A Stratified Investigation of a Single Injection of Extended Release Corticosteroid for Symptomatic Relief in Patients with Idiopathic Adhesive Capsulitis of the Shoulder

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Purpose: The purpose of this study was to examine the effects of extended release corticosteroid injection in the treatment of shoulder adhesive capsulitis.

Methods: This was a phase 2, stratified, prospective, non-blinded single-arm study of patients with idiopathic adhesive capsulitis of the shoulder who received a single, image guided extended release corticosteroid injection. Patients aged 18-80 years old presenting to a single academic institution within 6 months of symptom onset and diagnosed with idiopathic adhesive capsulitis of the shoulder were eligible. The primary outcome measure was visual analog pain scale (VAS) measured at 6 weeks, 3 months, 6 months, and 12 months after injection. Secondary endpoints included American Shoulder and Elbow (ASES) score, triplanar passive range of motion, and need for re-injection.

Results: Thirty-nine patients with a mean age of 55 ± 9 years were included. Thirty-two (82%) patients had adequate resolution of symptoms after undergoing a single injection and required no further treatment. Mean VAS improved from a baseline of 5 to 1.4 ($p < 0.01$) by 6 weeks post-injection with sustained improvement at all subsequent follow-up. Mean ASES score improved from a baseline of 43 to 80 ($p < 0.01$) by 6 weeks post-injection with sustained improvement at all subsequent follow-up. Significant improvements in mean passive forward elevation (117º to 173º; $p < 0.01$) and abduction (98º to 162º; $p < 0.01$) were seen by 3 months post-injection. Significant improvement in passive external rotation with the arm adducted (32º to 59º; $p < 0.01$) was seen by 6 weeks post-injection. Fifteen (38%) patients had a previous diagnosis of diabetes and results were similar in this subgroup.

Conclusions: A single injection of extended release corticosteroid provides sustained pain relief, improvement in patient-reported outcomes, and increased range of motion in patients with idiopathic adhesive capsulitis of the shoulder.

Level of Evidence: IV