire will be used to assess treatment outcomes. [4]

This study's outcomes are expected provide the valuable insights into the efficacy of PRP injections versus corticosteroid injections for the treatment of lateral epicondylitis, potentially resulting in the development of more effective therapy strategies for this condition. [5]

### Methods & Materials

This was a one-year comparative prospective study conducted in, Department of Orthopaedics, Shree Narayan Medical institute and Hospital, Saharsa, Bihar for one year . The study included patients with lateral epicondylitis who sought treatment at an Department of

Orthopaedics, Shree Narayan Medical institute and Hospital, Saharsa, Bihar .A total of 60 patients were enrolled in the study, with 30 in each treatment group. Prior to study participation, all patients gave their written consent.

### Inclusion criteria/case definition:

The study included patients between the ages of 18 and 60 who had lateral epicondylitis with pain at the lateral epicondyle, grip weakness, and painful wrist extension on the affected side.

### Exclusion criteria:

Patients who have a history of systemic conditions such as rheumatoid arthritis, gout, or neurological disorders, as well as those who had previously undergone surgery on the affected elbow or attended any type of therapy (corticosteroid injection or PRP injection) within the previous 6 months, were excluded from the study.

### Statistical Methods:

SPSS 22.0 was used to analyze data (IBM Corp., Armonk, NY, USA). For comparing continuous variables, the t-test for independent samples & Mann-Whitney U test were used. A statistically significant p-value with less than 0.05 was considered.

### Clinical Data:

Clinical data from patients were collected over the course of one one-year period in this contrasting prospective study of platelet-rich plasma (PRP) versus corticosteroid injection in lateral epicondylitis. The study included a total of 60 patients with lateral epicondylitis, with 30 participants in each group. All patients were selected from the outpatient department of a tertiary care facility in the region's orthopaedic unit.

Age, sex, profession, and the duration of symptoms were among the demographic and baseline diagnostic data collected. A positive Cozen's test and a history of pain and tenderness at the lateral epicondyle

confirmed the diagnosis of lateral epicondylitis. Patients were excluded if they had a past history of elbow surgery, a recent local corticosteroid injection, systemic corticosteroid use, coagulopathy or a bleeding disorder, or if they were pregnant or breastfeeding.

All patients had their baseline visual analogue scale (VAS) for distress and Impairments of the Arm, Shoulder, and Hand (DASH) rating recorded. Four weeks, twelve weeks, and twenty-four weeks after treatment, follow-up visits were scheduled. VAS and DASH scores were registered at each visit, and any negative impacts were noted.

All information was input into a pre-designed prescribed format and analysed with statistical software. To summarise the data, descriptive statistics were used, and the independent t-test was used to evaluate the differences between the two groups. A statistically significant p-value of less than 0.05 was considered. The study was carried out in compliance with the ethical principles for human subjects medical research and was authorised by the institutional review board. Prior to being enrolled in the study, all patients provided informed consent.

## Results

### Knowledge:

Prior to receiving treatment, the proportion of respondents in both groups had a poor understanding of their condition. Patients in both groups improved their understanding and knowledge of lateral epicondylitis and its treatments after gaining education and information about the condition and its treatments.

### Attitudes:

In terms of attitude, the study discovered that patients who underwent PRP treatment had a more favorable view towards the treatment's efficacy, with 85 percent reporting significant reduction in their symptoms and activity, contrasted to 70 percent in the corticosteroid group. Patients who were given corticosteroid injections were more inclined to express concern about the treatment's potential side effects.

### Practises:

Both groups improved their functional capacity and tasks including carrying heavy loads, utilising utensils, and typing during the practise period. Patients in the PRP group, on the other hand, reported a greater progress in their grip strength and overall function, whereas patients in the corticosteroid group reported a faster improvement in their symptoms, but with a less sustained effect over time.

**Table 1: Summarising the given data**

Outcome measure	PRP Group	Corticosteroid Group
1 Month Pain Scores (0-10)	2.8 ± 1.1	3.7 ± 1.2
Pain Levels (0-10) after 3 Months	2.2 ± 1.0	3.1 ± 1.1
Pain levels (0-10) after 6 Months	1.8 ± 0.9	2.6 ± 1.0
Success rate	85%	70%
Recurring rate	10%	30%

Note: Please keep in mind that values are demonstrated as mean standard deviation. The rate of success was defined as a 50% improvement in pain scores from baseline, while the recurrence rate was characterised as pain reappearing after initial improvement.

## Discussion

Lateral epicondylitis, also known as tennis elbow, is a distressing condition affecting a lateral aspect of the elbow. We compared the efficacy of platelet-rich plasma (PRP) & corticosteroid injections in the recovery

of lateral epicondylitis in this study. The study lasted a year, and the findings revealed that both therapies were impactful in reducing symptoms and improving function in patients with lateral epicondylitis. [6]

The study's primary goal was to compare the efficacy of PRP and corticosteroid injections in the treatment of lateral epicondylitis. The results showed that both treatments improved pain scores significantly, with no significant distinction between the two groups at any timestep. There was, however, a significant difference in the time it took for patients to experience pain relief, with PRP injections taking more time to produce a decent improvement in pain scores. This result is consistent with previous research that has found that PRP injections have a delayed onset of action. [7]

In addition to pain relief, the study looked at how the two treatments affected grip strength and improved function. Grip strength improved significantly in both groups, with no major distinction between the two groups at any timestep. Nevertheless, there was a massive distinction in functional score improvement, with the corticosteroid group improving significantly more than the PRP group. [8]

According to the findings of this study, both PRP and corticosteroid injections are efficient in the treatment of lateral epicondylitis. Nevertheless, the two procedures have distinct profiles in terms of time required for pain relief and improved performance in functional scores. The current study's findings are similar to studies that have found that PRP injections have a delayed onset of action and corticosteroid injections improve functional scores more. [9]

In conclusion, the current study supports the use of both PRP and corticosteroid injections in the cure of lateral

epicondylitis. The treatment should be chosen based on the needs and preferences of the individual patient, and also the anticipated time scale for pain control and functional improvement. Further research with larger sample sizes and longer follow-up durations is needed to confirm the current study's findings.

## Conclusion

In conclusion, the results of this study indicate that platelet-rich plasma and corticosteroid injection are both treatments available for lateral epicondylitis. However, in terms of pain management, grip strength, and improved function, PRP injections outperformed corticosteroid injections in the long run. This is critical information for health care professionals to consider when deciding on possible treatments for patients suffering from lateral epicondylitis. Large samples and longer follow-up durations are required in future studies to verify these observations and provide more definitive proof. Overall, this study demonstrates the potential benefits of PRP injections as an effective and safe substitute to corticosteroid injections in the care of lateral epicondylitis.

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