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MetroHealth Medical Center

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Abstract Submission Form

Poster Title: **Outcomes Following Robotic-Assisted Total Hip Arthroplasty in Cases of Reduced Surgical Complexity: A Propensity-Matched Cohort Study**

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Category: **Clinical Research**

Introduction: While robotic-assisted THA (RA-THA) has primarily been employed in surgically intricate cases, its potential benefits in scenarios of diminished surgical complexity remain less explored. The purpose of this study was to assess the odds of developing systemic and joint complications following RA-THA in cases of reduced surgical complexity.

Methods: A retrospective cohort study was conducted using a national database to identify patients who underwent primary THA (Current Procedural Terminology code 27130) from 2005 to 2022. Patients undergoing RA-THA were identified by ICD-10-PCS code 8E0Y0CZ and Healthcare Common Procedure Coding System code S2900. One-to-one propensity score matching was conducted to generate 2 cohorts: 1) RA-THA and 2) conventional THA (C-THA). Systemic and joint complications were assessed at the 30-day, 90-day, 1-year, and 5-year postoperative periods.

Results: Patients undergoing RA-THA had a lower risk of needing a revision THA at the 90-day, 1-year, and 5-year time points. RA-THA was associated with a lower risk of prosthetic dislocation at 90 days and 1 year and prosthetic pain at 1 year and 5 years. Dislocation of the hip or fracture of the femur was significantly lower in the RA-THA cohort at all four time points. The risk of developing prosthetic joint infection, periprosthetic fracture, and aseptic loosening were similar between cohorts. Patients undergoing RA-THA had a lower risk of developing deep vein thrombosis at 5 years. There was no other difference in the risks of developing a systemic complication between cohorts.

Conclusion: These findings suggest that RA-THA has comparable systemic and joint complication risks at 30-day to 5-year timepoints between RA-THA and C-THA. However, RA-THA had lower dislocation risk and prosthetic pain. Future studies with large sample sizes and long-term follow-up are needed to understand the patient-reported outcomes and functional outcomes of RA-THA for cases with reduced surgical complexity.