Commentary & Perspective

Intra-Articular Injections Should Be Avoided in the 3 Months Prior to Total Knee Arthroplasty

Commentary on an article by Shawn S. Richardson, MD, et al.: “Comparison of Infection Risk with Corticosteroid or Hyaluronic Acid Injection Prior to Total Knee Arthroplasty”

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The American Academy of Orthopaedic Surgeons (AAOS) released an updated Clinical Practice Guideline for the nonoperative treatment of knee osteoarthritis in 2013. In the comprehensive document, the AAOS made recommendations to discontinue the use of viscosupplementation with hyaluronic acid on the basis of high-quality evidence from multiple studies. The document was unable to make a similar strong recommendation regarding intra-articular corticosteroids, given conflicting studies. In spite of this updated Clinical Practice Guideline, the use of both hyaluronic acid and corticosteroid injections remains popular for the nonoperative management of osteoarthritis of the knee, particularly among nonsurgical providers. Almost 50% of patients undergoing total knee arthroplasty have had an intra-articular injection in the ipsilateral knee during the year leading up to the surgical procedure.

The risk of postoperative deep infection following total knee arthroplasty after an intra-articular corticosteroid injection was analyzed with a large systematic review published in 2014, and the authors were unable to make strong recommendations with regard to the risk of preoperative injections given the available studies. Evidence for hyaluronic acid injection risk is even more scarce. In a large national database study by Bedard et al., any intra-articular injection within 6 months of the total knee arthroplasty was found to increase the risk of postoperative infection (odds ratio, 1.23), but a separation of the injection types was not performed. With these limitations in the literature, providers are left to use their best judgment in determining the risk-to-benefit ratios for patients when considering intra-articular injections for knee osteoarthritis.

The present article by Richardson et al. used a large national claims database to identify almost 60,000 patients who had undergone primary unilateral total knee arthroplasty from 2007 to 2016 in the United States. The 12 months leading up to the surgical procedure were reviewed for an ipsilateral injection (separated into groups by corticosteroid or hyaluronic acid injection), and the 6 months following the surgical procedure were reviewed for codes associated with periprosthetic joint infection. Although there are always limitations to database studies, the use of the large database in this instance presents almost 20,000 patients who underwent intra-articular injection in the year prior to total knee arthroplasty and provides the power to help to answer the question that orthopaedic surgeons have with regard to the risk that these injections pose to the knee replacement. The authors found an overall infection rate of 2.74% in the no-injection group, within the range reported in the literature for total knee arthroplasty. The infection rate for patients with an injection within 3 months of total knee arthroplasty was 53% higher for the hyaluronic acid group (4.2%) and 19% higher for the corticosteroid group (3.25%). After controlling for age, sex, and medical comorbidities, there was a significantly higher risk of infection in those patients receiving either injection ≤3 months before the total knee arthroplasty; the odds ratios were 1.55 for the hyaluronic acid group and 1.21 for the corticosteroid group. The authors found that injections given at >3 months prior to the surgical procedure posed no infection risk, and they found no difference in risk between hyaluronic acid and corticosteroid injections.

Although the methodology is not without limitations, the authors have provided surgeons with the most compelling evidence to date that intra-articular injection of either corticosteroid or hyaluronic acid ≤3 months prior to a knee replacement puts the patient at increased risk of postoperative infection. Intra-articular injections should be considered a modifiable risk factor for infection in primary arthroplasty and should be avoided in the 3 months prior to a total knee arthroplasty.

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References


