

Abstract

Title: The Timing of Corticosteroid Injection after Shoulder Arthroscopy Affects Post-Operative Infection Risk

Introduction: Patients who undergo shoulder arthroscopy often have refractory post-operative pain or range of motion limitations. Corticosteroid injections are frequently offered and have been found to improve motion and pain; however, there is a lack of literature on the safety of corticosteroid injections in the immediate postoperative period. This study examines the association between the timing of postoperative corticosteroid injections with rates of post-operative infection after shoulder arthroscopy.

Methods: Private-payer (PP) and Medicare (MC) national insurance databases were queried for patients who underwent arthroscopic shoulder rotator cuff repair, debridement, or subacromial decompression. Patients who underwent corticosteroid injection within 1 month, 2 months, 3 months, or 4 months postoperatively were identified and formed the study groups. A control group of patients who underwent the same arthroscopic procedures without any post-operative injections were matched 10:1 to the 1 month injection group by age, sex, tobacco use and diabetes mellitus.

The outcome of interest was comparing rates of postoperative infection within 90 days of the postoperative injection, which were identified by ICD-9 codes for postoperative infection or septic shoulder arthritis and any CPT codes for a postoperative debridement for infection.

Multivariate binomial logistic regression analysis was used to compare groups while controlling for demographic confounders and adjusted odds ratios (OR) and 95% confidence intervals were calculated, with $p < 0.05$ considered significant.

Results: A total of 3,946 patients were identified, including 264 patients who received an injection 1 month after surgery, 471 who received at 2 months, 1,037 who received at 3 months, 1,874 who received at 4 months, and 2,640 matched controls. When compared to matched controls, patients in both databases who underwent ipsilateral shoulder corticosteroid injection within 1 month postoperatively had a significantly higher rate of infection (PP: OR 2.63, $p = 0.014$; MC: OR 11.2, $p < 0.0001$). There were no differences in infection rates compared to matched controls at all other postoperative injection time points.

Discussion and Conclusions: Corticosteroid injections are routinely used after shoulder arthroscopy, however, this study adds to the evidence suggesting caution when administering injections in the immediate post-operative period. There appears to be a significant association between ipsilateral corticosteroid injections administered within one month postoperatively and an increased rate of post-operative infection in two separate national insurance databases. In the absence of any prospective studies on this topic, we caution against the use of steroid injections within one month following shoulder arthroscopy.