

Gut-Joint Axis: Gastroenteritis Within 3-Months of Primary Total Knee Arthroplasty Increases the Risk of Periprosthetic Joint Infection

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INTRODUCTION: A growing body of evidence has implicated gut microbiome dysbiosis in the development of periprosthetic joint infection (PJI) following total knee arthroplasty (TKA). Notwithstanding, no study to date has examined whether an episode of infectious gastroenteritis prior to TKA increases the risk of PJI after surgery. The purpose of study was to evaluate the impact of a recent diagnosis of infectious gastroenteritis on the odds of developing PJI in patients undergoing primary TKA.

METHODS: Patients with a diagnosis of infectious gastroenteritis within 2 years of their primary TKA procedure were identified using a national database. Patients with a history of *Clostridium difficile* infection were excluded. Using demographic data, the Elixhauser comorbidity index, and each individual component of the ECI, primary TKA patients who experienced gastroenteritis within 2-years of their primary TKA procedure (n=3,447) were propensity score matched on a 1:5 basis to those with no history of gastroenteritis (n=17,201). The odds ratios (OR) for developing medical and surgical complications were determined for patients who experienced gastroenteritis preoperatively, when compared to their counterparts who did not.

RESULTS: 20,648 matched patients undergoing primary TKA were included. Patients who experienced gastroenteritis within 3-months of their primary TKA procedure were found to have significantly greater odds of developing PJI (OR 1.93 [1.1 to 3.3], p=0.013), while those that experienced gastroenteritis at all other time points did not (all p>0.05). Additionally, those with a diagnosis of gastroenteritis within 3 months were more likely to experience a urinary tract infection (UTI) (OR 1.28 [1.1 to 1.5], p<0.001) and require an emergency department (ED) visit (OR 1.40 [1.1 to 1.8], p<0.001) at 90-day follow-up.

DISCUSSION AND CONCLUSION: We found that patients who experience infectious gastroenteritis within 3-months of their primary TKA procedure have a nearly 2-fold increase in the odds of developing PJI, when compared to matched controls.