

evaluated using the method of ultrasonic densitometry and DEXA at the beginning of treatment and 12 months. The CRP level was determined at the beginning of the observation and after 1, 3, 6, 9 and 12 months. The two groups were compared on the level of BMD, radiological grade, the level of CRP and WOMAC function after adjusting for significant covariates. Multiple regression analysis was used to identify the independent effects to each specific component for level of CRP on knee osteoarthritis parameters.

Results: One hundred forty women were included. The mean age was 55.28 \pm 0.80³⁷⁻⁷⁵ years. Overweight had 86.42% of patients. The body mass index averaged 30.18 \pm 0.43²³⁻³⁷ kg/m². According to Kellgren-Lawrence classification, 55% of patients had II and 45% of patients – III radiological stage of gonarthrosis. 55.7% of knee OA patients had reduced bone mineral density. Multiple regression analysis showed, after adjusting for significant covariates, that the CRP level was significantly higher ($p < 0.0001$) in patients with reduced BMD compared to normal (6.32 \pm 1.67 mg/L and 4.74 \pm 0.75 mg/L respectively), an average of 33, 3%.

Conclusions: It was found that in patients with gonarthrosis with reduced BMD, a higher level of CRP was observed at 33.3%, which was associated with a more severe course of the disease.

REFERENCE:

- [1] It is recommended to study the severity of the progression and progression of OA to study the level of CRP and mineral density of bone tissue.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.7202

AB0978

DECREASED PAIN AND IMPROVED DYNAMIC KNEE INSTABILITY MEDIATE THE BENEFICIAL EFFECT OF WEARING A SOFT KNEE BRACE ON ACTIVITY LIMITATIONS IN PERSONS WITH KNEE OSTEOARTHRITIS

T. Cudejko¹, M. van der Esch², J. van den Noort¹, J. Rijnhart¹, M. van der Leeden¹, L.D. Roorda³, W. Lems¹, J. Harlaar¹, G. Waddington⁴, J. Dekker¹. ¹VU University Medical Center; ²De Boelelaan 1117, Afdeling revalidatiegeneeskunde; ³Amsterdam Rehabilitation Research Center Reade, Amsterdam, Netherlands; ⁴University of Canberra, Canberra, Australia

Background: We have previously shown that wearing a soft knee brace reduced activity limitations in persons with knee osteoarthritis (OA).¹ Several underlying mechanisms have been proposed via which a soft knee brace reduces activity limitations in persons with knee OA.² However, to our knowledge, no study has identified mechanisms explaining this effect.

Objectives: The aim of the study was to identify mechanisms explaining the beneficial effect of wearing a soft knee brace on activity limitations in persons with knee OA.

Methods: This was an exploratory analysis of data from 44 participants with knee OA from Amsterdam Osteoarthritis cohort, who enrolled in a single-session within-subject cross-over design study, comparing a soft brace with no soft brace, and comparing a non-tight soft brace with a tight soft brace (GENUTEX A2, Human I). A mediation analysis was performed and the mediation effect was calculated based on the product of coefficients approach. Confidence intervals were calculated with a bootstrap procedure. The outcome measures were activity limitations assessed with the 10-metre walk test and the Get up and Go test. The studied mediators were the changes in: knee joint proprioception, pain, pressure pain threshold (PPT) and objective dynamic knee instability. Knee joint proprioception was assessed by the active movement extent discrimination assessment; pain with the Numeric Rating Scale (NRS); PPT with a hand-held pressure algometer, and dynamic knee instability with the Perturbation Response i.e. a measure reflecting deviation in the mean knee varus-valgus angle after a controlled mechanical perturbation on the treadmill, in respect to level walking.

Results: Both a decrease in pain during walking and a decrease in dynamic knee instability mediated the association between wearing a soft knee brace and reduction in time to complete both 10 m walk test and the GUG test ($p < 0.05$). Changes in proprioception and PPT did not mediate these associations ($p > 0.05$). Magnitudes of the mediation effects were similar for a non-tight and a tight soft knee brace.

Conclusions: The decrease in activity limitations in persons with knee OA who wear a soft knee brace might be explained by a decrease in self-reported pain and a reduction in dynamic knee instability.

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Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.5504

AB0979

ULTRASOUND-MEASURED RADIAL DISPLACEMENT OF THE MEDIAL MENISCUS AS AN INDIRECT SIGN OF MRI-DETECTED CARTILAGE DAMAGE IN PATIENTS WITH MEDIAL TIBIOFEMORAL OSTEOARTHRITIS

T.A. Georgiev^{1,2}, M. Ivanova^{1,2}, M. Penkov³, R. Rashkov^{1,2}, R. Stoilov^{1,2}. ¹Rheumatology clinic, University Hospital "St. Ivan Rilski"; ²Medical Faculty, Medical University – Sofia; ³Radiology department, University Hospital "St. Ivan Rilski", Sofia, Bulgaria

Background: Extrusion of the medial meniscus is a consequence of the complex interactions among joint structures and altered tissue mechanics involved in the osteoarthritis (OA) process.¹ Potential contributing factors are cartilage loss, meniscal tears, obesity and knee malalignment²⁻⁴ – features strongly associated with knee OA. Ultrasound (US) measurement of medial meniscus radial displacement (MRD) is an easy to implement procedure that may serve as a starting point for assessment of the cartilage loss in patients with knee osteoarthritis.

Objectives: The aim of the study was to investigate the correlation between ultrasound-measured MRD and magnetic resonance imaging (MRI)-detected cartilage damage, as a referent method, in patients with medial femorotibial knee OA

Methods: 60 osteoarthritic knees of 48 patients (83% female) aged 40 to 80 years, meeting the ACR criteria for knee osteoarthritis, were included in the study. Patients with severe malalignment (varus or valgus deformity ≥ 20 degrees) were excluded. Radiographic stage was assessed according to the Kellgren-Lawrence (KL) grading system, as only KL I-III knees were included. MRD was measured in millimetres using diagnostic US with patients in the supine (non-weight-bearing) position. Magnetic resonance images were acquired by using 1.5 T MRI and were evaluated by a trained radiologist using Whole-Organ Magnetic Resonance Imaging Score (WORMS) for cartilage abnormalities of the medial femorotibial joint (MFTJ) and medial meniscal tears.

Results: There was a significant difference in values of MRD among studied radiographic groups ($p < 0.001$). The mean (SD) levels of MRD were 2.70 (1.43) mm, 3.97 (1.25) mm and 6.03 (1.30) mm for KLI, KLII, and KLIII, respectively. All knees that were KLII/KLIII ($n = 41$) had MRD higher than 1.8 mm (range 1.8–8.7 mm). MRD correlated significantly and positively with WORMS grades for cartilage abnormalities of MFTJ ($p < 0.001$, $r = 0.758$), WORMS grades for medial meniscal tears ($p < 0.001$, $r = 0.576$), and body mass index (BMI) ($p = 0.011$, $r = 0.315$). Correlation between MRD and MRI-detected cartilage damage remained significant after adjustment for age, BMI and medial meniscal tears score.

Conclusions: Joint space narrowing (KL > 2) on radiography is associated with higher level of meniscal extrusion. Higher values of measured MRD by ultrasound may be indicative of greater cartilage damage of MFTJ.

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Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.2939