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POS0126 **EARLY STAGE HAND OSTEOARTHRITIS IN PATIENTS WITH THE EHLERS-DANLOS SYNDROME: AN EXPLORATIVE STUDY**

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Background: The Ehlers-Danlos Syndromes (EDS) are a group of rare heritable connective tissue disorders caused by various defects in the biosynthesis or secretion of fibrillar collagens. The three main clinical features of EDS are joint hypermobility, skin fragility and general soft tissue fragility. 13 clinical subtypes of EDS are recognized, of which the hypermobile type (hEDS) and classical type (cEDS) are the most prevalent. It has been hypothesized that the (micro-)trauma in the joint due to typical subluxations and dislocations, make EDS patients prone to developing osteoarthritis (OA) in early stage. Conversely, it has been mentioned that joint hypermobility provides a larger joint surface area and prevents OA. Abnormal biomechanical loading has been identified as a risk factor for the development of OA in the wrist and hand. However, no studies have yet been performed in EDS patients.

Objectives: The primary aim was to investigate the presence of any degenerative features for hand OA, and if this differs between cEDS and hEDS patients. The second aim was to evaluate hand function and pain related to OA signs in EDS patients.

Methods: cEDS and hEDS patients between 35 and 50 years old were invited to participate. cEDS diagnosis was genetically confirmed and hEDS diagnosis was performed according to the clinical 2017 hEDS criteria. Exclusion criteria were a body mass index ≥ 35 , not being able to stand straight up for five minutes, suffering from an auto-immune disease or rheumatological condition, or pregnancy. Conventional X-rays of both hands were performed and scored independently by three assessors according to Kallman¹. Presence of osteophytes (0-3), joint space narrowing (0-3), malalignment ($>15^\circ$)(0/1), erosions (0/1), subchondral sclerosis (0/1), and subchondral cysts (0/1) were scored in all interphalangeal (distal and proximal), metacarpophalangeal and thumb base joints of both hands¹. We defined early hand OA as minimally three features (≥ 1) were present. Several clinical assessments were made, e.g. tenderness, bony swelling and soft tissue swelling. The Michigan Hand Outcomes Questionnaire (MHOQ) and Australian/Canadian Osteoarthritis Hand Index (AUSCAN) questionnaires were completed.

Results: In total, 31 patients (mean age 41 ± 5.6 years, 13 men and 18 women) diagnosed with EDS participated, of whom 19 with cEDS and with 12 hEDS. In total, 927 joints were assessed. Level of agreement of radiographic assessments was very high ($>98\%$). Early hand OA was found in more than 40% of the EDS patients, with a significant higher frequency in cEDS patients compared to hEDS patients (58% vs. 17%) ($p=0.032$). Joint space narrowing was most frequently present and significantly more in the cEDS patients compared to hEDS patients (79% vs. 21%) ($p=0.003$). However, radiographic changes were found in only 10% of all finger joints. Of all fingers, thumb joints were most affected. Regarding the clinical features of hand OA, all patients showed deformity in one or more finger joints, most frequently at the thumb, especially the IP joint (both hyperflexion and hyperextension). Tenderness and bony swelling was present in 36% and 45% of all patients, respectively, whereas soft tissue swelling was less frequently observed (10% of all patients). Here, no significant differences were found between cEDS and hEDS patients. Moderate disability was present (mean (SD) AUSCAN= 45.47 (27.10) and MHQ = 65.97 (14.21). cEDS showed significant less hand pain ($p=0.03$), a better hand function ($p=0.03$) and less disability ($p=0.026$) than hEDS.

Conclusion: This explorative study demonstrates that a high number of EDS patients present with minimal degenerative features of hand OA, but in a minority of joints. Patients with cEDS were significantly more affected, but showed a better function compared to hEDS. Possibly, cEDS patients are more susceptible to develop hand OA.

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POS0127 **ASSOCIATION BETWEEN HYPERURICEMIA AND OSTEOARTHRITIS**

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Background:

Objectives: To evaluate the relationship of hyperuricemia (GU) with the course of knee osteoarthritis (OA) and the components of metabolic syndrome (MS).

Methods: The prospective study included 107 women aged 40-75 y.o. with a reliable diagnosis of I-III Kellgren J. - Lawrence J. stage of knee OA (ACR), who signed an informed consent. The average age of patients was 59.1 ± 8.9 y.o. (from 38 to 74), the duration of the disease was 9 (4-12) years. The average values of the body mass index (BMI) corresponded to obesity (30.6 ± 5.7 kg / m²), waist circumference (WC) - 93.9 ± 12.1 cm. An individual card was filled out for each patient, including anthropometric parameters, anamnesis and clinical examination data, an assessment of knee joint pain according to VAS, and concomitant diseases. All patients underwent standard X-ray of the knee joints, DEXA scan of the lumbar spine and total hip, and laboratory examination.

Results: Hyperuricemia was diagnosed in 26.2% of patients. Patients with GU had a higher BMI and WC ($p<0.05$). X-ray examination revealed significantly larger sizes of osteophytes ($p = 0.02$) and smaller sizes of the medial space of the knee joint ($p = 0.02$), while the patients of both groups were comparable in age and duration of OA (Table 1). Patients with GU had a statistically significantly higher bone mineral density (BMD) values were observed in L1-L4 and total hip ($p<0.05$). MS was almost 2 times more often diagnosed in patients with GU (83.3% vs. 49.2%, $RR=1.71$, 95%CI 1.21-2.36, $p=0.01$). Higher levels of CRP, COMP, leptin, triglycerides (TG), creatinine, ALT and AST were determined in patients with GU (Table 1). Spearman rank ordered correlation coefficients between GU and BMI ($r=0.22$, $p=0.03$), WC ($r=0.26$, $p=0.02$), MS ($r=0.29$, $p=0.01$), and CHD ($r=0.21$, $p=0.04$). There were a correlation between GU and the stage of knee OA (X-ray) ($r=0.34$, $p=0.02$), the size of medial osteophytes in the femur (mm) ($r=0.37$, $p=0.01$) and the medial space of the knee joint (mm) ($r=-0.27$, $p=0.01$), BMD L1-L4 ($r=0.37$, $p=0.03$) and the total hip ($r=0.37$, $p=0.04$). There were also significant positive associations with the following laboratory parameters: CRP ($r=0.27$, $p=0.007$), COMP ($r=0.25$, $p=0.05$), leptin ($r=0.29$, $p=0.03$), creatinine ($r=0.45$, $p<0.0001$), TG ($r=0.44$, $p=0.0001$), ALT ($r=0.32$, $p=0.002$), AST ($r=0.25$, $p=0.02$).

Table 1. Comparative characteristics of OA patients with and without GU

Parameter	OA Patients with GU (n = 28)	OA Patients without GU (n = 79)	p
Age, y.o.	61 (53-68)	60 (54-66)	0.33
Duration OA, years	10 (6-14)	7.5 (3-12)	0.06
WC, cm	99.3 ± 12.8	92.2 ± 11.4	0.02
BMI, kg/m ²	33.5 ± 5.6	30 ± 5.6	0.04
The size of the medial space of joint according to X-ray, mm	2.3 (1.2-3.3)	3.2 (2.0-4.3)	0.02
The size of the osteophytes of the femur, mm	5.8 (3.7-6.3)	2.9 (1.7-4.5)	0.02
BMI L1-L4, g/cm ²	1.18 (1.12-1.24)	1.0 (0.86-1.15)	0.04
BMI total hip, g/cm ²	1.05 (1.0-1.13)	0.9 (0.82-0.98)	0.04
CRP, mg/l	2.8 (1.9-6.2)	1.9 (1.2-3.6)	0.007
COMP, mg/ml	31.9 (27.6-45)	24.2 (18.9-38.7)	0.05
Leptin, ng/ml	46.2 (36.5-72)	30.5 (19.5-45.6)	0.03
TG, mmol/l	1.97 (1.61-2.41)	1.26 (0.87-1.63)	0.002
Creatinine, mmol/l	79 (74.9-86)	68 (62-74)	0.0001
ALT, mmol/l	26.5 (17.2-32.9)	17.9 (13.2-21.7)	0.003
AST, mmol/l	22.5 (18.5-27.8)	18.9 (16.8-21.9)	0.02

Conclusion: GU may be an aggravating predictor of not only MS-associated diseases such as obesity, dyslipidemia, but also OA. Thus, at high levels of uric acid, more advanced radiological stages of OA, high values of the BMD of the axial skeleton and increased values of CRP, COMP are noted. In this connection, therapeutic interventions of OA in patients with GU should also be aimed at reducing the concentration of uric acid, which may provide a slowdown in the progression of the disease. Further study of this issue is needed.

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POS0128 **PHYSICIAN AND PATIENT PERCEPTIONS OF SURGICAL PROCEDURES FOR KNEE OA ACROSS JAPAN, THE US AND 5 EU COUNTRIES: RESULTS OF A REAL-WORLD STUDY**

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