

10-Year Survivorship of Total Hip Arthroplasty in Osteonecrosis Patients with Human Immunodeficiency Virus

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INTRODUCTION:

Total hip arthroplasty (THA) is commonly performed in human immunodeficiency virus (HIV)-positive patients with femoral head osteonecrosis. However, long-term outcomes in this patient population remain understudied. We aimed to investigate differences in 10-year THA outcomes between HIV+ and HIV- patients with osteonecrosis, as well as HIV+ patients currently using HIV therapies.

METHODS:

HIV+ patients with osteonecrosis who underwent THA with 10-year follow-up between 2014 and 2024 were identified using an insurance claims-derived national database. Patients were propensity-score matched to controls based on age, sex, and Charleston Comorbidity Index (CCI) in a 1:2 ratio. Cumulative incidence ratios and hazard ratios were used to compare 10-year outcomes between matched HIV-positive and HIV-negative cohorts, as well as between HIV-positive patients who received preoperative antiretroviral therapy and those who did not.

RESULTS:

929 HIV+ patients with osteonecrosis underwent THA. No differences were observed in 10-year cumulative incidence and risk for all-cause revision between HIV+ and HIV- cohorts (HR: 1.07; 95% CI: 0.75-1.51; $P=0.711$). Although incidence and risk were slightly elevated, there were no significant differences between these cohorts for periprosthetic joint infection (PJI), dislocation, and mechanical loosening. PPF incidence and risk were slightly lower, but still not significantly different between the cohorts. There were no significant differences in revision, PJI, dislocation, mechanical loosening, or periprosthetic fracture between HIV+ patients treated with HIV medication preoperatively and HIV+ patients without medication.

DISCUSSION AND CONCLUSION: THA outcomes were similar between HIV+ and HIV- patients with osteonecrosis. Outcomes, including PJI, were similar for these patients, regardless of preoperative HIV medication status. This indicates that THA is safe and effective in patients with femoral head osteonecrosis, regardless of HIV+ status or perhaps even preoperative HIV treatment status. Additional research will further improve the optimization of treatment for HIV+ osteonecrosis.

TABLE 1. Characteristics

	HIV+ (N=929)	HIV- (N=1852)	P-value
Age < 50	124 (13.3%)	611 (33.0%)	0.004
Age 50-59	422 (45.4%)	841 (45.4%)	0.027
Age 60-69	181 (19.5%)	324 (17.5%)	0.782
Gender			0.029
Female	371 (39.8%)	533 (28.8%)	
Male	558 (59.8%)	1279 (69.2%)	
CCI	688 (73.9%)	1279 (69.2%)	
Mean (SD)	5.96 (1.41)	5.91 (1.44)	0.613

TABLE 2. Outcomes

Outcome	HIV+ (N=929)	HIV- (N=1852)	HR	95% CI	P-value
Revision THA	5.66	4.69	1.2	(0.751-1.91)	0.411
PJI	0.57	0.51	1.1	(0.481-1.49)	0.304
Dislocation	4.84	3.87	1.2	(0.861-1.69)	0.436
Mech. Loosening	3.65	3.88	0.9	(0.743-1.09)	0.386
PPF	1.61	1.66	0.9	(0.421-1.47)	0.448

TABLE 3.

Outcome	HIV+ with Meds	HIV+ No Meds	HR	95% CI	Cox Regression P-value
Revision THA	5.46	5.97	0.9	(0.416-2.14)	0.791
PJI	0.67	0.68	1.0	(0.376-2.26)	0.944
Dislocation	5.07	4.68	1.1	(0.662-2.21)	0.618
Mech. Loosening	2.78	2.48	1.1	(0.616-1.88)	0.618
PPF	1.15	2.22	0.5	(0.193-1.34)	0.193

