Chronic Oral Steroid Use and 10-Year Incidence of Major Complications Following Total Knee Arthroplasty

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INTRODUCTION:
Oral corticosteroids are the primary treatment for several autoimmune conditions. The risk of long-term implant, bone health, and infectious-related complications in patients taking chronic oral steroids before total knee arthroplasty (TKA) is unknown. Here we compare the 10-year cumulative incidence of revision, prosthetic joint infection (PJI), fragility fracture (FF), and periprosthetic fracture (PPF) following TKA in patients with preoperative chronic oral steroid use to those without.

METHODS:
A retrospective cohort analysis was conducted using a national database. Primary TKA patients with chronic preoperative oral steroid use were identified using Current Procedural Terminology and International Classification of Disease 9/10 codes. Exclusion criteria included: malignancy, osteoporosis treatment, trauma, and <2-year follow-up. Primary outcomes were 10-year cumulative incidence and hazard ratios (HR) of all-cause revision (ACR), aseptic revision, PJI, FF, and PPF. A Kaplan-Meier Analysis and Multivariable Cox Proportional Hazards Model were utilized.

RESULTS:
611,596 patients were identified and 5,217 (0.85%) were prescribed chronic steroids. 10,000 control patients were randomly sampled for data analysis. Steroid patients had significantly higher 10-year HR of FF [HR; 95% CI; P-value (1.47; 1.34-1.62; p<0.001)], ACR (1.21; 1.05-1.40; p=0.009), and PJI (1.30; 1.01-1.69; p=0.045) when compared to the control.

DISCUSSION:
Patients prescribed preoperative chronic oral steroids had higher risks of ACR, PJI, and FF within 10-years following TKA compared to patients not taking steroids. Due to increased PJI risk, surgeons should optimize modifiable PJI risk factors to reduce its incidence in these patients. Additionally, surgeons should consider preoperative screening with referral for osteoporosis treatment to help reduce the incidence of fragility fractures.

SIGNIFICANCE/CLINICAL RELEVANCE:
Patients prescribed preoperative chronic oral steroids had higher risks of ACR, PJI, and FF within 10-years following TKA compared to patients not taking steroids. Due to increased PJI risk, surgeons should optimize modifiable PJI risk factors to reduce its incidence in these patients. Additionally, surgeons should consider preoperative screening with referral for osteoporosis treatment to help reduce the incidence of fragility fractures.