5-Year Revision Total Hip Arthroplasty Survivorship in Patients 55 and Younger

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INTRODUCTION:
Total hip arthroplasty (THA) is now performed more frequently in younger patient populations. Consequently, more young patients may require revision THA. However, the risk of re-revision surgery in this younger demographic is not well understood. This study aimed to evaluate the rates of re-revision surgery in patients aged 55 years or younger.
METHODS:
Patients who underwent revision THA with a 5-year follow-up between 2014 and 2024 were identified from a national database derived from electronic medical records. Patients were categorized by age (≤55 or >55 years) and matched using propensity scores based on sex and medical comorbidities. Kaplan-Meier analysis was employed to compare the two age groups' 5-year and 90-day outcomes.
RESULTS:
Of the 3758 patients who underwent revision THA, 355 (9.45%) were 55 or younger. When matched, 97 (27.40%) patients 55 or younger required re-revision compared to 76 (21.50%) patients older than 55 (HR: 1.33; 95% CI: 0.986-1.798). The cumulative incidences of periprosthetic joint infection and dislocation were similar between groups (32.49% vs. 27.12%; HR: 1.25; 95% CI: 0.95-1.63), (16.95% vs. 13.56%; HR: 1.28; 95% CI: 0.87-1.87). Interestingly, the cumulative incidence of mechanical loosening was lower in the younger group (8.76% vs. 9.89%; HR: 0.87; 95% CI: 0.54-1.41). There were no significant differences between the cohorts for 5-year outcomes or 90-day major complications, readmissions, or surgical site infections.
DISCUSSION AND CONCLUSION:
Patients 55 or younger who received a revision THA have a similar risk for all-cause re-revision compared to patients over 55. Risks of other associated revision complications are also comparable between cohorts. Given the limited difference in outcomes between age groups, younger patients may not be at higher risk of re-revision, and age should not necessarily limit the decision to perform primary or revision THA. Further research is warranted to optimize long-term outcomes for younger populations.

Figure 1. Kaplan-Meier 5-year Cumulative Incidence of All-Cause Re-Revision

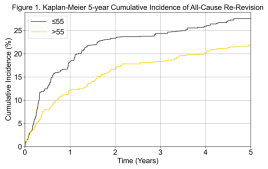

Table 1: Baseline Patient Characteristics Before and After Matching

	Before Matching			After Matching		
	≤55 N (%)	>55 N (%)	P-value	≤55 N (%)	>55 N (%)	P-value
Sex						
Female	201 (56.62)	1836 (53.95)	0.34	200 (56.50)	200 (56.50)	1.00
Male	144 (40.56)	1417 (41.64)	0.70	144 (40.68)	144 (40.68)	1.00
Comorbidities						
Hypertension	133 (37.47)	2075 (60.98)	**<.01**	133 (37.57)	133 (37.57)	1.00
Nicotine dependence	58 (16.34)	579 (17.01)	0.75	58 (16.38)	60 (16.95)	0.84
Morbid obesity	43 (12.11)	354 (10.40)	0.32	42 (11.86)	43 (12.15)	0.91
Diabetes mellitus	38 (10.70)	609 (17.90)	**<.01**	37 (10.45)	34 (9.61)	0.71
Rheumatoid arthritis	26 (7.32)	251 (7.38)	0.97	25 (7.06)	23 (6.50)	0.76
Chronic kidney disease	21 (5.92)	299 (8.79)	0.07	21 (5.93)	20 (5.65)	0.87
Heart failure	15 (4.23)	259 (7.61)	**0.02**	15 (4.24)	13 (3.67)	0.70
COPD	15 (4.23)	307 (9.02)	**<.01**	15 (4.24)	19 (5.37)	0.48
Obesity	10 (2.82)	26 (0.76)	**<.01**	10 (2.83)	10 (2.83)	1.00

Table 2: 5-Year THA Re-revision Outcomes

Cause of Re-revision	≤55 CIR (%)	>55 CIR (%)	HR	95% CI Lower	95% CI Upper	P-value
All-Cause Revision	27.55	21.92	1.33	0.99	1.80	0.06
PJI	32.55	27.35	1.25	0.95	1.63	0.11
Mechanical Loosening	8.81	10.05	0.87	0.54	1.41	0.58
Dislocation	2.86	1.44	1.97	0.67	5.78	0.21

Table 3: 90-Day Outcomes

Outcome	≤55 CIR (%)	>55 CIR (%)	HR	95% CI Lower	95% CI Upper	P-value
Major Complications	7.34	7.36	0.90	0.57	1.70	0.97
SSI	1.70	1.70	1.00	0.32	3.09	1.00