

Revision Total Hip Arthroplasty in Octogenarians: A Contemporary Update

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INTRODUCTION:

Increasing frequency of total hip arthroplasty (THA) along with an aging population indicate that the need for revision THA will continue to grow, especially in older and potentially medically complex patients. The purpose of this study was to investigate trends in THA revision indications, perioperative complications, and readmissions in octogenarian patients compared to younger patients stratified by age group.

METHODS: 1317 patients between the ages of 50 and 89 underwent 1597 revision THAs between 2008-2019 at a single tertiary care hospital. Patients were stratified by age group (50-59 (n=418), 60-69 (n=549), 70-79 (n=449), and 80-89 (n=181)). Indication for revision, perioperative medical complications, and 90-day readmissions were identified for each patient. Chi squared and analysis of variance were used to compare groups. Logistic regression was used to assess medical complications and readmissions.

RESULTS: Aseptic loosening was the most common indication in all age groups but decreased with age (Table 1). Periprosthetic fracture and loosening were both responsible for 28% of revisions in octogenarians, which had more than twice the fracture rate compared to other age groups. Medical complications occurred most often in octogenarians (12%), with arrhythmia being the most common type. Patients aged 80-89 were at increased risk of medical complication when adjusting for sex, BMI, Charlson Comorbidity Index, and race (OR 7.9, 95% CI 2.6 – 26.2, p<0.001). Octogenarians had the highest rate of readmission (14%) (Table 2). Prosthetic joint infection was the most common overall reason for readmission (2.9%) but was similar between age groups (p=0.865). Reoperations and re-revisions within 90 days were similar between groups.

DISCUSSION AND CONCLUSION: Octogenarians more commonly underwent revision THA for periprosthetic fracture and had higher rates of both perioperative medical complications and 90-day readmissions compared to other age groups. Such findings should be considered when counseling patients on both primary and revision THA decisions.

Table 1. Indications for Revision and Surgical Type

| Indication | 50s N=418 | 60s N=549 | 70s N=449 | 80s N=181 | P Value |
|--------------------------------|--------------|--------------|--------------|--------------|---------|
| Aseptic Loosening | 174 (42%) | 215 (39%) | 150 (33%) | 50 (28%) | 0.003 |
| Dislocation/Instability | 38 (9%) | 55 (10%) | 52 (12%) | 15 (12%) | 0.550 |
| Heterotopic Ossification | 3 (0.7%) | 2 (0.46%) | 4 (0.9%) | 1 (0.6%) | 0.778 |
| Infection | 73 (18%) | 101 (18%) | 63 (14%) | 29 (16%) | 0.299 |
| Malposition | 6 (1.4%) | 6 (1.1%) | 8 (1.8%) | 0 (0%) | 0.315 |
| Metallosis/Component Failure | 30 (7%) | 48 (9%) | 42 (9%) | 10 (6%) | 0.344 |
| Osteolysis/Poly wear | 48 (12%) | 66 (12%) | 75 (17%) | 18 (10%) | 0.041 |
| Periprosthetic Fracture | 46 (11%) | 56 (10%) | 55 (12%) | 51 (28%) | <0.001 |
| Surgical Time and Type | | | | | |
| Total Operative Time (minutes) | 177 ± 65 | 186 ± 70 | 182 ± 68 | 201 ± 81 | 0.001 |
| Stem Only | 85 (20%) | 146 (27%) | 105 (23%) | 58 (32%) | 0.012 |
| Acetabulum Only | 121 (29%) | 148 (27%) | 105 (23%) | 40 (22%) | 0.159 |
| Stem and Acetabulum | 106 (25%) | 134 (24%) | 113 (25%) | 36 (20%) | 0.503 |
| Head/Liner Only | 106 (25%) | 121 (22%) | 126 (28%) | 47 (26%) | 0.178 |

Table 2. Readmissions

| | 50s N=418 | 60s N=549 | 70s N=449 | 80s N=181 | P Value |
|--|--------------|--------------|--------------|--------------|---------|
| All Readmissions | 37 (8.9%) | 43 (7.8%) | 24 (5.4%) | 25 (13.8%) | 0.005 |
| Wound Complication/Superficial Infection | 3 (0.7%) | 15 (2.7%) | 6 (1.3%) | 7 (3.9%) | <0.001 |
| Prosthetic Joint Infection | 14 (3.4%) | 14 (2.6%) | 12 (2.7%) | 6 (3.3%) | 0.865 |
| Dislocation | 19 (4.6%) | 10 (1.8%) | 5 (1.1%) | 9 (5.0%) | 0.002 |
| Loosening | 0 (0%) | 2 (0.4%) | 1 (0.2%) | 2 (1.1%) | 0.148 |
| Periprosthetic Fracture | 0 (0%) | 2 (0.4%) | 0 (0%) | 0 (0%) | 0.206 |
| Reoperation (any type) | 31 (7.4%) | 36 (6.6%) | 21 (4.7%) | 17 (9.4%) | 0.141 |
| Re-revision | 22 (5.3%) | 20 (3.6%) | 14 (3.1%) | 9 (5.0%) | 0.362 |