Conclusions: Leg ulcer develops mainly due to venous disease in the lower extremities. Peripheral arterial occlusive disease seems to be rarely involved. It may cause unemployment in 46% and be resistant to treatment in 54% of the cases. Ulcers that appear early during the disease course heal faster and is more responsive to treatment.

Disclosure of Interest: None declared

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Osteoarthritis

SAT0552

BASILINE PREDICTORS OF UPPER LEG MUSCLE STRENGTH OVER 2 AND 4 YEARS IN SUBJECTS WITH KNEE OSTEOARTHRITIS: DATA FROM THE OSTEOARTHRITIS INITIATIVE

A.H. De Zwart¹, M. van der Leeden^{1,2}, L.D. Roorda¹, M. van der Esch¹, J.W. R. Twisk³, W.F. Lems^{1,4,5}, J. Dekker^{2,6}. ¹Reade Rehabilitation Center Amsterdam; ²Dept of Rehabilitation Medicine, VU University Medical Center (VUmc), Amsterdam Public Health research institute; ³Department of Epidemiology and Biostatistics, VU University Medical Center, VU University; ⁴Dept of Rheumatology, VU University Medical Center (VUmc); ⁵Jan van Breemen Research Institute; ⁶Dept of Psychiatry, VU University Medical Center, VU University, Amsterdam, Netherlands

Background: Muscle weakness is common in patients with knee osteoarthritis (OA). Muscle weakness negatively impacts future functional status, and has been linked to symptomatic and radiographic progression of knee OA. Limited information is available on the course of muscle strength over time in these patients.

Objectives: The aim of the present study is to (i) analyse the course and (ii) to identify baseline predictors for upper leg muscle strength over time in subjects with knee OA.

Methods: Data were obtained from the progression cohort of the Osteoarthritis Initiative (OAI) database. Upper leg muscle strength (in N/kg) was measured at baseline, 24 months and 48 months. Potential baseline predictors were demographic factors (age, gender, race, body height, body weight), metabolic factors (body mass index (BMI)), nutrition and vitamin related factors (dietary protein intake, dietary energy intake, vitamin D use, glucosamine use), lifestyle related factors (alcohol consumption, smoking, physical activity), OA-specific factors (KL grade, knee alignment, effusion, pain, pain medication use) and health related factors (comorbidities and depression). Univariable and multivariable mixed model analyses were performed to analyse the course and to identify baseline predictors for muscle strength over time.

Results: A total of 1390 subjects with knee osteoarthritis were included. The majority of the subjects were female (57.1%), mean $\pm$ SD for age was 61.4 $\pm$ 9.1 and mean $\pm$ SD for body mass index was 30.2 $\pm$ 4.9. All subjects had frequent knee symptoms and radiographic tibiofemoral knee OA (Kellgren en Lawrence score $\geq$ 2) at baseline. Muscle strength was significantly lower at 24 months and 48 months compared to baseline; there was no difference between 24 and 48

months. Older age, being female, higher BMI, being non-Caucasian, lower protein intake (g/kg bodyweight), higher dietary energy intake, alcohol consumption, less physical activity valgus malalignment, higher score on the WOMAC pain subscale and the use of pain medication at baseline were predictors of lower muscle strength over time.

Conclusions: Muscle strength decreased over time between baseline and 24 months, but not between 24 and 48 months, which may be attributed to reaching a plateau or to other reasons. In the present study a number of demographic factors, metabolic factors and factors related to nutrition and vitamins, lifestyle and knee OA were found to be predictive for decreased muscle strength over time. This set of baseline factors can be used to identify patients with knee OA at risk for decline of muscle strength over time. External validation of our model is needed.

Disclosure of Interest: None declared

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SAT0553

CHONDROCALCINOSIS OF THE KNEE AND THE RISK FOR KNEE OR HIP OSTEOARTHRITIS PROGRESSION: DATA FROM THE KHOALA COHORT

A. Latourte^{1,2}, A.C. Rat^{3,4}, W. Ngueyon Sime³, C. Roux⁵, F. Guillemin³, P. Richette^{1,2}. ¹Rheumatology Department, Lariboisière Hospital, Assistance Publique-Hôpitaux de Paris; ²Inserm U1132, Paris Diderot University, Paris; ³Inserm CIC 1433 Epidemiologie Clinique, Université de Lorraine; ⁴Rheumatology Department, CHRU Nancy, Nancy; ⁵Rheumatology Department, CHU Pasteur 2, Lamhess EA6309, UMR7277 IBS CNRS, University of Nice Sophia Antipolis, Nice, France

Background: Cross-sectional studies repeatedly found that chondrocalcinosis (CC) is associated with osteoarthritis (OA). However, whether CC worsens pre-existing knee or hip OA is unclear.

Objectives: We conducted this study to assess the impact of knee CC on the risk of 1) incident joint replacement surgery, 2) worsening of pain or function and 3) radiographic progression in patients with symptomatic knee OA.

Methods: The KHOALA cohort is a French multicenter population-based cohort of 878 patients with symptomatic knee and/or hip OA (ACR criteria), aged 40–75 years. Patients were followed annually by self-reported questionnaires and by clinical examination and radiography at baseline (year 0), years 3 and 5. Only patients with knee OA were kept for this analysis. CC, defined by the presence of calcium deposits within hyaline or fibro-cartilage on knee radiograph (anteroposterior view), was recorded as present or absent. We used Cox proportional-hazard regression modelling to estimate the local or systemic impact of CC at one knee (index knee) on the 5 year risk of incident total knee replacement (TKR) at the index knee or incident total hip or knee joint replacement (TJR), respectively. In the subgroup of patients without incident TJR during follow-up, logistic regression was performed to assess whether CC was associated with the worsening of Western Ontario and McMaster Universities Arthritis Index (WOMAC) for OA pain or function, or with radiographic progression as defined by a change in Kellgren and Lawrence (KL) grade, between years 0 and 5.

Results: Among the 656 patients included (mean $\pm$ SD age 62.2 $\pm$ 8.5 years; 70.3% females), 93 (14.2%) had CC in at least one knee at baseline. As compared with patients without CC, those with CC were older (64.3 $\pm$ 9.6 vs 61.9 $\pm$ 8.2 years; $p=0.009$), had longer disease duration (16.4 $\pm$ 10.5 vs 13.0 $\pm$ 7.6 years; $p<0.001$) and lower body mass index (29.1 $\pm$ 5.3 vs 30.5 $\pm$ 6.3 kg/m²; $p=0.047$). Patients with/without CC did not differ in baseline pain (7.1 $\pm$ 4.3 vs 6.6 $\pm$ 3.8; $p=0.26$) and function (22.2 $\pm$ 14.7 vs 20.7 $\pm$ 13.5; $p=0.32$) scores, or KL grade ($p=0.69$). Overall, 105 (16.0%) and 91 (13.9%) patients underwent TJR and TKR of the index knee, respectively, during follow-up. The presence of CC at one knee did not affect the risk of TKR in the same index knee (HR=1.0; 95% CI 0.6 to 1.8), or risk of TJR (HR=0.9; 95% CI 0.5 to 1.6). In patients without incident TJR surgery ($n=551$), the presence of CC did not affect the risk of worsened WOMAC pain/function scores or KL grade at year 5.

Conclusions: In a population-based cohort of symptomatic knee OA, the presence of CC in the knee did not affect the risk of subsequent TKR or TJR, nor clinical or radiographic outcomes at 5 years. These results suggest that CC is not a risk factor for worsening clinical or structural outcomes in knee OA.

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SAT0554

PREOPERATIVE PHYSICAL FUNCTION INFLUENCES ON STAIR CLIMBING ABILITY 1 MONTH AFTER TOTAL KNEE ARTHROPLASTY

B.R. Kim. Jeju National University Hospital, Jeju, Korea, Republic Of

Objectives: This study was undertaken to identify preoperative physical performance factors predictive of stair climbing ability 1 month following total knee arthroplasty.

Methods: In this prospective cohort study, we assessed a total of 84 patients (8 males and 76 females; average age 72.0±6.0 years) who underwent a primary unilateral total knee arthroplasty (TKA). Before and 1 month after TKA, patients completed physical performance tests including stair climbing test (SCT), 6 min walk test (6MWT), timed up and go test (TUG), isometric knee flexor and extensor strength of the surgical and non-surgical knees, and instrumental gait analysis for spatiotemporal parameters. Self-reported disease-specific physical function measured by using the Western Ontario McMaster Universities Osteoarthritis Index (WOMAC) and self-reported quality of life measured by using Euro QOL five dimensions (EQ-5D) questionnaire.

Results: In the bivariate analyses, the postoperative SCT-ascent had a significant positive correlation with the SCT-ascent ($r=0.29$, $p=0.01$), SCT-descent ($r=0.28$, $p=0.01$), TUG ($r=0.37$, $p<0.01$), preoperative age ($r=0.25$, $p=0.02$), and a significant negative correlation with the preoperative 6MWT ($r=-0.33$, $p<0.01$), peak torque (PT) extensor of surgical knee ($r=-0.29$, $p=0.01$), PT flexor of surgical knee ($r=-0.26$, $p=0.02$), PT extensor of the non-surgical knee ($r=-0.26$, $p=0.02$), PT flexor of the non-surgical knee ($r=-0.25$, $p=0.02$). The postoperative SCT-descent had a significant positive correlation with the SCT-ascent ($r=0.28$, $p=0.01$), SCT-descent ($r=0.40$, $p<0.01$), TUG ($r=0.38$, $p<0.01$), preoperative age ($r=0.27$, $p=0.01$), WOMAC function ($r=0.30$, $p<0.01$), and a significant negative correlation with 6-MWT ($r=-0.33$, $p<0.01$), PT extensor of surgical knee ($r=-0.23$, $p=0.04$), PT flexor of surgical knee ($r=-0.24$, $p=0.03$), PT extensor of the nonsurgical knee ($r=-0.25$, $p=0.03$), PT flexor of the nonsurgical knee ($r=-0.23$, $p=0.03$). In the linear regression analyses, the postoperative SCT-ascent had a significant positive correlation with the preoperative TUG ($\beta=0.28$, $p<0.01$), PT extensor of surgical knee ($\beta=-0.23$, $p=0.03$) and the postoperative SCT-descent had a significant positive correlation with preoperative SCT-descent ($r=0.28$, $p=0.01$), and the age ($\beta=0.20$, $p=0.04$).

Conclusions: This study demonstrated that preoperative physical function influenced on postoperative stair climbing ability 1 month after TKA. Using variables easily measured before surgery, it may be possible to predict with good accuracy for postoperative stair climbing ability. In addition, these results could be of importance in determining variable preoperative rehabilitation strategies to improve stair climbing ability, especially focusing on balance, endurance and strengthening exercises.

Disclosure of Interest: None declared

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SAT0555 ON THE WAY TO KNEE REPLACEMENT: TRAJECTORY AND CORRELATION OF KNEE OA MRI CARTILAGE THICKNESS, RADIOGRAPHIC JOINT SPACE WIDTH, AND WOMAC KNEE PAIN IN THE OAI

C.K. Kwoh¹, E.L. Ashbeck¹, M.J. Hannan², S. Wax³, J. Kraines³. ¹University of Arizona Arthritis Center, University of Arizona, Arizona; ²Medicine, University of Pittsburgh, Pittsburgh; ³EMD Serono, Inc, Billerica, USA

Background: Symptoms and structure are both important outcomes in osteoarthritis. However, prior knee osteoarthritis studies have found either poor or no correlation between structural and symptom outcomes.

Objectives: 1) Estimate the trajectory of mean WOMAC pain scores, medial minimum JSW (mJSW), and quantitative total tibiofemoral joint (TFJ) cartilage thickness in the five years leading up to knee replacement (KR), in KR case and control knees; 2) Estimate the correlation between change in WOMAC pain scores and change in structural measures prior to KR.

Methods: Osteoarthritis Initiative participants with at least one knee that met common eligibility criteria for DMOAD RCTs up to the 4 year follow-up visit were selected for analysis. Eligibility criteria included Kellgren and Lawrence grade of 2 or 3, medial mJSW ≥ 2.5 mm, and knee pain at its worst in the past 30 days (4–9 on a 10-point scale, or 0–3 with pain medication). Quantitative MRI (qMRI) cartilage thickness across the TFJ was measured on 3 Tesla MRI. Medial mJSW was measured on fixed flexion weight-bearing radiographs. WOMAC questionnaires were administered annually, and pain scores were scaled 0–100. Mean pain scores and structural measures at each annual visit were estimated with 95% confidence intervals (CI) using mixed effects models. Correlations between changes in structure and WOMAC pain scores were estimated using Spearman correlation coefficients (r), with negative coefficients indicating a correlation between loss of cartilage and increase in pain.

Results: WOMAC scores and medial mJSW measures were available for 91 cases (KR knees) and 1833 controls, with knees contributing an average of 4.5 WOMAC observations and 3.7 medial mJSW observations to the longitudinal analysis. TFJ cartilage thickness measures were available in 86 cases and 524 controls, with knees contributing an average of 3.1 observations. Over 4 years of

observation, among knees that went on to KR, the greatest annual change in mean WOMAC pain (10.8; 95% CI: 7.2, 14.4) and cartilage thickness (-0.100 mm; 95% CI: -0.118 , -0.082) occurred between the two visits most proximal to KR, while the decrease in mean medial mJSW in the final year (-0.408 ; 95% CI: -0.545 , -0.270) was similar to the rate of loss in prior years (figure 1). Average pain and structure was relatively stable among knees that did not undergo KR. Estimated correlation was moderate between one year change in WOMAC pain and TFJ cartilage thickness among case knees over the year prior to KR ($n=52$, $r=-0.46$), with lower correlations at earlier time points based on a more limited sample. Among control knees, the estimated correlation between annual change in WOMAC pain and structure was negligible at all time points ($r<0.1$).

Conclusions: Loss of TFJ cartilage thickness and pain progression were most pronounced over the year prior to knee replacement. Over this time frame, pain progression was moderately correlated with loss of TFJ cartilage, though not with loss of medial mJSW.

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