

Outcomes of Revision Total Hip Arthroplasty: Analysis of a US based Total Joint Replacement Registry

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Background: The incidence of total hip arthroplasty (THA) and revision THA (rTHA) are increasing. However, the survivorship of rTHA and the factors associated with re-revision has not been thoroughly evaluated.

Methods: A US Total Joint Replacement Registry was used to identify patients who had aseptic rTHA. The endpoint of this study is all cause re-revision THA. Factors evaluated for re-revision THA include: patient (age, gender, body mass index (BMI), race, general health status), implant (fixation, bearing surface, femoral head size, component revised), surgeon (fellowship training, volume, experience), and hospital (volume). A multivariable Cox proportional hazards model was used.

Results: 629 rTHAs were included with a median follow up of 2.2 years. The number of re-revisions was 63 (10%). The cohort mean age was 57.0 (standard deviation (SD)=12.4). At the time of the initial revision most implants were uncemented (97.3%), involved replacement of only the femoral component (54.2%), were metal on HXLPE (60.6%), with head sizes < 36 (51.3%). Most procedures were performed by surgeons doing <10 revision surgeries per year (79.8%). For every 10 year increase in age the hazard ratio (HR) for re-revision decreases by a factor of 0.72 (95%CI: 0.58-0.90). For every 5 revision surgeries performed by a surgeon, the hazard decreases by a factor of 0.93 (95%CI: 0.86-0.99). Having a hybrid or cemented hip relative to uncemented at time of rTHA increases the hazard by a factor of 3.19 (95%CI: 1.22-8.38). Ceramic on HXLPE decreases the hazard relative to metal on HXLPE by a factor of 0.32 (95%CI: 0.11-0.95). Metal on constrained bearing increases the hazard relative to metal on HXLPE by a factor of 3.32 (95%CI: 1.16 -9.48).

Discussion/Conclusion: When evaluating patient, implant, surgical and hospital factors at time of rTHA: age, surgeon experience, implant fixation, and bearing surfaces had significant impact on risk of re-revision.