osteoarthritis (OA) is to unload the affected compartment, this is accomplished by correcting the angular deformity towards the unaffected compartment, i.e. shifting the hip-knee-ankle angle (HKA; mechanical axis) towards varus for a medial lesion. Knee joint distraction (KJD) is an alternative joint-sparing treatment for knee OA and has been demonstrated to decrease pain, improve function, and increase joint space width (JSW)[1].

Objectives: To investigate the importance of axial alignment (and correction) in these two effective (joint-sparing) treatments of medial knee OA.

Methods: Patients with medial knee OA, a HKA less than 12° varus, normal knee stability, younger than 65 years, and a BMI less than 35 kg/m^2 were randomized to HTO (n=46) or KJD (n=23). WOMAC and VAS pain were collected at baseline and after twelve months. To assess structural outcome, JSW was measured on knee radiographs, before and after both treatments. HTO patients had full leg standing anteroposterior radiographs taken before and after surgery, KJD patients only had these taken before surgery. Therefore, the femur-tibia angle (FTA; anatomical axis), acquired using Knee Image Data Analysis (KIDA), was investigated as an alternative for assessing axial alignment. Agreement between axial alignment as defined by HKA and by FTA appeared to be fair (ICC=-0.414). WOMAC and VAS Pain were then related to (changes in) axial alignment, Kellgren & Lawrence (K&L) grade, BMI, gender, pre-operative range of motion (ROM), and age as independent variables in linear regression models.

Results: Patient baseline characteristics were not statistically significantly different between patients treated with KJD or HTO (see table 1). WOMAC increased statistically significantly one year after either treatment (KJD:Δ21.05±19.93; HTO:Δ27.80±15.32; both p<0.001). Likewise, VAS pain decreased (KJD:Δ-23.89±29.67,p=0.001; HTO:Δ-35.42±24.06,p<0.001). KJD led to a statistically significant increase in mean JSW (Δ0.50±0.88mm,p=0.014), and both treatments led to a statistically significant increase in medial (KJD:Δ0.81±1.16mm,p=0.004; HTO:Δ0.47±0.69mm,p<0.000) as well as minimal JSW (KJD:Δ0.85±0.96mm,p<0.000; HTO:Δ0.35±0.51mm,p<0.000) after one year. The FTA changed significantly in the HTO group after one year (Δ0.73°,p=0.005), while the KJD group showed a trend (Δ0.77°,p=0.105). In the KJD group, changes in clinical outcomes were not associated with pre-operative HKA, changes in FTA, K&L grade, BMI, gender, pre-operative ROM, or age. In contrast, in the HTO group a significant association was demonstrated for a change in WOMAC with a change in FTA (std.β=-0.341) and for a change in VAS Pain with baseline age (std.β=-0.323), as seen in table 2.

Table 1. Baseline characteristics

Characteristics	High tibial osteotomy	Knee joint distraction	
Mean (± SEM)	(n = 45)	(n = 22)	p-value
Male gender (n)	27/45 (60%)	16/22 (73%)	n.s.
Height (cm)	177 ± 2	178 ± 2	n.s.
Weight (kg)	85.2 ± 2.1	87.2 ± 2.8	n.s.
Body mass index (kg/m²)	27.2 ± 0.5	27.5 ± 0.7	n.s.
Affected knee (left)	20/45 (44%)	10/22 (45%)	n.s.
Age at surgery (yr)	49.4 ± 1.0	51.2 ± 1.1	n.s.
Kellgren & Lawrence			n.s.
Grade 0 (n)	1 (2%)	0 (0%)	
Grade 1 (n)	5 (11%)	6 (27%)	
Grade 2 (n)	12 (27%)	4 (18%)	
Grade 3 (n)	23 (51%)	11 (50%)	
Grade 4 (n)	4 (9%)	1 (5%)	
Tibiofemoral axis (°)	6.2 ± 0.3	5.8 ± 0.6	n.s.

Table 2: Linear regression with change in WOMAC and VAS Pain as dependent variables, and change in KIDA angle, pre-operative axial alignment, pre-operative range of motion (ROM), age, gender, BMI, baseline K&L grade, and either baseline WOMAC or VAS Pain as independent variables. [1]Standardized beta coefficients, *P<0.05

	High tibial osteotomy				Knee joint distraction			
	Δ WOMAC		Δ VAS Pain		Δ WOMAC		Δ VAS Pain	
	Std β[1]	Sig.*	Std β[1]	Sig.*	Std β[1]	Sig.*	Std β[1]	Sig.*
Δ Femur-tibia angle (FTA)	-0,341	0,029*	0,255	0,124	-0,049	0,840	-0,077	0,753
Pre-operative axial alignment (HKA)	0,128	0,368	-0,048	0,755	-0,076	0,768	-0,131	0,609
Pre-operative ROM	-0,172	0,234	0,083	0,595	0,124	0,684	0,033	0,902
Age	0,245	0,084	-0,323	0,045*	0,161	0,627	-0,077	0,786
Gender	-0,160	0,283	0,026	0,875	0,049	0,836	-0,159	0,481
BMI	-0,201	0,154	0,027	0,857	0,177	0,471	-0,150	0,537
Baseline K&L	-0,081	0,556	0,078	0,611	0,191	0,516	-0,037	0,885
Baseline WOMAC	-0,301	0,036*			-0,816	0,033*		
Baseline VAS Pain			-0,231	0,147			-0,682	0,016*

Conclusions: Both KJD and HTO lead to a statistically significant clinical and structural benefit after one year. Nevertheless, the change in FTA was associated with WOMAC change after one year in the HTO group, but not in the KJD group. This indicates that axial alignment correction may not per se be necessary for clinical benefit.

References:

[1] van der Woude et al. Five-Year Follow-up of Knee Joint Distraction. 2016 Cartilage.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.3363

SAT0537 INFLUENCE OF MELOXICAM IN ORODISPERSIBLE FORM ON PLATELET AGGREGATION AND VON WILLEBRAND FACTOR IN PATIENTS WITH OSTEOARTHRITIS

O.S. Khmel, V.V. Rodionova. *Occupational Diseases and Clinical Immunology, State Establishment "Dnipropetrovsk Medical Academy, of Health Ministry of Ukraine", Dnepr, Ukraine*

Background: Meloxicam, which selectively inhibits COX-2, can cause inhibition of the biosynthesis of vascular endothelium vasodilator - prostacyclin, without impacting significantly on production of thromboxane, which promotes vasoconstriction [1]. Therefore, the effect of Meloxicam on the possibility of thrombotic complications need to be learn more accurately.

Objectives: To investigate the effect of orodispersible form of Meloxicam on platelet aggregation and von Willebrand factor in patients with knee osteoarthritis.

Methods: The study included 24 patients with knee osteoarthritis (OA) of the II stage according to the Kellgren-Lawrence. The control group consisted of 15 healthy individuals. Patients were prescribed the orodispersible form of Meloxicam in dose of 15 mg 1 time per day orally during 10 days. The survey was carried out before and after treatment. Patients had all-clinical studies, questionnaires (visual analogue scale (VAS), Western Ontario and McMaster Universities Arthritis Index (WOMAC), questionnaire Lequesne), optical aggregometry with adenosine diphosphate (ADP), collagen, thrombin and ristocetin for revealing the level of von Willebrand factor.

Results: As a result of treatment patients had a significant improvement of overall health and reduction of pain in knee joints according to the VAS (before treatment – 54.5 [50 – 71] mm, after treatment – 27 [18 – 41] mm; p≤0.05), WOMAC (before treatment – 143 [109 – 187] points, after treatment - 98 [13–168] points; p≤0.05), questionnaire Lequesne (before treatment – 16 [13 – 21] points, after treatment – 12 [3 – 22] points; p≤0.05). After treatment patients experienced a significant increase in the degree of platelet aggregation with ADP (before treatment – 52.6 [39.6 – 98.2]% after the treatment – 83.5 [41.3 – 127]%; p≤0.05), which may indicate a probable increase in the initiation of irreversible aggregation of circulating platelets. The degree of platelet aggregation with collagen also increased (before treatment – 46.5 [29.5 – 89]%, after treatment – 68.6 [37.9 – 115.4]%; p≤0.05), indicating the increased adhesion of platelets to collagen of the vascular endothelium. Before and after treatment, patients remained significantly elevated degree of aggregation with thrombin in comparison with the control group (before treatment – 65.6 [24.7 – 86.7], after treatment – 78 [62.3 – 92.7]%, control group – 37.8 [32.11 – 42.26]%; p≤0.05) which indicates the stimulation of the of the endothelin-1 synthesis with further infringements of procoagulants and anticoagulants. Von Willebrand factor, as an indirect indicator of endothelial damage, was significantly increased after treatment (before treatment – 151.4 [138.9 – 224]% after treatment – 206.8 [171.9 – 257.4]%), which may indicate increase of endothelial lesions because of meloxicam with further endothelial dysfunction (p≤0.05).

Conclusions: Intake of the orodyspersible form of Meloxicam in patients with osteoarthritis can cause an increase of platelet aggregation and level of von Willebrand factor that may contribute to the vascular endothelial dysfunction and increase in risk of thrombosis.

References:

[1] Wittenauer R., Smith L., Aden K. Update on 2004 Background Paper Written by Saloni Tanna, Pharm.D. MPH Background Paper 6.12 Osteoarthritis. Priority Medicines for Europe and the World "A Public Health Approach to Innovation"; 2013. P. 31.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.5348

SAT0538 PROGRESSION OF PAIN, NUMBER OF CLINICALLY SWOLLEN JOINTS AND ULTRASOUND DETECTED SYNOVITIS AND OSTEOPHYTE FORMATION IN PATIENTS WITH HAND OSTEOARTHRITIS OVER TWO YEARS

O. Sleglova, O. Ruzickova, K. Pavelka, L. Senolt. *Institute of Rheumatology, Prague, Czech Republic*

Background: Hand osteoarthritis (HOA) is a common and frequent cause of pain. HOA is a heterogeneous group of disorders with two main subsets including non-erosive and erosive disease. Few studies demonstrated inflammatory ultrasound changes and more severe clinical symptoms in patients with erosive compared with non-erosive disease, however the results are inconsistent.

Objectives: he aim of this study was to evaluate progression of pain, stiffness, physical impairment and ultrasound features in patients with erosive and non-erosive HOA in a two years longitudinal study.

Methods: Consecutive patients with symptomatic HOA fulfilling the American College of Rheumatology (ACR) criteria were included in this study. Joint pain and swelling were assessed. Patients reported joint pain on 100 mm visual analogue scale (VAS). Pain, joint stiffness and disability were assessed by the Australian/Canadian OA hand index (AUSCAN). Radiographs of both hands were examined and erosive disease was defined by at least one erosive interphalangeal joint. Synovial hypertrophy and power Doppler signal (PDS) were scored with ultrasound. Synovitis was graded on a scale of 0–3 and osteophytes were defined as cortical protrusions seen in two planes. Patients were examined at baseline and at the two years follow-up.