

Irritable Bowel Syndrome Does Not Influence Periprosthetic Joint Infection After Total Hip and Knee Arthroplasty

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INTRODUCTION: Gut dysbiosis and permeability, two features of inflammatory bowel disease (IBD) and irritable bowel syndrome (IBS), may be associated with periprosthetic joint infection (PJI) after total hip arthroplasty (THA) and total knee arthroplasty (TKA). Studies have shown IBD may increase PJI risk, but none have investigated the risk in IBS. This study evaluated the risk of PJI after TKA and THA in patients who have IBS.

METHODS: Patients who underwent TKA or THA with at least 2 years of follow up were identified using ICD-10 and CPT codes using a large national database. Patients who have any IBS subtype were included, while patients who have IBD were excluded. 1:1 propensity matching was used to compare IBS cohorts to non-IBS controls. PJI complications within 2 years after TKA or THA were evaluated. Using RxNorm codes, the same analysis was repeated on patients who received IBS medication within 6-months prior to surgery and those who did not. All findings were reported as odds ratios (OR) and 95% confidence intervals (CI).

RESULTS: In total, 11,555 patients had a history of IBS, of which 7,202 underwent TKA and 4,353 underwent THA. There were no statistically significant increases in risk of 2-year PJI (TKA OR: 1.0, 95% CI: 0.7-1.2, $P = 0.707$; THA OR: OR: 0.8, 95% CI: 0.5-1.1, $P = 0.152$). These results held true regardless of whether patients were taking a prescribed IBS medication within 6-months preoperatively.

DISCUSSION AND CONCLUSION: This study demonstrated that an IBS diagnosis does not increase a patient's risk of 2-year PJI rates after TKA or THA. Gut dysbiosis and permeability in patients who have IBS may be of lesser concern for TKA and THA than for patients who have IBD, and these findings can help guide surgeon-patient conversations surrounding risk mitigation in total joint arthroplasty.

Table 1: Analysis of 2-Year Periprosthetic Joint Infections After Total Hip Arthroplasty Among Patients who have Irritable Bowel Syndrome Compared to Matched Controls

Cohort	N	Odds Ratio	95% Confidence Interval	P-Value
IBS	4,353	0.8	0.5-1.1	0.152
IBS with Medications	607	1.0	0.4-2.4	1.000
IBS without Medications	3,505	0.8	0.5-1.2	0.332

Note: There were 241 patients of unknown medication status who were not included in the analysis of medication cohorts.

*IBS: Irritable Bowel Syndrome; PJI: periprosthetic joint infection; THA: total hip arthroplasty

Table 2: Analysis of 2-Year Periprosthetic Joint Infections After Total Knee Arthroplasty Among Patients who have Irritable Bowel Syndrome Compared to Matched Controls

Cohort	N	Odds Ratio	95% Confidence Interval	P-Value
IBS	7,202	1.0	0.7-1.2	0.707
IBS with Medications	887	0.9	0.5-1.8	0.868
IBS without Medications	6,201	1.1	0.8-1.4	0.673

Note: There were 114 patients of unknown medication status who were not included in the analysis of medication cohorts.

*IBS: Irritable Bowel Syndrome; PJI: periprosthetic joint infection; TKA: total knee arthroplasty