

High Incidence of Depression and Anxiety following antibiotic spacer placement for Periprosthetic Joint infection following total hip and knee arthroplasty within 1 year

Alex Gu¹, Simone Ariel Bernstein, Avilash Das, Amil Raj Agarwal, Brock Knapp, Seth Stake², Joshua Campbell³, Gregory Golladay⁴, Savyasachi C Thakkar

¹George Washington University School of Medicine An, ²George Washington University, ³The GW Medical Faculty Associates, ⁴VCU Health

INTRODUCTION:

The management of periprosthetic joint infection often requires multiple surgeries with prolonged courses of antibiotics resulting in functional incapacitation, decreased quality of life, and increased postoperative morbidity and mortality. Such stressors adversely effect patients' mental health and are largely overlooked in the treatment of periprosthetic joint infections despite a mood disorder prevalence between 22-26% among the arthroplasty population. Broadly in arthroplasty, the role of mood disorder comorbidities, such as depression and anxiety, have been shown to increase the rate of severe post-operative pain and opioid consumption (Odds Ratio 15.5), infections (Odds Ratio 1.33), and readmission (Odds Ratio 1.21-1.24). Despite the known effects of mental health on outcomes, the role periprosthetic joint infection treatment plays in the development and relapse of mood disorders remains largely unreported. This study aims to report on the incidence of depression and anxiety following antibiotic spacer placement for periprosthetic joint infection.

METHODS: Patients who underwent antibiotic spacer for periprosthetic joint infection following total hip arthroplasty or total knee arthroplasty between 2010 and 2020 were identified in a national insurance database (PearlDiver technologies) using Current Process Terminology codes 27091 for hip antibiotic spacer and 27488 for knee antibiotic spacer and International Classification of Diseases codes specific for periprosthetic joint infection. In addition, patients that underwent aseptic revision total hip arthroplasty or total knee arthroplasty were identified using Current Process Terminology codes. Incidence of initial depression, recurrent depression and anxiety were identified within 1 year following antibiotic spacer among the periprosthetic joint infection and aseptic revision total hip arthroplasty and total knee arthroplasty cohorts, respectively. Descriptive and univariate analysis were conducted on this cohort.

RESULTS: In total 108,858 patients were included in this study; 58,899 revision total knee arthroplasty, 11,167 revision total knee arthroplasty secondary to periprosthetic joint infection, 34,884 revision total hip arthroplasty, 3,908 revision total hip arthroplasty secondary to periprosthetic joint infection. Relative to aseptic revision total knee arthroplasty, patients receiving antibiotic spacer placement for treatment of periprosthetic joint infection have a higher incidence of new depression (Odds Ratio 3.67; $p<0.01$), anxiety (Odds Ratio 5.12; $p<0.01$), and anxiety and depression combined (Odds Ratio 3.60; $p<0.01$). Relative to aseptic revision total hip arthroplasty, patients receiving antibiotic spacer placement for treatment of periprosthetic joint infection have a higher incidence of new depression (Odds Ratio 4.54; $p<0.01$), anxiety (Odds Ratio 6.00; $p<0.01$), and anxiety and depression combined (Odds Ratio 4.85; $p<0.01$).

DISCUSSION AND CONCLUSION: There is a high incidence of depression and anxiety among patients that undergo the first stage of a two-stage revision for total hip arthroplasty or total knee arthroplasty for periprosthetic joint infection. Physicians should be cognizant of this risk and strongly consider collaborative care with psychiatrists or mental health professionals.