

Poster 42: Platelet-Rich Plasma Augmentation of Arthroscopic Rotator Cuff Repair Reduces Retear Rates: A Systematic Review and Meta-Analysis

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Objectives: The use of platelet-rich plasma (PRP) has been studied in the clinical and operative setting for a variety of tendinous, ligamentous and cartilage pathologies. Several randomized controlled trials have examined its effects on clinical outcomes and retear rates following rotator cuff repair (RCR). The purpose of this review is to identify and characterize the associations of PRP utilization and outcomes following arthroscopic rotator cuff repair surgery.

Methods: A systematic search was conducted using key terms ‘(PRP OR Platelet Rich Plasma) AND surgery AND augmentation’ in databases of English language articles published before January 2024. Human randomized controlled trials describing the use of PRP during arthroscopic repair of rotator cuff tears with at least 6-month follow-up were included. Data synthesis summarized outcome measures and study designs appropriately in the results. Using SPSS meta-analysis binary and continuous model function, the Mean Effect Size Estimate (MSE) with 95% Confidence Interval were reported for significant associations.

Results: This search yielded a total of 47 studies and, after exclusion criteria were assessed, 10 articles comprising 614 patients with rotator cuff tears were included in the review, of which 296 (48.2%) received intraoperative PRP. There were no statistically significant differences in demographics (age, gender, comorbidities), injury patterns, or surgical procedures. Clinically, the use of PRP was associated with greater improvement in Constant score by final follow-up (Cd= 0.24, [(0.05)-(0.43)]; p=.01), as well as ASES and SST scores (both p<.05), but did not significantly improve pain overall compared to the control (Cd= -0.11, [(-0.43)-(0.20)]; p=.48). The use of PRP intraoperatively was not associated with improved forward flexion, abduction, external or internal rotation compared to the control groups. However, there was a significantly lower retear rate with use of intraoperative PRP (MSE= -0.82, [(-1.35)-(-0.29)]; p<.001).

Conclusions: The use of intraoperative platelet-rich plasma during arthroscopic repair of rotator cuff tears was found to be associated with improved clinical scores and lower retear rates, while pain and active range of motion were not found to be statistically improved compared to controls. These findings from a systematic review of Level 1 evidence may provide clinical justification for the intraoperative use of platelet-rich plasma during rotator cuff repair surgery.

