

Bilateral Total Hip Arthroplasty Staged within Six Weeks Increases Risk of Adverse Events

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INTRODUCTION: The ideal timing for bilateral total hip arthroplasty (THA) to avoid an increased risk of adverse events remains controversial. The purpose of this study was to evaluate 90-day outcomes after simultaneous and staged bilateral THA.

METHODS: Laterality-specific International Classification of Disease, 10th Revision codes were used to retrospectively identify 273,281 patients undergoing primary THA during 2015-2020 (Table 1). Of these, 39,905 (14.6%) were bilateral. Patients were divided into cohorts of unilateral THA, simultaneous bilateral THA, and staged bilateral THA at 1-14 days, 15-42 days, 43-90 days, and 91-365 days. Bilateral THA cohorts were matched one-to-one with unilateral THA patients based on age, gender, year, Elixhauser Comorbidity Index (ECI), and a preoperative diagnosis of obesity, tobacco use, and diabetes (Table 2). Univariate and multivariate analysis were used to compare 90-day outcomes between matched groups with a significance level of p<0.05. Outcomes were collected beginning after the second THA in staged bilateral groups.

RESULTS: Simultaneous bilateral THA was associated with an increased risk of transfusion (odds ratio [OR] 4.43, 95% confidence interval 2.31-2.63, p<0.001), readmission (OR 2.60, 2.01-3.39, p<0.001), and any complication (OR 1.86, 1.55-2.24, p<0.001) compared to unilateral THA. Bilateral THA staged at 1-14 days increased the risk of readmission (OR 1.83, 1.49-2.24, p<0.001) and any complication (OR 1.45, 1.26-1.66, p<0.001) relative to unilateral THA. Bilateral THA staged at 15-42 days also increased the risk of adverse events, including periprosthetic joint infection (OR 3.15, 1.98-5.19, p<0.001), transfusion (OR 2.90, 1.84-4.70, p<0.001), readmission (OR 1.92, 1.55-2.39, p<0.001), and any complication (OR 1.70, 1.46-1.97, p<0.001). Bilateral THA staged at 43-90 days and 91-365 days resulted in similar or decreased rates of individual complications, reoperation, readmission, and any complication relative to unilateral THA (Tables 3 and 4).

DISCUSSION AND CONCLUSION: Bilateral THA should be staged a minimum of 6 weeks apart in appropriately selected patients to avoid an increased risk of adverse events.

	Unilateral	Simultaneous	Staged 1-14 days	Staged 15-42 days	Staged 43-90 days	Staged 91-365 days	p-value
N	233,376	3,991	1,000	1,000	1,000	1,000	
Age	65.0 (10.0)	64.0 (10.0)	64.0 (10.0)	64.0 (10.0)	64.0 (10.0)	64.0 (10.0)	<0.001
Sex	101,111 (43.4%)	1,611 (40.4%)	400 (40.0%)	400 (40.0%)	400 (40.0%)	400 (40.0%)	<0.001
ECI	1.5 (1.5)	1.7 (1.5)	1.7 (1.5)	1.7 (1.5)	1.7 (1.5)	1.7 (1.5)	<0.001
Comorbidities							
Obesity	45,528 (19.5%)	1,111 (27.8%)	400 (40.0%)	400 (40.0%)	400 (40.0%)	400 (40.0%)	<0.001
Diabetes	10,111 (4.3%)	200 (5.0%)	100 (10.0%)	100 (10.0%)	100 (10.0%)	100 (10.0%)	<0.001
Tobacco	1,111 (0.5%)	100 (2.5%)	100 (10.0%)	100 (10.0%)	100 (10.0%)	100 (10.0%)	<0.001

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