Long-Term Results of Primary Total Hip Arthroplasty in Patients With Rheumatoid Arthritis: A Multicenter, Propensity-Matched Cohort Study With Mean 12.6-year Follow-Up.

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INTRODUCTION: Despite advances in pharmacologic management, total hip arthroplasty (THA) remains essential for patients with rheumatoid arthritis (RA) who develop advanced hip involvement. Although THA provides substantial pain relief and functional improvement, RA patients may face elevated risks of long-term complications due to chronic inflammation, compromised bone quality, and immunosuppressive therapy after THA. With increasing life expectancy in RA patients, there is a growing need to evaluate the long-term durability of THA in this population. However, data on the long-term implant durability of contemporary THAs in patients with RA are limited and often restricted to a single-center design. This multicenter, matched-cohort study aimed to compare the long-term clinical outcomes and implant survivorship of primary THA between RA and non-RA patients.

METHODS: A multicenter, propensity-matched cohort study was retrospectively conducted using data from eight academic institutions. Patients with a diagnosis of RA who underwent elective total hip arthroplasty (THA) between 2007 and 2017 were matched to controls who received the procedure for primary osteoarthritis (OA). The exclusion criteria were (1) follow-up less than 2 years, (2) underlying hip dysplasia (Crowe type III, IV), (3) surgery due to fracture, and (4) presence of other systemic inflammatory disease (ankylosing spondylitis, psoriatic arthritis, and Sjogren syndrome). After exclusion, 239 RA patients were matched 1:1 to OA patients using propensity scores based on age, sex, BMI, year of surgery, and CCI score, and were included for analysis. After matching, a residual difference in age remained between the two groups, with RA patients being significantly younger than OA controls (mean age: 52.7 versus 55.3 years, p = 0.023), with a mean follow-up duration of 12.6 years for the entire cohort. The primary outcome was the risk of all-cause revision and any reoperation. Secondary outcomes included postoperative surgical and medical complications, mortality, and Harris Hip Score (HHS). To address the residual age difference and ensure robust comparison of event risks between groups, Cox proportional hazards regression models were employed with age included as a covariate. Kaplan-Meier survival analysis was used for visualization, and log-rank tests were applied for unadjusted comparisons between groups.

RESULTS: There were no significant differences in the survival rates for all-cause revision between the two groups (log-rank test, p=0.200), while the RA group showed a significantly lower survival rate for any reoperation (log-rank test, p=0.030). The survival rates for all-cause revision and reoperation at 13 years was 95.9% vs. 98.3% and 94.1% vs. 97.9% for the RA and OA groups, respectively. After adjusting for age in Cox regression, RA patients had a significantly higher risks of revision for any reason (hazard ratio [HR]: 3.36, 95% CI: 1.09–10.40, p=0.036) and any reoperation (HR: 4.40, 95% CI: 1.63–11.88, p=0.003) compared to the OA patients. Regarding survival for mortality, there were no significant differences between the two groups (p=0.364), with a 13-year survival of 95.1% vs. 96.9% for RA and OA groups, respectively. For surgical complications, the RA patients showed a significantly higher odds of aseptic loosening of the cup or stem (odds ratio [OR]: 8.24, 95% CI: 1.02-66.42, p=0.047), with no differences in the odds of other complications including intraoperative periprosthetic femoral fracture (PFF) (OR: 1.83, 95% CI: 0.60-5.55, p=0.285), postoperative PFF (OR: 1.00, 95% CI: 0.29-3.50, p=1.000), dislocation (OR: 1.51, 95% CI: 0.42-5.43, p=0.526), wound complication (OR: 1.77, 95% CI: 0.40-5.10, p=0.335), and periprosthetic joint infection (OR: 1.00, 95% CI: 0.29-3.50, p=1.000). No differences were found in the odds of in-hospital medical complications (OR: 1.67; 95% CI: 0.82-3.38; p=0.159) and 30-day readmission rate (OR: 1.51; 95% CI: 0.25-9.10; p=0.655). The HHS at the latest follow-up (89.1 vs. 90.5; p=0.789) showed no significant differences.

DISCUSSION AND CONCLUSION: In this study, RA patients undergoing elective THA were associated with a higher risk of all-cause revision and reoperation compared to OA patients. Additionally, the RA group demonstrated higher odds of aseptic loosening of the cup or stem, with comparable outcomes regarding other surgical complications, medical complications, and HHS. These findings suggest that meticulous preoperative planning and routine postoperative surveillance are crucial, particularly in RA patients, whose increasing life expectancy underscores the need to optimize implant durability and survivorship. Further prospective studies with larger sample sizes are warranted to validate these findings and to guide clinical practice in RA patients undergoing THA.