

Trends in Complications and Outcomes in Patients Aged 65 and Younger Undergoing Total Hip Arthroplasty: Data from the American Joint Replacement Registry

David Alexander Cieremans¹, Akash Shah², James D Slover, Ran Schwarzkopf³, Morteza Meftah⁴

¹New York University Langone Orthopedic Hospital, ²UCLA Department of Orthopaedic Surgery, ³NYU Langone Orthopedic Hospital, Hospital For Joi, ⁴NYU Langone Orthopedic Hospital

INTRODUCTION:

The objective of this study was to determine the most common complications and the rates of readmission and revision in total hip arthroplasty (THA) patients younger than 65 years reported in a large national registry database.

METHODS:

Using the American Joint Replacement Registry (AJRR) database, we conducted a retrospective review of all THAs performed in patients aged 18-65 from 2012-2020. Exclusion criteria were patients older than 65, revisions, oncologic etiology, conversion from prior surgery, and non-elective cases. Primary outcome measured included cumulative revision rate, 90-day readmission rate, and reason for revision. The Kaplan-Meier method was used to determine implant survivorship with the endpoint being revision for any reason.

RESULTS:

Of the 5,153 patients that were included in the study, the average age was 56.7 years (SD 7.8 years), 51% were female, 85% were White, and 89% had a Charlson Comorbidity Index of 0 (1 = 7%, $\geq 2 = 4\%$). Mean follow up was 39.57 months (range: 0-72.03 months). Fifty-three patients (1.0%) underwent revision. Seventy-four patients (1.4%) were readmitted within 90 days. Revision was more common in Black patients compared to White patients ($p = 0.023$, OR: 2.76 [1.148 - 6.633]). Survivorship was 99% (95% CI 98.7-99.3) and 99% (95% CI 98.5-99.3) at 5 and 8 years, respectively. Infection (21%), instability (15%), periprosthetic fracture (15%), and aseptic loosening (9%) were the most common indications for revision.

DISCUSSION AND CONCLUSION:

Total hip arthroplasty performed in young and presumed active patients less than 65 years old had a 99% survivorship at 8 years. In the AJRR database, Black patients had a higher early cumulative THA revision rate than White patients. Long-term follow-up is needed to evaluate survival trends in this growing population.

Table 1. Demographic Summary

Factors	THA (N=5,153)	
	N	%
Mean Age (SD)	56.7 (7.8)	
Age Category		
18-34	126	2.5
35-44	265	5.1
45-54	1,093	21.2
55-65	3,669	71.2
Sex		
Male	2,531	49.2
Female	2,617	50.8
Race		
White	4,357	84.5
Black	233	4.5
Other	563	11
Charlson Comorbidity Index		
0	4,599	89.2
1	350	6.8
≥ 2	204	4

Table 4. Association between Independent Factors and Linked 90-day Readmissions w/o revision among younger patients (18-65)

Factors	THA (N=59)			
	Odds Ratio	Lower Limit	Upper Limit	p-value
Preop VR-12 PCS	1.017	0.789	1.31	0.896
Age	0.874	0.543	1.408	0.581

Figure 1: Kaplan-Meier Survivorship for THA in Young, Active Patients < 65 Years Old

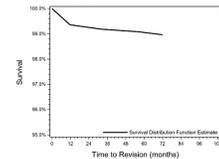


Table 2. THA Outcomes and Top Diagnoses

Revision and Readmission Rates		THA (N=5,153)	
Linked revisions	53	1%	
Linked 90-day readmissions (w/o revision)	74	1.4%	
Top Four Reasons for Revision			
Infection	11	20.8%	
Instability	8	15.1%	
Periprosthetic Fracture	7	13.2%	
Aseptic Loosening	5	9.4%	
Top Three Reasons for 90-day Readmission w/o Revision			
Infection	17	22.9%	
Pain	7	9.5%	
Periprosthetic Fracture	4	5.4%	

Table 3. Association between Independent Factors and Linked Revisions among younger patients (18-65)

Factors	THA (N=5,124)			
	Odds Ratio	Lower Limit	Upper Limit	p-value
Preop VR-12 PCS	0.999	0.969	1.031	0.966
Age	1.004	0.968	1.041	0.838
Sex: Female vs. Male	1.078	0.624	1.862	0.788
Race: Black vs. White	2.76	1.148	6.633	0.023
Race: Other vs. White	0.55	0.169	1.786	0.32
Charlson Comorbidity Index	0.854	0.508	1.436	0.552