

# Antidepressant Prescriptions at the Time of Total Knee Arthroplasty and Increased Risk of Postoperative Complications: Implications for Risk Stratification

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**INTRODUCTION:** Depression and anxiety commonly occur together and are estimated to affect approximately 25% of those being seen by general medicine providers. Beyond this, depression and anxiety are more common for those with chronic pain conditions and knee arthritis in particular. Many total knee arthroplasty (TKA) patients are on antidepressant medications at the time of surgery. Postoperative outcomes of this patient demographic have not been characterized. The present study compared the risk of 90-day adverse events and 5-year survival to reoperation between patients on antidepressants and those not on antidepressants at the time of surgery.

**METHODS:** TKA patients were identified from the PearlDiver M151Ortho dataset. This large national database contains de-identified billing claims information on over 151 million orthopedic patients in the United States. Of these patients, those taking antidepressants (selective serotonin reuptake inhibitors [SSRI] or serotonin-norepinephrine reuptake inhibitors [SNRI]) and those not taking antidepressants were identified and matched 1:1 based on patient age, sex, and Elixhauser Comorbidity Index (ECI) scores.

The incidence of 90-day adverse events was determined for the two groups and compared by multivariate analyses. Five-year survival to reoperation was compared between TKA patients on antidepressants and those not on antidepressants.

Given that all PearlDiver data is aggregate and de-identified, our institutional review board granted studies using this database exempt from review.

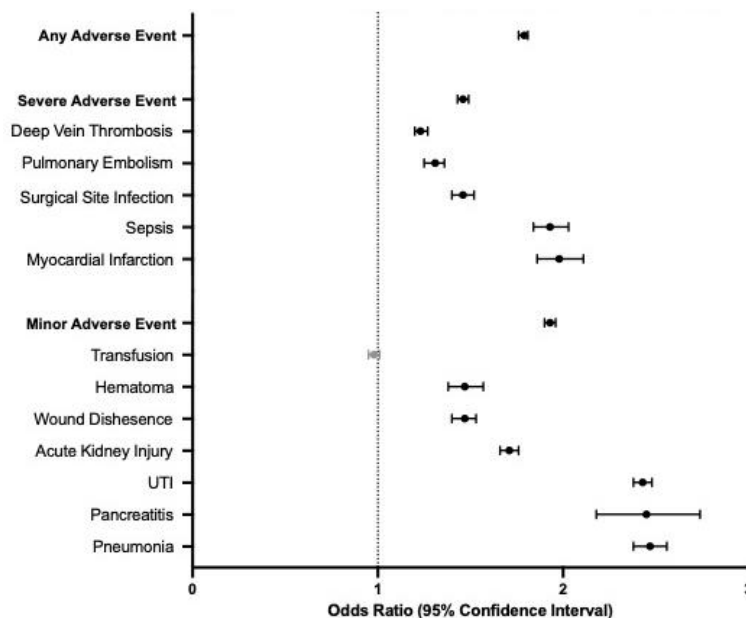
**RESULTS:** In total, 23.7% of TKA patients were taking antidepressants. Matched TKA patients on antidepressants and not on antidepressants (n=313,647 per group) were extracted from the dataset. Controlling for patient age, sex, and ECI, those on antidepressants at the time of surgery had significantly higher odds of experiencing any (odds ratio [OR] 1.79), severe (OR 1.46), and minor (OR 1.93) adverse events in the 90-days following TKA (p<0.0001 for all). Among serious adverse events, patients on antidepressants were at greatest risk of myocardial infarction (OR 1.98) and sepsis (OR 1.93), p<0.0001 for both. Regarding minor adverse events, patients on antidepressants were at greatest risk of pneumonia (OR 2.47), pancreatitis (OR 2.45), and urinary tract infection (OR 2.45), p<0.0001 for all.

Five-year survival to reoperation of TKA patients on antidepressants was 96.0% (95% CI 96.0%-96.1%), compared to 96.5% (95% CI 96.4%-96.6%) for patients not on antidepressants.

**DISCUSSION:** In a massive cohort of over 600,000 TKA patients, those on antidepressants at the time of surgery were at significantly increased risk of experiencing 90-day postoperative adverse events but had similar 5-year reoperation rates. Limitations of this study include those inherent to administrative database research and patient-specific information. Further, this study did not account for the severity of underlying psychiatric disease among those on antidepressants.

**SIGNIFICANCE/CLINICAL RELEVANCE:** The results of the present study show that TKA patients on antidepressants at the time of surgery are at increased risk of 90-day postoperative complications but not at increased risk for long-term complications. Using antidepressant prescriptions as a proxy for underlying depression and anxiety could help surgeons identify patients at risk of poor postoperative outcomes related to underlying psychiatric conditions. This could subsequently aid with risk stratification and the deployment of peri-operative care pathways to minimize risk.

**Risk of Adverse Events Following TKA in Matched Patients on Antidepressants vs. Not on Antidepressants**



**Figure 1.** Risk of adverse events following TKA in matched patients on antidepressants vs. not on antidepressants.