Evaluating Efficacy of Corticosteroid Dosing on Hand Surgery

Manish Pathuri[1], Rishab Harish Bhatt, Jeffrey Gei-Hun Stepan[2], Jennifer Moriatis Wolf[2], Jason Strelzow
[1]Pritzker School of Medicine, [2]The University of Chicago

INTRODUCTION:

This retrospective study evaluated the efficacy of high vs low steroid injection doses to guide steroid dosing for injections used in hand soft tissue pathologies. We hypothesized that there would be no difference in efficacy between high-dose corticosteroid injections (40mg) and low-dose (5-10mg) used for common soft tissue hand pathologies. The current study compared the rate of disease resolution, need for secondary injection, and conversion to surgery between low-dose and high-dose corticosteroid injections used for trigger finger, carpal tunnel, and DeQuervain tenosynovitis.

METHODS:

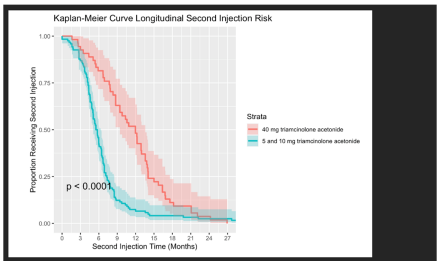
The study is a retrospective chart review of patients from January 1st, 2020 to February 28, 2023. Patients who received a corticosteroid injection for primarily trigger finger, carpal tunnel, De Quervian's Tenosynovitis, and other tendon-related issues were divided into a high-dose injection group (40mg) and a low-dose injection group (5mg and 10mg). The primary outcomes evaluated were the rate of need for follow-up, estimated time of relief from the injection, rate of second injection, and transition to surgery.

RESULTS:

A total of 466 patients (649 injections) met inclusion criteria for this study over the study period. In total, 62% of injections were for trigger finger, 17% for carpal tunnel, and 21% for De Quervian's Tenosynovitis. When controlling for established risk factors for injection failure, high-dose injection had a lower rate of repeat injection (18% vs 35% p<0.05), lower rate of conversion to surgery (12% vs 21% p<0.05), lower rate of need for follow-up (26% vs 46% p<0.05), higher estimated time to repeat injection (11.97 months vs 5.64 months p<0.05), and higher estimated time to surgery(11.08 months vs 7.73 months p<0.05) when compared to the low-dose group. The complication profile for both groups was similar.

DISCUSSION AND CONCLUSION:

Our findings indicate that high-dose corticosteroid injections may be more effective than low-dose injections in managing common soft tissue hand pathologies. Hand surgeons should consider the advantages of high-dose corticosteroid injections when determining treatment strategies for patients with soft tissue hand pathologies. Future research, particularly randomized controlled trials, will be essential to validate the findings of this retrospective study further and to establish more definitive treatment guidelines.



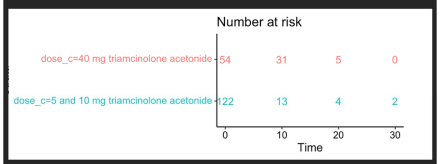


Figure 2A shows that for trigger digit, the high dose group went on to repeat injection at a later time points than the low dose group (p<0.05). Figure 2B in contrast, demonstrates no significant difference following carpal tunnel injection (p>0.05). Figure 2C illustrates the significantly longer time of relief in patients treated with high dose injection for DeQuervain tenosynovitis (p<0.05)

	5-10mg (n=352)	40mg (n=297)	p-value
Any Additional Treatment			
All Injections	163 (46%)	76 (26%)	p < 0.05
Trigger Finger	94 (27%)	50 (17%)	
DQ tenosynovitis	34 (9%)	13 (4%)	
Carpal Tunnel	40 (11%)	13 (4%)	
Second Injection (Y)			
All Injections	123 (35%)	54 (18%)	p<0.05
Trigger Finger	81 (23%)	41 (14%)	
DQ tenosynovitis	31 (9%)	9 (3%)	
Carpal Tunnel	11 (3.1%)	4 (1%)	
Surgery (Y)	75 (21%)	35 (12%)	p<0.05
Time to second injection (months)	5.64 (4.24,7.26)	11.97(7.73, 14.04)	p<0.05
Time to Surgery (months)	7.73(3.4, 15.06)	11.08(6.45,16.50)	p<0.05

Table 4: Outcomes after first injection in low and high dose cohorts