

Steroid Use Is Not Associated with Infection or Wound Complications in Periarticular Fractures

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Purpose: The aim of this study was to determine the impact of systemic steroid use on rates of infection, wound healing, reoperation, and readmission in patients with periarticular orthopaedic trauma.

Methods: The National Surgical Quality Improvement Program (NSQIP) database was queried via CPT codes for patients aged 18-89 years who sustained a periarticular fracture of the ankle, knee, or elbow from 2006-2015. Those presenting with preadmission systemic sepsis and disseminated cancer were excluded. Those in the steroid group are defined as patients who require the regular administration of oral or parenteral corticosteroid medications or immunosuppressant medications, within 30 days prior to the principle operative procedure for a chronic medical condition. Chi-square, univariate, and multivariate logistic regression was performed to determine the association between steroid use for a chronic condition and infection, reoperation, and readmission.

Results: 534 patients (2.0%) received corticosteroids for a chronic condition unrelated to their injury on admission. The rates of deep infection, superficial infection, and wound dehiscence did not vary between the steroid group and nonsteroid group: 0.2% versus 0.4% ($P = 0.38$), 0.9% versus 0.8% ($P = 0.79$), and 0.2% versus 0.3% ($P = 0.64$). In distal femur, tibial plateau, tibial pilon, and distal humerus fractures (6211, 23.6%), there was no increase in deep infection (0% vs 0.7%, $P = 0.24$), superficial infection (0% vs 1.1%, $P = 0.15$), or wound dehiscence (0% vs 0.4%, $P = 0.41$). Reoperation rates did not differ between the groups, as 2.2% of patients requiring steroids returned to the operating room versus 1.9% of the nonsteroid population ($P = 0.57$). Readmission rates were significantly different, with higher readmission in the steroid group (8.1% vs 3.3%, $P < 0.001$). After controlling for covariates, deep infection ($P = 0.26$), superficial infection ($P = 0.74$), wound dehiscence ($P = 0.40$), and reoperation ($P = 0.51$) remained insignificant on multivariate regression between groups, while those requiring chronic steroid administration had increased risk of 30-day readmission (odds ratio 1.64, 95% confidence interval 1.15-2.34, $P = 0.006$).

Conclusion: Administration of systemic corticosteroids in the orthopaedic patient has been proposed as a means of improving analgesia via a multimodal approach, and potentially accelerating definitive surgical timing by reducing soft-tissue swelling. This study demonstrates that in traumatic periarticular fractures, those who receive corticosteroids for a chronic condition are not at an increased risk of developing infection, wound dehiscence, or reoperation. This provides sufficient equipoise to help direct future prospective studies to evaluate potential steroid benefits.