PARTIAL KNEE REPLACEMENT IS ASSOCIATED WITH A LOWER RISK OF VENOUS THROMBOEMBOLISM AND OPIOID USE THAN TOTAL KNEE REPLACEMENT BUT INCREASED RISK OF LONG-TERM REVISION: A MULTINATIONAL, MULTI-DATABASE, PROPENSITY SCORE-MATCHED, COHORT ANALYSIS INCLUDING OVER 200,000 PATIENTS

Daniel Pietro-Althambra1, Edward Burn1, James Weaver2, Anthony G Sena3, Henry Morgan Stewart2, Patrick Ryan3, Centre for Statistics in Medicine, NDORMS, University of Oxford, Oxford, United Kingdom; 2Janssen Research and Development, Titusville, United States of America; 3IQVIA, London, United Kingdom

Background: Knee replacement is one of the few effective treatments for severe knee osteoarthritis. A number of surgical interventions are available, including two main types: partial or total knee replacement.

Objectives: We aimed to assess the outcomes of partial compared to total knee replacement.

Methods: We conducted a multi-database propensity score-matched cohort study. Data was obtained from 4 US claims databases (IBM MarketScan® Commercial Database (CCAE), IBM MarketScan® Medicare Supplemental Database (MDCR), Optum® de-identified Clininformatics® DataMart, Extended - Date of Death (Optum), and Pharmetrics), and 1 UK primary care electronic medical record database (THIN).

All people aged 40 years or older at the time of knee replacement surgery were included. Data were mapped to a common data model (OMOP), and processed using analytical tools developed by the OHDSI community.

Participants were followed up from the date of their first knee replacement and for up to 5 years. Outcomes included short-term (60-day) post-operative complications (infection, venous thromboembolism, mortality, readmission), opioid use in the 3-12 months post-surgery, and 5-year revision rates.

Propensity score matching (up to 1:10) was used to control for all available confounders, and negative control outcomes and calibration to minimize the impact of residual confounding. Separate Cox regression models were fitted for each outcome to estimate calibrated HR (cHR) and 95% confidence intervals related to partial, using total knee replacement as a reference group.

Results: A total of 32,379 and 250,377 patients receiving partial and total knee replacement respectively were matched. Short-term risk of venous thromboembolism was consistently lower in the former, with cHR ranging from 0.47 [0.32-0.71] in MDCR to 0.76 [0.59-0.99] in CCAE. No differences were observed in the risk of other complications. The use of opioids in months 3 to 12 after surgery was also lower in subjects receiving partial knee replacement, with cHR ranging from 0.70 [0.57-0.90] in THIN to 0.86 [0.78-0.96] in Optum.

Conversely, risk of 5-year revision was consistently higher amongst those undergoing partial compared to total knee replacement: cHR ranged from 1.51 [1.24-1.88] in CCAE to 2.16 [1.63-3.15] in MDCR.

Conclusion: Partial knee replacement is associated with a 25% to 50% reduction in short-term risk of venous thromboembolism, and a 15%-30% lower risk of persistent pain post-surgery. In contrast, partial knee replacement results in a 50% to 100% excess risk of revision in the longer term. This information should be used to individualize surgical indications for patients with severe knee osteoarthritis.


HEALTH-RELATED QUALITY OF LIFE IN HAND OSTEOARTHRITIS PATIENTS FROM THE GENERAL POPULATION AND THE OUTPATIENT CLINIC

Mariëlle Loos1, Wendy Damman1, Renée de Muts2, Frits Rosendaal2, Margreet Kloppenburg1,2, Leiden University Medical Center (LUMC), Rheumatology, Leiden, Netherlands; 3Leiden University Medical Center (LUMC), Epidemiology, Leiden, Netherlands

Background: In osteoarthritis (OA) patients health-related quality of life (HRQoL) is decreased. Whether patients with OA seeking care in a rheumatology outpatient clinic experience more impact on HRQoL than those in the general population is unknown.

Objectives: To investigate the impact of hand OA on physical and mental HRQoL in the general population, and to investigate the difference in impact between patients who have, and who have not been referred to a medical specialist with an OA diagnosis.

Methods: In the population-based Netherlands Epidemiology of Obesity (NEO) study, middle-aged participants were recruited from the greater area of Leiden. In the Hand OSTeoArthritis in Secondary care (HOSTAS) study, patients with a rheumatologist’s diagnosis of primary hand OA were recruited from the outpatient clinic at the Leiden University Medical Center, a secondary and tertiary referral center. In both cohorts, hand and knee OA was defined by the ACR clinical classification criteria. Patients with fibromyalgia or inflammatory rheumatic conditions were excluded. For the current analyses, only patients classified with hand OA alone were included. HRQoL was measured with the SF-36 questionnaire; we calculated standardized scores on a scale of 0 to 100 with subsequent application of a norm-based transformation (mean 50, standard deviation 10). Linear regression analyses, corrected for age, sex, education, ethnicity and BMI, were used to study cross-sectional associations between OA and HRQoL. Data are presented as regression coefficients with 95% confidence intervals (CI). Because a suitable control group without OA was lacking in the HOSTAS study, these patients were compared to the normative value of 50. Previous research concluded a minimal clinically important difference of 2 points on the SF-36 scale, which was used to assess clinical relevance of differences in scores.

Results: Of the 6,334 NEO participants 8% were classified with only hand OA and 4% were classified concurrent hand and knee OA. The HOSTAS cohort consisted of a total of 538 patients with hand OA, of whom 57% fulfilled the ACR criteria for only hand OA and 32% was defined with concurrent hand and knee OA. In the population-based NEO data, mean PCS was reduced with -2.4 (-3.6; -1.3) in participants with only hand OA, compared to participants without hand or knee OA (table 1). The subscales bodily pain and physical functioning were affected the most with mean differences of -3.4 (-4.6; -2.2) and -2.1 (-3.0; -1.1). Mental HRQoL was not reduced in participants with only hand OA, compared to participants without OA. In the population-based cohort 14% of participants with hand OA reported to have visited a medical specialist for OA. Participants with hand OA that have been referred to a medical specialist showed a lower physical HRQoL with a