

Antidepressants Are Associated with Significantly Increased Risk of Postoperative Complications Following Total Hip Arthroplasty

Majd Marrache¹, Anirudh Buddhiraju², Vishal Hegde, Nirav K Patel, Harpal Singh Khanuja

¹ Johns Hopkins Medical Institute, ²The Johns Hopkins University School of Medicine

INTRODUCTION: Selective serotonin reuptake inhibitors (SSRIs) and serotonin and norepinephrine reuptake inhibitors (SNRIs) are the most frequently prescribed antidepressants in the U.S., owing to their safety and efficacy. However, given recent evidence showing that these medications significantly affect bone health and quality, we aimed to assess their impact on 90-day postoperative outcomes after total hip arthroplasty.

METHODS: The TrinetX research network was queried to identify patients who underwent primary total hip arthroplasty (THA) between January 2004 - May 2024 across 89 healthcare organizations. Three comparison groups were established based on antidepressant prescription within a year of index THA – patients on SSRIs only, SNRIs only, and no prescription of SSRIs or SNRIs (control). Intergroup comparisons were made after performing a comprehensive 1:1 propensity score matching for differences in demographics and comorbidities for each sub-analysis. Multivariable regression analysis was performed to adjust for confounders.

RESULTS: The SSRI–control and SNRI–control matched cohorts comprised 22,652 and 11,902 patients, respectively. The SSRI and SNRI cohort consisted of 11,360 matched pairs. Compared to patients who were not on any antidepressants, SSRI patients had higher risks of ED utilization (7.0 vs. 6.1%, p<0.001), revision (2.1 vs. 1.5%, p<0.001), mortality (0.8 vs 0.6%, p<0.001), and joint infection (1.8 vs. 1.3%, p<0.001). SNRI patients had similarly higher risks of ED utilization (8.3 vs. 6.8%, p=0.005), revision (2.3 vs. 1.6%, p<0.001), joint infection (2.2 vs. 1.4%, p<0.001), and acute renal failure (1.8 vs. 1.4%, p=0.017). Deep venous thrombosis and pulmonary embolism risks were similar between patients with and without antidepressant use, irrespective of the drug. SNRI patients had a higher risk of ED visits (8.4 vs. 6.9%, p=0.004) and a lower risk of mortality than SSRI patients (0.6 vs. 0.8%, p=0.033).

DISCUSSION AND CONCLUSION: This study demonstrated significantly worse postoperative outcomes among THA patients using SSRI and SNRI preoperatively. Our findings suggest that careful counseling and consideration should be given when prescribing these antidepressants to patients undergoing total hip arthroplasty due to the potential for increased postoperative complications.

Table 1. Risk of 90-day complications in total hip arthroplasty patients with preoperative selective serotonin reuptake inhibitor or serotonin and norepinephrine reuptake inhibitor use

Outcome	Antidepressant use (%)	No antidepressant (%)	P-value
SSRI use			
Readmission	1.9	1.7	.254
ED utilization	7.0	6.1	<.001
Revision	2.1	1.5	<.001
Mortality	0.8	0.6	<.001
Preprosthetic joint infection	1.8	1.3	<.001
Superficial surgical site infection	0.4	0.3	.070
Deep venous thrombosis	0.9	0.7	.061
Pulmonary Embolism	0.6	0.5	.194
Acute renal failure	1.6	1.5	.287
Aspiration	0.3	0.2	.085
SNRI use			
Readmission	2.0	1.6	.060
ED utilization	8.3	6.8	.005
Revision	2.3	1.6	<.001
Mortality	0.5	0.6	.851
Preprosthetic joint infection	2.2	1.4	<.001
Superficial surgical site infection	0.4	0.4	.846
Deep venous thrombosis	0.7	0.9	.357
Pulmonary Embolism	0.4	0.6	.132
Acute renal failure	1.8	1.4	.0017
Aspiration	0.2	0.2	0.098

Table 2. Comparison between the risk of 90-day complications in total hip arthroplasty patients using selective serotonin reuptake inhibitors and serotonin and norepinephrine reuptake inhibitors.

Outcome	SSRI use (%)	SNRI use (%)	P-value
Readmission	2.1	2.1	.852
ED utilization	6.9	8.4	.004
Revision	2.3	2.4	.653
Mortality	0.8	0.6	.033
Preprosthetic joint infection	1.9	2.2	.115
Superficial surgical site infection	0.4	0.4	.535
Deep venous thrombosis	0.8	0.8	.725
Pulmonary Embolism	0.5	0.4	.280
Acute renal failure	1.7	1.8	.817
Aspiration	0.3	0.3	.897