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Do TJA PJI Organism Profiles Change with Vancomycin Powder and Dilute Povidone-iodine Lavage?

Daniel B. Buchalter, MD, Greg M. Teo, MD, David J. Kirby, MD, Ran Schwarzkopf, MD, MSc, Vinay K. Aggarwal, MD, **William J. Long, MD, FRCSC**

Introduction: Vancomycin powder and dilute povidone-iodine lavage (VIP) is associated with a reduction in periprosthetic joint infections (PJIs) following total joint arthroplasty (TJA). However, it is unknown if VIP negatively affects the organism profile of PJIs by increasing rates of resistant pathogens. This study evaluates the organism profiles of PJIs before and after the implementation of a VIP protocol for all primary TJAs at our institution.

Methods: We retrospectively reviewed a database of 18,299 primary TJAs at a metropolitan, single-specialty orthopaedic hospital to identify patients with PJI. Criteria used for diagnosis of PJI were the Musculoskeletal Infection Society guidelines. Demographics, overall organism incidence (n/TJAs), and relative organism incidence (n/PJIs) were compared before and after the implementation of a VIP protocol at our institution.

Results: Following the introduction of VIP, the overall and relative incidence of coagulase-negative staphylococcal TJA PJIs significantly decreased (overall: 0.20% to 0.04%, $p=0.004$; relative: 25.00% to 8.45%, $p=0.031$). In response, the relative incidence of MSSA TJA PJIs significantly increased (relative: 18.75% to 40.85%, $p=0.042$). Broken down by arthroplasty type, VIP was associated with a significantly lower overall incidence of coagulase-negative staphylococcal total knee arthroplasty (TKA) PJIs (overall: 0.27% to 0.06%, $p=0.015$), a significantly lower overall incidence of MRSA TKA PJIs (overall: 0.18% to 0.03%, $p=0.031$), and a nonsignificant trend towards a lower overall incidence of gram-negative TKA PJIs (overall: 0.18% to 0.04%, $p=0.059$). No organism profile changes were found in total hip arthroplasty PJIs.

Conclusions: VIP is not associated with more difficult to treat primary TJA PJIs. In fact, VIP is associated with significantly fewer coagulase-negative staphylococcal TJA PJIs, significantly fewer MRSA TKA PJIs, and a strong trend towards fewer gram-negative TKA PJIs. While promising, these findings require a prospective randomized controlled trial for confirmation.

Notes
