system is therefore needed if implementing US-tenosynovitis as an outcome measure in clinical trials. The Outcome Measures in Rheumatology (OMERACT) US group's tenosynovitis scoring system has a good single and multicenter intra- and inter-observer agreement, whereas the sensitivity to change in a multicenter design has never been tested.
Furthermore, it is unknown whether low grade synovial hypertrophy without Doppler Signal represents true inflammation, i.e. can be eliminated by anti-inflammatory therapy and is sensitive to change.
Objectives: The aim of this study was to test the sensitivity to change of the OMERACT US scoring system for tenosynovitis, including minimal signs of tenosynovitis, in a multicenter design in order to validate it as an outcome measure in RA multicenter clinical trials. Furthermore, to assess the association between US and health assessment questionnaire (HAQ) and Disease Activity Score 28 for joints (DAS28).
Methods: Forty-nine patients with established RA (duration ≥1 year) and 18 early RA patients (<1 year) with US-verified tenosynovitis were recruited from six rheumatology outpatient clinics in four different countries, if they were scheduled for treatment intensification with synthetic and/or biological Disease Modifying Anti-Rheumatic Drug. Tenosynovitis was assessed at baseline, and at three and six months' follow-up, by GS and Doppler, using the semi-quantitative OMERACT scoring system. Furthermore, HAQ and DAS28 were assessed.
Results: At baseline tenosynovitis was most frequently found at the extensor carpi ulnaris and tibialis posterior tendons (70.7% and 44.4%, respectively). The overall GS score showed a statistically significant decrease from baseline median 5 (25th;75th percentile: 2;7) to 6 months 0 (0;3) and the overall Doppler score decreased statistically significant from baseline 3 (2;6) to 6 months 0 (0;1), both with a p<0.01. Both GS and Doppler showed high responsiveness (SRM>0.9), as did HAQ and DAS28 (table 1). Among tendons with grey scale (GS)=1/Doppler=0, 36 of 39 (92.3%) showed therapy-induced improvements. A change of 2.1 (95% confidence interval: 1.2;14.9) and 2.1 (CI: 1.1;13.2) in DAS28 corresponded to a change in GS and Doppler of 1 (both p=0.02) respectively, using a mixed-model for repeated measurement. However, no association between US and HAQ was found.

Table 1. Change in tenosynovitis ultrasound scores, DAS28, HAQ, and their standardized response mean, during 6 month of follow-up, for all patients

All Sites - Imaging modality (n=67)		Baseline	Δ 0-3 month	p	SRM	Δ 3-6 month	p	SRM	Δ 0-6 month	p	SRM
Grey scale	Median [25p;75p]	4 [2;7]	-2 [-3;-0]	<0.01	0.8	-1.0 [-2.0]	<0.01	0.4	-2 [-5;-1]	<0.01	0.9
	Mean ±SD	5.0 ±3.4	-2.4 ±2.9			-0.9 ±2.4			-3.3 ±3.8		
Doppler	Median [25p;75p]	3 [2;6]	-2 [-4;-1]	<0.01	0.8	0 [-2;0]	<0.01	0.3	-3 [-5;-2]	<0.01	0.9
	Mean ±SD	3.2 ±0.66	-0.8 ±0.6			0 ±0.2			-0.7 ±0.6		
DAS28	Median [25p;75p]	4.6 [3.7;5.4]	-1.4 [-1.8;-0.2]	<0.01	0.9	-0.4 [-1.3;0.1]	<0.01	0.3	-1.6 [-3.2;-0.7]	<0.01	1.1
	Mean ±SD	4.4 ±1.3	-1.4 ±1.5			-0.5 ±1.3			-1.8 ±1.7		
HAQ	Median [25p;75p]	1.0 [0.5;1.5]	-0.25 [-0.75;0]	<0.01	0.8	0 [-0.25;0]	0.02	0.5	-0.375 [-0.875;0]	<0.01	0.9
	Mean ±SD	1.0 ±0.6	-0.4 ±0.4			-0.1 ±0.3			-0.5 ±0.5		

P, p-value for Wilcoxon's test for change of paired data between 2 time points; N, number of patients; SRM, standardized response mean; DAS28, Disease Activity Score for 28 joints, using C-reactive protein; HAQ, health assessment questionnaire;. Values in brackets are values at 25th and 75th percentiles

Conclusions: In conclusion, this RA multicenter study documented a high sensitivity to change of both GS and Doppler US tenosynovitis scores, indicating utility of the OMERACT US scoring system for diagnosing and monitoring tenosynovitis in multicenter trials. Secondly, synovial hypertrophy without Doppler signal, do respond to therapy, suggesting it reflects true inflammation. Finally, changes in US tenosynovitis scores are associated with changes in DAS28.
Disclosure of Interest: None declared
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OP0287 ULTRASONOGRAPHY-DETECTED PERIPHERAL ENTHESITIS IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS – ANATOMICAL DISTRIBUTION, MORPHOLOGY AND RESPONSE TO ANTI-TNF THERAPY

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Background: Peripheral enthesitis (PE) is a characteristic feature of spondyloarthritis (SpA) that may be asymptomatic and only detectable by imaging. Ultrasonography (US) has greater sensitivity than clinical examination for the detection of PE.[1]
Objectives: The aim of the study was to investigate the anatomical distribution, morphological abnormalities and response to anti-tumor necrosis factor (anti-TNF) therapy of US-detected PE in patients with axial SpA (axSpA) initiating adalimumab (ADA).
Methods: In a randomized, placebo-controlled, double-blinded investigator-initiated trial (NCT01029847), patients with axSpA according to the Assessment of SpA International Society (ASAS) criteria were randomized to subcutaneous ADA 40 mg every other week (eow) or placebo from baseline to week 6. From week 6 to 24, all patients received ADA 40 mg eow. Of 49 patients enrolled, 21 participated in the US sub-study. US assessment applying the OMERACT US definitions for enthesitis[2] of 10 peripheral entheseal regions (Tables 1 & 2) and clinical examination were performed at baseline, weeks 6 and 24. US was performed by an experienced investigator. Hypo-echogenicity, increased thickness and Doppler activity of the enthesis were considered signs of active inflammation, whereas insertional bone erosions, intratendinous calcifications and enthesophytes were regarded as signs of chronic lesions.[2]
Results: See tables.
Conclusions: In this axSpA cohort, US assessment primarily identified PE in the lower extremities, and predominantly chronic lesions. No change in chronic PE lesions were found during treatment indicating a low sensitivity to change of these lesions. The number of entheses with inflammatory activity was too low to detect any changes on US during ADA therapy.

Table 1. Distribution of US findings at baseline (n=21)

Entheseal regions	Enthesitis* N (%)	Chronic lesions N (%)	Inflammation N (%)
Supraspinatus tendon	6 (29)	6 (29)	0
Triceps tendon	2 (10)	1 (5)	1 (5)
Common extensor, elbow	5 (24)	5 (24)	1 (5)
Common flexor, elbow	0	0	0
Greater femoral trochanter	11 (52)	11 (52)	0
Quadriceps tendon	13 (62)	13 (62)	3 (14)
Proximal insertion of the patellar tendon	3 (14)	2 (10)	1 (5)
Distal insertion of the patellar tendon	3 (14)	2 (10)	2 (10)
Achilles tendon	17 (81)	16 (76)	4 (19)
Plantar fascia	4 (19)	0	4 (19)

*inflammation and/or chronic lesions.

Table 2: US and clinical findings during study period

	Placebo			ADA		
	Week 0 (N=10)	Week 6 (N=9)	Week 24 (N=10)	Week 0 (N=11)	Week 6 (N=11)	Week 24 (N=10)
US findings						
Supraspinatus tendon	3 (30)	2 (22)	1 (10)	3 (27)	2 (18)	1 (10)
Triceps tendon, elbow	1 (10)	0	1 (10)	1 (9)	0	2 (20)
Common extensor, elbow	0	0	0	5 (46) *	0	1 (10) ‡
Common flexor, elbow	0	0	0	0	0	0
Greater femoral trochanter	6 (60)	6 (67)	6 (60)	5 (46)	6 (55)	6 (60)
Quadriceps tendon	4 (40)	1 (11)	4 (40)	9 (82)	8 (73)	6 (60)
Proximal patellar tendon	1 (10)	0	0	2 (18)	1 (9)	1 (10)
Distal patellar tendon	2 (20)	1 (11)	1 (10)	1 (9)	1 (9)	0
Achilles tendon	7 (70)	7 (78)	8 (80)	10 (91)	7 (64)	7 (70)
Plantar fascia	1 (10)	0	0	3 (27)	3 (27)	2 (20)
Clinical findings						
MASES	4.6 (4.0)	4.0 (3.3)	2.2 (3.7)	3.0 (3.7)	2.1 (2.5)	2.0 (3.0)
LEI	0.7 (0.9)	0.9 (1.0)	0.6 (0.9)	1.1 (1.1)	0.7 (0.9)	0.3 (0.7)
SPARCC Enthesitis Index	3.2 (3.8)	3.6 (2.6)	2.2 (2.8)	2.6 (2.9)	1.6 (1.9) †	0.8 (1.1) ‡
BASDAI	7.0 (1.9)	6.4 (2.5)	4.3 (2.7) ‡	6.3 (1.3) *	4.2 (2.3) †	2.9 (2.5) ‡

N (%), Mean (SD) for LEI, SPARCC and BASDAI. Wilcoxon Rank test was applied. P<0.05 is considered significant.
* P<0.05 week 0-6; † P<0.05 week 6-24; ‡ P<0.05 week 0-24.
MASES, Maastricht Ankylosing Spondylitis Enthesitis Score; LEI, Leeds Enthesitis Index; SPARCC, Spondyloarthritis Research Consortium of Canada; BASDAI, Bath Ankylosing Spondylitis Disease Activity Index.

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OP0288 RELIABILITY OF A EULAR-OMERACT SEMIQUANTITATIVE SCORING SYSTEM FOR THE ASSESSMENT OF CARTILAGE IN RHEUMATOID ARTHRITIS

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Background: Joint destruction in rheumatoid arthritis (RA) is comprised of hyaline cartilage and bone damage, with the former more clearly associated with irreversible physical disability than bony damage.
Objectives: To test the reliability of a semiquantitative scoring system for the assessment of cartilage by musculoskeletal ultrasound (US) in a web-based exercise as well as a patient-based reliability study of patients with RA.
Methods: Static images of metacarpophalangeal (MCP) joints 2–5 in RA patients and healthy controls were acquired and a dataset of 123 anonymized images including 25 duplicate images was circulated among an international EULAR-OMERACT taskforce of 25 rheumatologist experts in US who independently scored the images using a semiquantitative scoring system. Subsequently 12 taskforce members participated in a patient-based reliability study. During this