Do Injections Increase the Risk of Infection Following TKA?

John J. Callaghan, MD, **Nicholas Bedard, MD,**
Andrew Pugely, MD, Jacob Elkins, MD, PhD,
Kyle Duchman, MD, Robert Westermann, MD, Yubo Gao, PhD

Introduction: The purpose of this study was to determine if postoperative infection rates are increased following knee injection and to determine whether there is an association between time from injection to TKA.

Methods: The Humana Inc. administrative claims dataset was reviewed from 2007-2014 for all patients who received a knee injection prior to their ipsilateral TKA within one year. The cohort was then stratified by monthly time intervals out to 12 months corresponding to duration between injection and TKA. Postoperative infection within 90-days was identified using ICD-9/CPT codes. Records without laterality designation were excluded and analysis was performed using standard statistical techniques.

Results: 29,603 patients (35.4%) had an injection in the ipsilateral knee at least one year prior to TKA and 54,081 patients (64.6%) did not. There were no significant differences in Charlson Comorbidity Index between cohorts. Rates of any surgical site infection (SSI) and rates of infection requiring return to the operating room (1.5% vs 1.0%) were higher for patients with injections (odds ratio (OR) 1.2 and 1.4, respectively, $p<0.0001$). Rates of infection requiring return to operating room remained significantly higher for the injection cohort up to seven months between injection and TKA. OR for increased infection in the injected TKA group were 1.8 at 1 month, 1.6 at 2 months, and 1.3 at 3 months. There were no significant differences in infection rates after seven months.

Conclusions: There was a significantly higher odds of post-operative infection (OR 1.2, $p <0.0001$) and infection requiring return to operative room (OR 1.4, $p <0.0001$) when patients received an injection prior to TKA with a continued increase over the control group out to seven months. This association between injection and infection after TKA is important to consider during an arthroplasty surgeon's management of patients who have undergone injection.