Two or More Steroid Injections Prior to Wrist Arthrodesis Increases Risk of Postoperative Deep Wound Infection

Julian Smith-Voudouris, Neil Pathak, Jonathan N Grauer INTRODUCTION:

Preoperative steroid injections have been associated with an increased risk of infection after several orthopedic surgeries. There has been a lack of studies specifically assessing the relationship between preoperative steroid injections and infection after wrist arthrodesis. The goal of the present study was to determine whether one or more preoperative steroid injections correlated with a risk of infection after wrist arthrodesis.

METHODS:

The PearlDiver national insurance claims database was queried from 2010 to 2020. Inclusion criteria included adult patients (age > 17 years) undergoing wrist arthrodesis for the first time. Exclusion criteria included revision surgery and any diagnosis of trauma, infection, or neoplasm within 90 days of surgery.

The total sample was divided into three groups: (1) no preoperative wrist steroid injection; (2) one wrist steroid injection within two years preoperatively; (3) two or more wrist steroid injections within two years preoperatively. Overall infection rate after wrist arthrodesis was determined in the 90-day postoperative period. Multivariate analysis was then performed (controlling for age, sex, and comorbidities) to assess if the number of steroid injections preoperatively was a predictor for infection in the 90-day postoperative period.

RESULTS:

A total of 6,907 patients met inclusion criteria (no preoperative steroid injection: 6,019; one preoperative steroid injection: 461; two or more preoperative steroid injections: 427). Across all groups, the overall infection rate after wrist arthrodesis was 1.3% at 90 days postoperatively.

After controlling for age, gender, and comorbidities, multivariate analysis showed that receiving one preoperative steroid injection during the two-year preoperative period was not associated with infection after wrist arthrodesis (OR: 1.42, p=0.422). Receiving two or more preoperative steroid injections during the two-year preoperative period was a risk factor for postoperative infection (OR: 2.44, p=0.012; Table 1).

DISCUSSION AND CONCLUSION:

The present findings suggest that patients who receive two or more steroid injections in the two-year preoperative period before wrist arthrodesis are at greater odds of an infection in the 90-day postoperative period. Further randomized controlled studies will aid in guiding clinical management.

	Infection within 90 days OR (95% CI)	P-value
Demographic Factors		
Age ± SD	1.00 (0.98,1.02)	P=0.956
Sex		
Female	Reference	
Male	0.99 (0.59,1.67)	P=0.963
ECI	1.13 (1.05,1.21)	P=0.001
Diabetes	0.56 (0.30,1.02)	P=0.064
Hypothyroidism	1.62 (0.91,2.84)	P=0.095
Obesity	0.85 (0.47,1.49)	P=0.580
Rheumatoid Arthritis	0.98 (0.51,1.79)	P=0.958
Tobacco Use	1.15 (0.69,1.92)	P=0.590
Deep wound Infections		
No injection	Reference	
One Injection	1.42 (0.54,3.13)	P=0.422
Two or More Injections	2.44 (1.15,4.72)	P=0.012

Table 1: Multivariate analysis of patient groups, which shows that receiving two or more injections increases the risk of postoperative infection.