Arthroplasty Patients With Iodine-Related Allergies Can Safely Receive Iodine-Based Products

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INTRODUCTION:
Prosthetic joint infection is a devastating complication following total joint arthroplasty (TJA). Iodine-based products (povidone-iodine skin preparation, adhesive drapes, and irrigation) are frequently used to reduce infection risk. However, a reported iodine, contrast, or shellfish allergy may lead to avoidance despite evidence challenging the clinical relevance of these allergies, noting iodine's essential role in human biology. This study aimed to assess the prevalence of reported iodine allergy in arthroplasty patients and evaluate the safety of iodine-based products in arthroplasty patients with a documented iodine-related allergy.

METHODS:
We retrospectively reviewed all patients with a reported allergy to iodine, iodine-containing products, or shellfish who underwent primary TJA at a single high-volume academic center from 2016–2024. Patients receiving perioperative iodine-based products were compared to those who did not. The primary outcome was incidence of IgE-mediated or severe Type-IV hypersensitivity reactions within one week of surgery. Secondary outcomes included 90-day superficial or deep infection and readmission. Allergy and complication rates were compared with a Cox proportional hazards model, and $p<0.05$ was considered significant.

RESULTS:
89,993 TJA patients from 2016–2024 were identified from our institutional database. Of these, 3696 (4.1%) reported iodine-related allergies, including allergies to iodine (n=1361), shellfish (n=2304), or iodine related products (n=8). 1378 (37.3%) iodine-related allergy patients received iodine-based products and 2318 (62.7%) did not. No (0%) hypersensitivity reactions were observed in patients who received iodine-based products. Six patients (0.1%) (two who received iodine and four who did not) experienced unrelated cutaneous reactions. Comparing those who received iodine and those who did not, there were no significant differences in superficial infection (0.07% vs. 0.30%, p=0.27), deep infection (0.07% vs. 0.30%, p=0.27), or 90-day readmission (4.86% vs. 5.22%).

DISCUSSION AND CONCLUSION: This is the first study evaluating the use of multiple iodine-based products in TJA patients with reported iodine allergy. There were no hypersensitivity reactions in iodine-related allergy patients receiving iodine-based products. These findings add to the growing body of evidence questioning the clinical validity of patient-reported iodine allergies and suggest that routine avoidance of iodine-based products during TJA may be unnecessary in patients with a reported iodine-related allergy.