Corynebacterium Periprosthetic Joint Infections: A Single-Institution’s Experience with a Virulent Organism

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INTRODUCTION:
The outcome of periprosthetic joint infections (PJIs) is not only contingent on treatment strategy and host factors, but also the infecting organism. Corynebacterium, a genus of gram-positive bacterium, is uncommonly implicated in PJIs, but represents a challenge when present as it commonly demonstrates resistance to often-used antibiotics. Given the limited data available, we sought to report on our institution's historical experience with managing PJI of the hip or knee due to Corynebacterium.
METHODS: A retrospective review was conducted following institutional review board approval of all total hip (THA) and knee (TKA) arthroplasties performed at our institution from 2016-2023 for PJI in which the Corynebacterium genus was identified. Demographic, surgical, and clinical outcomes data were collected, including antibiotic sensitivity, antibiotic treatment, prior PJI history, reinfection rate, amputation rate, and mortality rate.
RESULTS: Overall, 19 patients were identified with a mean age of 65.7 years and female predominance (89.5%). Patients, on average, had 4.8 prior surgeries. Surgical treatment included single-stage revision (n=5), two-stage revision (n=8), repeat stage 1 revision (n=3), irrigation and debridement (n=2), and resection arthroplasty (n=1). Six cases (31.6%) were polymicrobial infections. The majority of cases received multiagent treatment (63.2%) administered in a concurrent (83.3%) fashion. The average antibiotic duration was 6.4 weeks. The majority (57.9%) of patients had a prior PJI, and all but one, for which data were unavailable, were infected with a multidrug-resistant strain of Corynebacterium. Thirteen patients had tetracycline-resistant strains of Corynebacterium, and no cases demonstrated vancomycin resistance. At final follow-up, 17 were free of amputation, 16 had no reinfection, and 13 were alive.
DISCUSSION AND CONCLUSION:
Corynebacterium-associated PJIs represent a unique subset of disease that can be challenging to manage, in part due to Corynebacterium's antibiotic resistance profile. However, with close collaboration between surgical and infectious disease teams, reasonable outcomes can be expected.