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 ± 8.09 (27–75) years. Overweight had 86.42% of patients. The body mass index averaged 30.18±0.43±3.7 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±1.67 mg/L and 4.74±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. Cudejko, M. van der Esch, J. van den Noort, J. Rijnhart, M. van der Leeden, L.D. Roorda, W. Lems, J. Harlaar, G. Waddington, J. Dekker. 1. VU University Medical Center; 2. De Boelelaan 1117, Afdeling revalidatiegeneeskunde; 3. Amsterdam Rehabilitation Research Center Reade, Amsterdam, Netherlands; 4. University of Canberra, Canberra, Australia**

**Background:** We have previously shown that wearing a soft knee brace reduced activity limitations in persons with knee osteoarthritis (OA). Several underlying mechanisms have been proposed via which a soft knee brace reduces activity limitations in persons with knee OA. 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 data analysis 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.

**REFERENCES:**

Factors Associated with Loss of Cartilage in Knee Osteoarthritis

V. Vardanyan1, V. Mukuchyan2, A. Kirakosyan2

1Internal Medicine, Yerevan State Medical University; 2Rheumatology, Erebouni Medical Center, Yerevan, Armenia

Background: Osteoarthritis (OA) is one of the leading causes of pain and disability worldwide. The structural changes in knee OA are characterized mainly by the progressive loss of cartilage, which is associated with additional structural changes such as subchondral bone lesions and alterations in the menisci. Unfortunately, these changes cannot be effectively treated conservatively. Further determination of modifiable risk factors of cartilage loss is extremely important for improvement of OA management.

Objectives: The main objective of the study was the determination of factors associated with loss of cartilage in knee OA.

Methods: 294 patients (277 female, 17 male, mean age 55, 08±56 years) with newly diagnosed mild to moderate primary knee osteoarthritis were investigated. X-ray and ultrasound examinations of knee joints were performed. The thickness of cartilage and synovial layer, as well as presence of synovitis, tendinitis, osteophytes, Baker’s cysts, tear of meniscus were determined. For determination of factors associated with loss of cartilage both univariate and multivariate analyses were performed. The data is introduced as odds ratios (OR) with 95% confidence interval (CI). The results were considered significant when p<0.05.

Results: Expressed thinning of cartilage (≥2 mm) was observed in 216 (73.5%) patients, abnormal thickening of synovial layer (≥3 mm) – in 76 (25.9%), synovitis – in 88 (29.9%), tendinitis – in 38 (12.9%), osteophytes – in 273 (92.9%). Baker’s cysts – in 93 (31.6%), tears of meniscus – in 93 (31.6%) patients.

Univariate analysis had shown that loss of cartilage (≥2 mm) was significantly (p<0.05) associated with age >55 (OR/95% CI=2,01,3), thickening of synovial layer (OR/95% CI=2,13,–3,4), osteophytes (OR/95% CI=2,61,4,8), synovitis (OR/95% CI=2,61,4,8), tendinitis (OR/95% CI=2,61,4,8) and osteophytes (OR/95% CI=2,61,4,8). Finally, loss of cartilage (thickness ≥2 mm) was found to be significantly and independently associated with abnormal thickening of synovial layer (OR/95% CI=2,81,3,6), osteophytes (OR/95% CI=12,83,9,46), and osteophytes (p<0.01). Factors were then stepwise included in the model of multivariate logistic regression.

Conclusion: A positive association of cartilage loss with abnormal thickening of synovial layer (with further development of synovitis) and presence of osteophytes was determined. While cartilage loss and meniscal damage are not yet clearly treatable, treatments targeting inflammation within the joint are available. Thereby, prehandled treatment of secondary inflammatory conditions of joint, as well as strategies, directed toward dissection of osteophytes, can decrease cartilage loss and structural damage in OA.

References:

Disclosure of Interest: None declared


Prevalence of Osteoarthritis in High Altitude Area of Tibet

Y. Liang, Y. Mei, S. Guan, W. Sun, W. Wang, F. Teng, X. Han, Z. Zhang, The First Affiliated Hospital of Harbin Medical University, Harbin, China

Background: Osteoarthritis (OA) is a degenerative joint disease; the specific etiology and pathogenesis are unclear. The prevalence of osteoarthritis of subtypes of joint is different, whereas the most common osteoarthritis occurs in knees. In China, the prevalence of osteoarthritis is about 15%, the prevalence of the patients over 40 years old is 10%–17%, and 50% over the age of 60, while over 75 years old was as high as 80%. Few data exist regarding the prevalence of OA in plateau in China.

Objectives: To investigate the prevalence of osteoarthritis (OA) in Jiuhe village, which is located about 3.5 kilometres high of Gonggaya County of Tibet and the associated factors in order to provide the guidance for the prevention and treatment of OA.

Methods: The participants in this analysis were all the resident people aged 50 years and above in Jiuhe village, Gonggaya County of Tibet. All subjects were invited to completed an questionnaire, physical examination and radiographic examination. The questionnaire included sex, age, body mass index (BMI) and dietary habit.

Results: A total of 136 participants aged 50–86 years were enrolled, including 47 men with mean age of 62.66±11 years, and 89 females with mean age of 61.30±9.52 years. Altogether 102 knee OA can be diagnosed, the total prevalence of knee OA was 75.00%. Knee OA occurred in 78.72% of male and 73.03% of female. The prevalence of knee OA combined with hand OA was 19.12%, and 21.28% for male and 17.98% for female. The prevalence of knee OA combined with hand OA increased with age in the female, no such trend was observed in male or in only knee OA patients. No significant difference was found about sex, BMI, drinking between the OA patients and the controls.

Conclusions: The prevalence of osteoarthritis in Jiuhe village, plateau of Tibet was significantly high. The prevalence in male is higher than that in female. The prevalence of knee OA combined with hand OA increased with age in the female.

Disclosure of Interest: None declared

HYALURONAN DERIVATIVE HYMOVIS® INCREASES CARTILAGE VOLUME AND TYPE II COLLAGEN TURNOVER IN OSTEARTHRITIC KNEE: DATA FROM MOKHA STUDY

Y. Herent1, R. Baronnou2, M. Malaise2, K. EA4, C. Contrevulle2, J. Benit1, D. Urbain-Chofray1, T. Connozie2, Brasseur2, T. Thomas1, A. Martirellon1, N. Giordan1, P. Ritchette1, 2Bone and Cartilage Research Unit, University of Liège, Liège, Belgium; 2Center for Treatment Comparison and Integrative Analysis, Tufts Medical Center, Boston, USA; 3Service de Rhumatologie, CHU Saint-Tiham, Liège, Belgium; 4Service de Rhumatologie, Hôpital Lariboisière, Paris, France; 5Department of Rheumatology, Hospices Civils de Lyon, Lyon, France; 6Service de Rhumatologie, CHU Brugmann, Bruxelles; 7Service de Médecine Physique, CHR Citadelle, Liège, Belgium; 8Service de Rhumatologie, Hôpital Nord Franche-Comté, Trévaniens, France; 9Service de Rhumatologie, CHU UCL, Namur, Yvoir, Belgium; 10Service de Rhumatologie, CHR Metz-Thionville, Metz, France; 11Fidia Farmaceutici, S.p.A.; 12Fidia Farmaceutici, S.p.A., Fidia, Abano, Italy; 13Centre Viggio Petersen, Hôpital Lariboisière, Paris, France

Background: Intra-articular injections of hyaluronan represent one of the well-accepted standard of care for treating symptomatic knee osteoarthritis (OA). Until now, not much is known about the structural-modifying effect of this treatment justifying this pilot study.

Objectives: This exploratory non-controlled study aims to study effects of HYMOVIS on imaging, biological and clinical variables.

Methods: Forty six patients with symptomatic knee OA (mean age 61.4 years [min.35-max.80; 67.4% female; Kellgren and Lawrence grade II and III (63% after Hymovis treatment versus baseline). Secondary endpoints included levels of Coll2 and Coll2–NO2 and CTX-II to assess joint biomarkers. The primary outcome was the increase in Coll2

Coll2:

• Enhanced type II collagen turnover as suggested by the increase in Coll2

Conclusions: Results of the present study revealed that: there are harmful effects of smoking on the bone mineral density and it may be occurred by direct (increased blood and urinary levels of both cadmium and lead) or indirect effects (effects of both renal and liver functions) of cadmium and lead.

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Disclosure of Interest: None declared


Cadmium Toxicity As a Probable Cause of Smoking Induced Bone Loss

A.A. Ebelsky1,2, H.A. Eldosouky1. 1Rheumatology, Al-Azhar Faculty of Medicine, Cairo, Egypt; 2Rheumatology, St Thomas Hospital, London, UK

Background: Cigarette smoking supposed to be a risk factor for osteoporosis. There is an inverse relationship between smoking and both bone mass and fracture risk. Tobacco smoking is the most important single source of cadmium exposure in the general population. The absorption of cadmium from the lungs is much more effective than that from the gut.

Objectives: This study was designed to evaluate the effect of cigarette smoking on bone mineral density, due to cadmium toxicity.

Methods: This study was carried on 100 persons, selected from Al-Azhar university hospital and divided into three groups: group I: included 40 persons with active smokers; group II: included 40 persons with passive smokers and group III included 20 nonsmokers. All persons were subjected to full history taking, thorough clinical examination, routine lab tests, serum and urinary cadmium and lead, and bone mineral density was measured by DXA.

Results: Serum and urinary cadmium and lead were statistically significantly higher in group I in comparison to groups II or III and in group II in comparison to group III. Also, there was statistically significant decrease of BMD in group I in comparison to either group II or group III and in group II in comparison to group III. There was an inverse statistically significant correlation between serum and urinary cadmium and bone mineral density.

Abstract AB0894 – Table 1. Comparison between studied groups as regard serum and urinary cadmium levels

Disclosure of Interest: None declared


Persistance and adverse events in patients treated with denosumab


Background: Denosumab (DNA) is a human monoclonal antibody directed against RANKL, which blocks the maturation of the osteoclast, inhibiting bone resorption. The binding of DNA to RANKL suppresses bone resorption mediated by osteoclasts and decreases bone turnover.
Objectives: To evaluate the survival rate of DNS, adverse events and reasons for the DNS discontinuation.

Methods: This was a prospective observational study in patients with OP which ini-
tiated treatment with, DNS between January 2013 and December 2017. Patients included
were followed up in the Rheumatology Nurse Clinic every six month. Domo-
graphs date, disease features, concomitant disease and treatments, adverse
events and reasons for discontinuation were collected. Demo-
graphics:

Results: We included 220 patients (80.5% women) with a mean age (range, SD) of 67.19 (30–89, 11.2) years. In average (range, SD), patients received 3.85 (1–
11, 2.2) doses of DNS, with a mean duration of treatment (range, SD) of 23.03 (6–
66, 13.3) months. 191 (86.8%) patients received also treatment with calcium and
vitamin D supplements. Before the start of the treatment with DNS, 123 (55.9%) pa-
patients had received another specific treatment for OP with mean previous treat-
duration of 51.6 months. Previous fragility fractures were reported in 150
(68.1%) patients, of whom 91 (41.3%) patients had two or more fractures before
starting treatment with DNS. Of all included the patients, 108 (49%) patients had an inflammatory autoimmune disease (IAD) diagnosed. In addition, 100
(45.4%) patients had concomitant bi-
ological and/or synthetic treatment and 77 (35%) patients received concomitant
treatment with corticosteroids.

During the treatment with DNS, 30 (13.6%) patients had new fractures, 5 (2.3%) patients had 2 fractures. Eleven fractures were vertebral, 3 of femur, one of radius
and 21 other locations. There were no differences between patients with or with-
out glucocorticoid treatment (0.234).

The most frequent adverse events (AE) were infections in 88 (40%) patients,
muscle pain in 10 (0.6%) patients, fatigue in 7 (0.31%) patients, itching, heat and
fever in 2 (0.9%) patients and osteonecrosis of the jaw in 2 (0.9%) patients. The 2
patients with osteonecrosis of the jaw had previous treatment with biphosphi-
notes for more than 24 months. At 60 months, 185 (84.1%) patients continued with DNS. In 37 (1.6%) patients, DNS was discontinued; in 4 patients DNS was restarted. The reasons for suspen-
sion were hypercalcemia 1 (0.04%), hypocalcemia 1 (0.04%), local hypersensit-
ivity reactions 4 (0.18%), normalisation of BMD 5 (0.2%), dental problems 11
(0.4%) and others 17 (0.7%). The mean (SD, 95% CI) of DNS survival was 51.2
(19.4; 47.3–55.1) months. There are no differences in the survival rates of DNS
between patients with and without concomitant biologic therapy (p=0.995).

Conclusions: The majority of patients who started treatment with DNS continue
the treatment with good tolerance. The most frequent adverse effects were infec-
tions but they have not led to suspension of treatment.

Disclosure of Interest: None declared


AB0987 FREQUENCY OF UTILISATION OF THE CENTRAL DXA
BONE DENSITOMETRY IN PATIENTS WITH MULTIPLE
SCLEROSIS

A.N. Klimo. Specialized hospital of rehabilitation "Banja Kanjiza", Kanjiza, Serbia

Background: Multiple sclerosis patients can have a higher risk from occurrence
of osteoporosis. Reduced bone mass density can be related to a cumulative effect
of different factors, most common ones being physical inactivity, reduced intake
of vitamin D and use of medications such as glucocorticoids.

Objectives: The aim of this research was to explore the level of awareness in patients and physicians on the significance of the utilisation of DXA bone densi-
tometry in patients with multiple sclerosis.

Methods: The observational analytical cross-section study included 366 multiple sclerosis patients on stationary treatment at the Special rehabilitation hospital "Banja Kanjiza" in Kanjiza in the period between 2013 and 2017. The following parameters were observed in patients: sex, age, duration and form of basic dis-
ease, the level on the Kurtzke Expanded Disability Status Scale, utilisation of glu-
cocorticoids, occurrence of pathological fractures and intake of vitamin D, i.e. of
medication for the treatment of osteoporosis in order to determine their impact on
the frequency of the low bone mineral density (BMD). Statistical data processing
and analysis was conducted in the SPSS ver 20.0 program by IBM corporation.

Results: In the period in question, an average of 128 multiple sclerosis patients
were treated, out of those 62.3% (n=228) with relapsing-remitting type of disease, and
n=366 first time patients. Within the given period, 36% more women than
men were rehabilitated (f=249 vs. m=117). During the five-year long period of
observation of said patients, only 8.5% (n=31) of patients with different levels of
bone metabolic disorders established underwent central DXA bone densitometry.
Pathological fracture on a small trauma was suffered in 6.8% (n=25) patients. Of
the abovementioned parameters, only the female sex (X\textsuperscript{2} =84.492; p<0.001) and
age (t=2.100; p=0.036) statistically significantly influenced the occurrence of low bone
mineral density.

Conclusions: It is necessary to increase the level of health education of multiple sclerosis patients on the consequences of low bone mineral density. The highest risk of osteoporotic fracture is in older women suffering from multiple sclerosis.

Disclosure of Interest: None declared