OP0174

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 280,000 PATIENTS

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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 Clinformatics[®] 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 as a proxy for persistent pain, and 5-year revision risk.

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 CCAC. 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 CCAC 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.

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OP0175

METHOTREXATE IN PATIENTS WITH HAND OSTEOARTHRITIS REFRACTORY TO ANALGESICS: A RANDOMISED, DOUBLE-BLIND, PLACEBO CONTROLLED TRIAL

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Background: To date, no studies have been published on the effect of Methotrexate (MTX) in hand osteoarthritis (HOA).

Objectives: The aim of our study is to examine the effect of methotrexate on pain in symptomatic erosive HOA, as well as its functional and structural effect using MRI and radiography.

Methods: This prospective, single-center, randomized, double-blind, placebo-controlled study followed patients with HOA over 12 months. Patients were randomized to Methotrexate 10 mg per week or placebo.

The primary endpoint was pain assessment at 3 months, and secondary endpoints were clinical (Visual Analogue Scale "VAS" pain at 12 months), and radiographic (radiographic anatomical score, then the Ghent University Score System "GUSS" and MRI).

All subjects aged between 45 and 85 years, who had apparent NSAIDs and pain traitement failure with an VAS greater than 4/10, and at least one erosive joint were included.

Results: Out of 71 evaluated patients with symptomatic erosive HOA, and 64 matched the inclusion criteria and were randomized. Among them, 32 patients were randomized in the placebo group and 32 in the Methotrexate group. There was no significant difference between the two groups on the primary endpoint at 3 months, with an average decrease in VAS in the placebo group of 8.36 mm (+/- 25.15), and 17.47 mm (+/- 28.37) in the treatment group (p = 0.1797). At 12 months, no difference was found in the evolution of pain between the two groups (p = 0.6045) as well as in the functional evolution. In subjects taking Methotrexate, erosive joints move more to a remodeling phase undergoing treatment (27%) than placebo subjects (15%) (p = 0.0278). They also seem to evolve less towards erosion when their joints present a space loss (29% become erosive under placebo, against 8% in the Methotrexate group) (p = 0.0879). No predictor of erosive outcome was found in patients with non-erosive hand osteoarthritis.

Conclusion: Our study does not show superior efficacy of MTX over placebo over pain and function in subjects with erosive HOA. Our results suggest a possible structural effect on the radiological evolution of HOA under Methotrexate.

Disclosure of Interests: None declared

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OP0176

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

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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.

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 reference 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 study, 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

mean difference in the PCS of -3.9 (-6.7; -1.2), but no difference in mental HRQoL, compared with participants with hand OA that have not reported consulting secondary care for OA (table 2). In patients with only hand OA from the outpatient clinic, the PCS (-3.5), bodily pain (-4.9), vitality (-2.5) and role functioning - physical (-2.2) scales were clinically relevantly reduced, but mental HRQoL was not affected.

Table 1. Health-related quality of life of hand osteoarthritis patients in the general population

	NEO n = 6,334		Mean difference (95% CI)
	No hand OA 78%	Hand OA 22%	
Physical component score	55.1 (7.6)	52.0 (8.7)	-2.4 (-3.6; -1.3)
General health	53.8 (8.1)	52.1 (8.6)	-1.5 (-2.6; -0.3)
Bodily pain	55.3 (8.4)	51.5 (8.9)	-3.4 (-4.6; -2.2)
Vitality	51.0 (8.8)	50.6 (8.6)	-0.4 (-1.6; 0.5)
Physical functioning	55.0 (7.0)	51.8 (8.0)	-2.1 (-3.0; -1.1)
Role functioning - physical	53.9 (7.6)	52.6 (8.8)	-0.9 (-2.0; 0.2)
Mental component score	51.1 (8.8)	51.3 (8.9)	0.2 (-1.0; 1.3)
Mental health	52.4 (7.8)	51.3 (7.8)	-0.8 (-1.7; 0.2)
Social functioning	52.6 (8.0)	51.6 (8.4)	-0.6 (-1.7; 0.4)
Role functioning - emotional	52.7 (8.0)	52.3 (8.6)	-0.2 (-1.3; 0.8)

Higher SF-36 scores represent a better HRQoL. Numbers represent mean (SD). Results are adjusted for age, sex, BMI, education and ethnicity. CI = confidence interval

Table 2. Health-related quality of life of hand osteoarthritis patients in secondary care

	NEO n = 6,334		Mean difference (95% CI)	HOSTAS n = 538		Δ
	Hand OA spec ⁺ 6.6%	Hand OA spec ⁻ 1.0%		Hand OA 57%		
Physical component score	52.6 (8.4)	48.5 (9.4)	-3.9 (-6.7; -1.2)	46.5 (8.1)	-3.5	
General health	52.5 (8.3)	49.5 (10.0)	-2.6 (-6.2; 0.9)	49.2 (6.3)	-0.8	
Bodily pain	52.2 (8.8)	47.5 (8.9)	-4.9 (-7.6; -2.1)	45.1 (7.7)	-4.9	
Vitality	50.7 (8.7)	50.2 (8.1)	-0.6 (-3.2; 1.9)	47.5 (8.8)	-2.5	
Physical functioning	52.5 (7.6)	47.9 (9.5)	-4.3 (-7.0; -1.7)	48.8 (9.4)	-1.2	
Role functioning - physical	52.9 (8.6)	50.7 (9.9)	-2.1 (-5.0; 0.8)	47.8 (10.2)	-2.2	
Mental component score	51.3 (8.5)	50.9 (11.3)	-0.6 (-5.0; 3.8)	51.7 (8.8)	1.7	
Mental health	51.5 (7.4)	50.1 (9.8)	-1.5 (-5.2; 2.1)	51.0 (8.3)	1.0	
Social functioning	51.8 (8.2)	50.4 (9.6)	-1.4 (-4.8; 2.0)	50.0 (9.1)	0	
Role functioning - emotional	52.6 (8.2)	50.0 (10.8)	-2.5 (-6.3; 1.3)	51.1 (9.5)	1.1	

Higher SF-36 scores represent a better HRQoL. Numbers represent mean (SD). Results are adjusted for age, sex, BMI, education and ethnicity. In HOSTAS the delta (Δ) between population scores and norm scores were calculated. CI = confidence interval

Conclusion: Participants with hand OA from the general population had a clinically relevant lower physical HRQoL, but not mental HRQoL. Physical HRQoL was further reduced in patients consulting secondary care and in co-occurrence with knee OA. Hence, patients with hand OA in secondary care experience more impact on physical HRQoL than patients in the general population.

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OP0177

ASSOCIATION BETWEEN METABOLIC SYNDROME AND KNEE STRUCTURAL CHANGE ON MRI: A 10.7-YEAR FOLLOW-UP STUDY

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Background: Metabolic syndrome (MetS) has been suggested a crucial role in the pathophysiology of osteoarthritis (OA); however, currently none of studies have examined the associations between MetS and structural changes on MRI.

Objectives: To describe the associations between MetS and its components and structural changes on MRI including knee cartilage volume (CV) loss and bone marrow lesion (BML) change over 10.7 years.

Methods: Longitudinal data on 435 participants (mean age 61 years, 50% of females) from a population-based cohort study were analysed. Blood pressure, glucose, triglycerides, and high-density lipoprotein (HDL) were collected. MetS was defined based on the National Cholesterol Education Program-Adult Treatment Panel III criteria. MRI of the right knee was performed to measure CV and BML. Radiographic knee osteoarthritis (ROA) was assessed by X-ray.

Results: 32% of participants had MetS and 60% had ROA. In multivariable analysis, the following were independently associated with medial tibial CV loss [MetS: β = -0.30%; central obesity: β = -0.26%; low HDL: β = -0.26% per annum]. MetS, hypertriglyceridemia and low HDL were also associated with higher risk of BML size increase in the medial compartment [MetS: relative risk (RR) 1.72, 95%CI 1.22-2.43; Hypertriglyceridemia: RR 1.43, 95%CI 1.01-2.02; low HDL: RR 1.67, 95%CI 1.18-2.36]. After further adjustment for central obesity, MetS and low HDL remained significant with both medial tibial CV loss and BML size increase. The number of components of MetS correlated with greater CV loss and BML size

increase (both P for trend <0.05). There were no statistically significant associations in the lateral compartment.

Conclusion: MetS and low HDL are associated with medial compartment CV loss and BML worsening, suggesting that targeting MetS has the potential to prevent or slow structural change in knee osteoarthritis.

Disclosure of Interests: None declared

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OP0178

CARDIOVASCULAR COMORBIDITIES HAVE A DELETERIOUS IMPACT ON KNEE OSTEOARTHRITIS PROGNOSIS AT 5 YEARS: DATA FROM THE PROSPECTIVE KHOALA COHORT

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Background: The long-term effect of comorbidities on progression of structural changes in osteoarthritis (OA) remains poorly understood. Patients with knee OA have been reported to be at increased risk of several comorbidities including cardiovascular diseases (CVD). Nevertheless, the impact of all comorbidities on structural progression and on arthroplasty, not only in knee but also in hip OA, should be further defined.

Objectives: The objective of our study was to explore the relationship between comorbidities and the progression of structural changes in symptomatic knee and/or hip OA patients over 5 years.

Methods: The KHOALA (Knee and Hip OsteoArthritis Long-term Assessment) cohort is a French prospective multicenter observational cohort that included 878 subjects, aged 40 to 75 years, with symptomatic hip and/or knee OA at baseline (Kellgren and Lawrence (KL) ≥ 2). The structural progression was defined by the increase of one point of KL (Δ KL ≥ 1) or incidence of total knee or hip replacement at 5 years. Various comorbidities were analyzed: cardiovascular diseases excluding hypertension (coronary artery disease, heart failure, stroke, lower limb arteriopathy), hypertension, diabetes, smoking, dyslipidemia, metabolic syndrome, osteoporosis, neurological (e.g. Parkinson's disease, dementia), digestive (e.g. gastroesophageal reflux disease, ulcer), pulmonary (e.g. asthma, COPD), and psychiatric (depression, anxiety) diseases. Multivariate analysis was performed separately in hip and knee OA adjusted on age, sex and body mass index (BMI). Subjects with a BMI > 30 kg/m² were excluded from the analysis given the close relationship between obesity and the different comorbidities analyzed. Subjects with KL = 4 at the time of inclusion were also excluded from the analysis.

Results: Data from 631 non-obese subjects (BMI < 30 kg/m²) were analyzed. At 5 years, cardiovascular diseases were significantly associated with the 5-year KL change in knee OA (OR = 2.6 [1.13-5.76], p=0.02) and with knee arthroplasty (OR = 3.4 [1.1-11.2], p=0.04). Such associations were not found at the hip. Other comorbidities had no significant impact on knee OA structural progression. No significant relationship was found between any type of comorbidities and hip OA structural progression.

Conclusion: This 5-year data analysis of the KHOALA cohort revealed a significant association between cardiovascular comorbidities and structural progression of knee OA in subjects without obesity (BMI < 30 kg/m²). Other types of comorbidities do not appear to influence the structural prognosis of OA. These results argue for an integrated management of cardiovascular comorbidities in knee OA patients and highlight the differences between hip and knee OA.

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