Intrawound Antiseptics Do Not Decrease the Risk of Periprosthetic Joint Infection Following Primary Arthroplasty for Femoral Neck Fracture

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INTRODUCTION: The elderly population undergoing total hip arthroplasty (THA) or hemiarthroplasty (HA) for femoral neck fracture (FNF) is disproportionately affected by periprosthetic joint infection (PJI), likely due to suboptimal health status and the urgency for surgical intervention. Many strategies exist to mitigate PJI risk, but little is known about the effectiveness of different intrawound antiseptic techniques for PJI prevention FNF patients. The purpose of our study was to determine if intrawound antiseptics prior to closure in primary arthroplasty for FNFs decrease the risk of PJI.

METHODS: We retrospectively reviewed patients who underwent primary arthroplasty for FNFs at 11 US institutions from 2010 to 2019 (Northeast, 3; Midwest, 1; South, 4; West, 3). A total of 1,775 patients were identified (925 HA and 850 THA) with minimum 1-year follow-up. Of these, 1,246 received normal saline (NS), 278 dilute povidone iodine (PI), and 251 antibiotic powder (AP) for intraoperative wound irrigation/antisepsis. PJI was diagnosed using 2013 Musculoskeletal Infection Society (MSIS) criteria and compared between groups at 90-days and 1-year postoperatively. Extensive patient demographic, comorbid, injury, and perioperative variables were compared. Multivariable logistic regression models were performed to address potential confounding variables.

RESULTS: There was no difference in risk of PJI at 90-days (NS, 2.97%; PI, 3.24%; AP, 4.38%; p=0.27) and 1-year (NS, 3.61%; PI, 3.24%; AP, 4.38%; p=0.64) between groups. Multivariable logistic regression models showed OR 0.99 (95% CI, 0.44 to 2.03; p=0.97) for the AP group and OR 1.00 (95% CI, 0.43 to 2.11; p=1.00) for the PI group compared to the NS group, controlling for the covariates that differed between groups: age, BMI, DM, operative duration, EBL, ASA status, pre-injury ambulation, injury energy, CVA/stroke, and discharge disposition.

DISCUSSION AND CONCLUSION: There is no difference in risk of PJI at 90-days or 1-year with intrawound antisepsis using either PI or AP compared to NS wash in patients undergoing arthroplasty for FNF. Routine use of these antiseptics should be reconsidered in FNF patients.