

## **Hip Fracture Evaluation with Alternatives of Total Hip Arthroplasty versus Hemi-Arthroplasty (X): A Multinational Randomized Controlled Trial of X Patients**

*HEALTH Investigators*

*McMaster University, Hamilton, ON, Canada*

**Purpose:** Displaced femoral neck fractures can have devastating impacts on quality of life and patient function. Evidence for optimal surgical approach is far from definitive. X aimed to evaluate unplanned secondary procedures following total hip arthroplasty (THA) versus hemi-arthroplasty (HA) within two years of initial surgery for displaced femoral neck fractures. Secondary objectives evaluated differences in patient function, health-related quality of life, mortality, and hip-related complications.

**Methods:** X is a large randomized controlled trial that included X patients across 81 centers in X countries. Patients aged 50 years or older with displaced femoral neck fractures received either THA or HA. Participants were followed for 24 months post-fracture and a Central Adjudication Committee adjudicated fracture eligibility, technical placement of prosthesis, additional surgical procedures, hip-related complications, and mortality. The primary analyses were a Cox proportional hazards model with time to the primary study endpoint as the outcome and THA versus HA as the independent variable. Using multi-level linear models with three levels (centre, patient, and time), with patient and centre entered as random effects, the effect of THA versus HA on quality of life (Short Form-12 (SF-12) and EQ-5D), function (Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)), and mobility (Timed Up and Go Test (TUG)) were estimated separately. The last participant follow-up is scheduled for May 2019 and the trial results will be released at the OTA annual meeting.

**Results:** Patients were a mean X years old, X% female, and X% Caucasian. We identified that X secondary procedures occurred in X patients over the two-year follow-up period (X%, 95% CI: XX-XX). THA conferred the following risk of a secondary procedure within two years relative to HA (RR:XX, 95% CI: YY-YY, p=X). In comparison to HA, THA impacted secondary outcomes as follows: health-related quality of life, as measured by the SF-12 and EQ-5D (Adjusted Mean Difference (AMD) XX, 95% CI: YY-YY, p=X; AMD XX, 95% CI: YY-YY, p=X, respectively); functional outcomes and mobility, as measured by the WOMAC and TUG (AMD XX, 95% CI: YY-YY, p=X; AMD XX, 95% CI: YY-YY, p=X, respectively). The two-year mortality rate was XX (RR:XX, 95% CI: YY-YY, p=X) in the THA group and XX (RR:XX, 95% CI: YY-YY, p=X) in the HA group.

**Conclusion:** This study represents a major international effort to identify the most effective arthroplasty option for displaced femoral neck fractures. These results will impact clinical practice and enhance the quality of life for hip fracture patients.