

High Prevalence of Fungal Prosthetic Joint Infections Treated at a Single Institution: using routine fungal cultures to direct appropriate treatment

Kathryn Fideler¹, Eric M. Kiskaddon, Matthew Pigott², Andrew Richard Phillips, Kenan Alzouhayli, Douglas Chonko
¹Ohio State University, ²The Ohio State University Wexner Medical Center

INTRODUCTION:

Fungal prosthetic joint infections (PJIs) are thought to affect 1% of all total knee (TKA) and total hip (THA) PJIs. Recommendations against obtaining routine fungal cultures in the setting of PJI has been recently proposed. However, the goal of this study is to demonstrate the possibility that fungal PJIs may have been previously underreported.

METHODS: This is a retrospective case-control study of all PJIs, defined by the Musculoskeletal Infection Society, treated at a single institution between January 1, 2017 until June 20, 2021. A fungal PJI had isolated a fungal pathogen from synovial fluid or tissue culture during treatment, and the remaining PJIs were placed in a control group for comparison. Patient demographics, laboratory results and outcomes were analyzed. Categorical variables were analyzed using chi-squared or Fisher's exact tests and continuous variables with student's t-tests or Mann-Whitney U tests where appropriate.

RESULTS: A total of 296 PJIs were identified with 47 of them defined as fungal PJIs (15.9%). Patient demographics did not differ between the two groups ($p>0.05$). The number of TKA and THA PJIs between the two groups were similar ($p>0.05$). *Candida* sp was the most common fungal species isolated ($n=40$, 85.1%). Most (80.9%) fungal PJIs also isolated a bacterial pathogen in synovial or tissue cultures during their treatment. Compared with controls, there was a significant difference in the presence of *corynebacterium striatum* ($p=0.003$), *vancomycin-resistant enterococcus* sp ($p=0.007$), and *enterobacter* sp. ($p=0.005$) in fungal PJIs. PJI treatment success was significantly different between the cases and controls (19.1 vs 61.0%, $p<0.001$). Case fatality rate was higher amongst fungal PJIs (25.5 vs 14.5%) but this difference was not significant ($p=0.069$).

DISCUSSION AND CONCLUSION: Fungal PJIs may have been previously underreported in the literature, which would challenge recent recommendations to discontinue routine fungal cultures during PJI treatment.