There is No Decrease in 90-day Prosthetic Infection in Total Hip or Knee Arthroplasty Despite use of Antibiotic or Antiseptic Irrigation Solutions Compared to Normal Saline: A Michigan Arthroplasty Quality Collaborative Initiative Study

Joseph Seta[1], Martin Weaver, Brian Richard Hallstrom[2], Huiyong Zheng, Devon Larese, Tae Kim, Elizabeth Ann Dailey[3], David C Markel[4]
[1]Orthopedics, Ascension-Providence, [2]Univ Of Michigan Med Ctr, [3]University of Michigan, [4]Ascension Providence Hospital - MSUCHM

INTRODUCTION: Prosthetic joint infections (PJI) represent a common and major complication in total joint arthroplasty. Intraoperatively it is common to use irrigation agent to help decrease PJI. Antiseptics or antibiotics are commonly added to decrease bacterial burden. This study investigated the incidence of post-operative PJI and the association with specific irrigation solutions In the State of Michigan.

METHODS:

Primary hip and knee arthroplasty cases (THA/TKA) in the Michigan Arthroplasty Registry Collaborative Quality Initiative (MARCQI) database performed January 2019 to December 2022 were analyzed. Data regarding intraoperative irrigation solution use were added to registry data in 2019, and grouped into solutions containing antibiotics, chlorhexidine-gluconate (CHG), povidone-iodine, or other substances (including antibiotic powder) and normal saline. Data were analyzed using logistical regression analysis adjusting for age, body mass index, sex, ASA score (I/II vs III/IV), smoking, surgical approach, marital status, assistive devices, diabetes, preoperative opioid use, length of surgery and case year.

RESULTS: There were 67,871 THA and 105,963 TKA cases, with an overall infection rate of 0.62% (CI: 0.56%, 0.68%) for THA and 0.40% (0.36%, 0.43%) for TKA over a 90-day postoperative period. There were no statistical differences between use of normal saline alone versus other solutions in THA (Figure 1). There was a significantly lower PJI with saline in TKA compared to multiple types (OR 0.688, p=0.007). Of note, over the study period, there was a slight increase in the use of multiple irrigation types compared to single solution irrigation with time. No PJI differences were noted when controlling for subtypes with the use of intraoperative antibiotic powder.

DISCUSSION AND CONCLUSION: At 90-days in MARCQI there has not been a decrease in PJI despite increasing use of newer irrigation agents or antibiotic powder. While irrigation is important to decrease bacterial loads, saline alone performed as well as other newer irrigation solutions.