



Background

Rotator cuff pathologies such as tears, tendonitis, impingement, can lead to pain, weakness and limited range of motion. Conservative management remains the cornerstone of initial treatment, with physiotherapy, anti-inflammatory medications, and various injectable therapies forming the mainstay of non-surgical options. Among injectable interventions, corticosteroid injections have long been the standard due to their potent anti-inflammatory effects and ability to provide rapid pain relief. However, their benefits are typically short-lived, and repeated use may be associated with adverse effects such as tendon degeneration, delayed healing, and local tissue atrophy. In contrast, platelet-rich plasma (PRP) has emerged as a biologic alternative designed to enhance the body’s natural healing processes. PRP, derived from autologous blood, contains a concentrated mix of growth factors and cytokines that promote tissue regeneration, angiogenesis, and collagen synthesis within the damaged tendon matrix. The growing interest in PRP therapy reflects a paradigm shift from symptom suppression toward biological repair. Yet, despite increasing clinical adoption, evidence comparing PRP to corticosteroid injections in rotator cuff pathology remains mixed.

Methods

A comprehensive scientific literature search was conducted through specialized databases such as PubMed, MedlinePlus, ScienceDirect, and Cochrane Library. The search terms used to retrieve the relevant literature in each of these databases were “corticosteroid injections” AND “PRP injections” AND "rotator cuff pathologies”.

The Efficacy of PRP Injections vs. Corticosteroid Injection on Shoulder Pathologies: A Literature Review

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Results/Evidence Table		
Study	Therapy or Exposure	Outcome/Results
Meta analysis	- 11 studies and 971 patients, with a mean age of 52.1, were included in this analysis with 7 being randomized trials and four cohort studies. - The control group was corticosteroid injections in 8 studies and physiotherapy in the other three studies	- Overall PRP lead to a statistically significant improved outcome at 3 and 6 months follow up for all outcome parameters - This review demonstrated that intra-articular PRP injections for adhesive capsulitis produces favorable outcomes when compared to corticosteroid injections and physiotherapy. - PRP produces improved pain and functional scores as well as range of motion, which is statistically significant from 3 to 6 months post intervention.
Systematic review	-Five articles comparing PRP with corticosteroid or saline solution injections met the inclusion criteria. -Total of 157 patients were treated with PRP, with a follow-up duration ranging from 3 to 6 months. - Pain scores, range of motion, and function scores were the primary outcomes assessed.	-All 5 studies showed statistically significant improvements in pain scores, motion, and function scores in patients receiving PRP, corticosteroid, and saline solution injections. -PRP was consistently superior on intergroup analyses in all but 1 study. -In 4 studies, pain and function scores favored PRP over control at final follow-up -According to a limited number of prospective studies, PRP injections for adhesive capsulitis are at least equivalent to corticosteroid or saline solution injections and often lead to improved pain, motion, and functional outcomes at 3- to 6-month follow-up
Meta analysis	-Eligible studies reported patients older than 18 years with a diagnosis of rotator cuff disease -Twelve studies met eligibility criteria (n = 639) of patients receiving either PRP or CS.	-At short-term follow-up, a difference favored CS compared to PRP in baseline change for disability of arm, shoulder, and hand score and simple shoulder test -Despite favoring CS at short-term follow-up and PRP at intermediate- and medium-term follow-up, functional and pain scores did not demonstrate any clinical difference between the two treatment modalities in management of rotator cuff disease at all follow-up periods.
Randomized controlled trial	- A total of 60 patients with periarthritis shoulder were allocated into two groups after randomization. Group A received 2 mL autologous PRP, and Group B received 2 mL of triamcinolone (40 mg/mL) intra-articular injection. Patients were followed up on the 4th week, 12th week, and 24th week. The assessment of pain and function using the visual analog scale (VAS) score and the Disabilities of Arm, Shoulder, and Hand (DASH) score, respectively, was done at each follow-up	- The mean DASH score in the PRP and triamcinolone groups was 18.08 ± 8.08 and 31.76 ± 3.63, respectively (p = 0.0001), which shows significant improvement in both pain and disability scores in the PRP group after 24 weeks. - The triamcinolone group showed better short-term outcomes whereas PRP showed better long-term outcomes in reducing pain and disability scores in terms of VAS and DASH scores.
Randomized double-blind clinical trial	-All individuals with diagnosis of rotator cuff tendinitis during 2014-2017 were considered. 58 patients were randomly allocated to either receive PRP or corticosteroids. Overall, 3cc of PRP was injected within the subacromial joint and another 3cc was injected at the site of the tendon tear, under the guide of sonography. For the corticosteroid group, 1cc of Depo-medrol 40mg and 1cc of lidocaine (2%) was injected within the subacromial joint.	- Found that PRP renders similar results to that of corticosteroids in most clinical aspects among patients with rotator cuff tendinopathies; however, pain and ROM may show more significant improvement with the use of PRP. - Considering that the use of corticosteroids may be contraindicated in some patients and may be associated with the risk of tendon rupture, the study suggest the use of PRP in place of corticosteroid-based injections among patients with rotator cuff tendinopathy.

Discussion and Conclusions

These findings highlight the potential use of PRP and corticosteroid injections particularly for patients with rotator cuff injuries unresponsive to conservative treatments. Some studies suggest PRP offers superior long-term functional outcomes and pain reduction, while others report comparable or negligible differences relative to corticosteroids, particularly in the short term. Given these contrasting findings, further study is necessary to clarify the comparative efficacy, safety, and long-term benefits of PRP versus corticosteroid injections in the management of rotator cuff injuries.

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