Abstract AB1164 Table 1. Main features of the 8 PedMSUS courses analysed.

n	PedMSUS course	Duration, days	n max Attendees	n Faculties	n Tutors	Theory, hours (%)	Practice, hours (%)	Fee, €
1	Paediatric musculoskeletal ultrasound course, Madrid – Spain, 2012	3	50	14	14	9 (56)	7 (44)	NS
2	4th musculoskeletal sonography course for rheumatologists - basic level pediatric course, Belgrade – Serbia, 2013	3	40	18	13	9 (56)	7 (44)	800*, 600#
3	5th musculoskeletal sonography course - basic level paediatric rheumatology, Belgrade – Serbia, 2015	3	40	12	9	9 (56)	7 (44)	800*, 600#
4	Musculoskeletal ultrasound course basic pediatric, Bucharest – Romania, 2016	3	36	10	13	9 (56)	7 (44)	850*
5	EULAR ultrasound course - PReS paediatric musculoskeletal course, Madrid – Spain, 2017	3	50	10	14	9 (56)	7 (44)	1600*
6	Musculoskeletal ultrasound in pediatric patients, Aarhus – Denmark, 2018	2	20	3	4	8 (57)	6 (43)	SS
7	Paediatric musculoskeletal ultrasound course, Antalya – Turkey, 2018	3	60	11	11	7 (50)	7 (50)	950*
8	Paediatric musculoskeletal basic ultrasound course, Lisbon – Portugal, 2018	3	50	11	17	9 (56)	7 (44)	1100*, 800#@

Figure 1. Flow chart of the systematic literature and events review.**Figure 1**

Legend: NS, not specified; EULAR, European League Against Rheumatism; PReS, Paediatric Rheumatology European Society. *, accommodation, meals and coffee breaks included; #, accommodation excluded; SS, supported by Sponsors; @, dinners excluded.

Conclusion: Almost all PedMSUS courses held were under EULAR endorsement. Slightly variable features were found among courses, apart being all at only one level of competency. An international initiative is deserved for identifying shared recommendations on the best suited content, conduct and format of future PedMSUS courses.

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AB1165 FLUORESCENCE OPTICAL IMAGING XIRALITE® IS HELPFUL IN THE DECISION FOR RITUXIMAB RE-THERAPY IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Background: Rituximab (RTX) is an effective and well-tolerated therapeutic option in rheumatoid arthritis (RA) patients with insufficient response to TNF α inhibitors. However, the exact time point of RTX re-therapy often varies and objective parameters (e.g. imaging, such as MRI and/or musculoskeletal ultrasound [US]) are not yet included in the RA treatment strategy [1].

Objectives: The aim of this study was to evaluate the ability of the fluorescence optical imaging Xiralite® (FOI) to predict RTX re-therapy in RA patients - in comparison to clinical, laboratory and US.

Methods: In this study, n=31 patients with established RA were included and prospectively followed over one year by DAS28, patient's global VAS (0-100 mm), CRP/ESR, US7 score (for synovitis and tenosynovitis in greyscale and power Doppler of the clinically dominant hand/foot; [2]), and by FOI (phases 1-3 and PrimaVistaMode [PVM]) at baseline (before RTX), and after 3, 6, and 12 months. The need for RTX re-therapy was defined according to DAS28 response criteria by EULAR [3].

Results: Of the included 31 patients (female 77.4%, mean age 60.1 $\pm$ 11.4, mean disease duration 14.9 $\pm$ 7.1 years), n=14 (45.2%) received RTX re-therapy within 12 months: n=3 after 6 months (mths), n=4 after 7 mths, n=5 after 9 mths, and n=2 after 10 mths. In the group with RTX re-therapy, FOI in PVM mode was the only parameter that presented significant increase (beta 0.40, CI 0.08-0.71; p=0.013) – compared to the group without re-therapy. In the prediction model via receiver operating characteristic (ROC) analysis, FOI in PVM reached the highest values of all imaging parameters (phases 1-3, US) at baseline for the prediction of re-therapy over one year with an area under the curve (AUC) of 0.64 (OR 0.9, CI 0.79-1.03), however, without significance (p=0.117). Patient's VAS and CRP had similar predictive power with AUC of 0.66 each (each p=ns).

Conclusion: The FOI Xiralite® in PVM is able to discriminate between groups with and without need for RTX re-therapy better than other included imaging parameters. It is able to predict the need for RTX re-therapy with comparable predictive power to patient's VAS and CRP. At the same time, FOI is a more objective tool, while patient's VAS and CRP can also depend on other influence (i.e. psychological, infectious) factors.

Figure:

Left image above shows FOI in PVM of both hands at baseline (before RTX). Right image above shows FOI in PVM of the same patient at 3 months follow-up. Left image below shows FOI in PVM of the same patient at 6 months follow-up. Right image below shows FOI in PVM of the same patient at 12 months follow-up. This patient received re-therapy with RTX after 9 months

Legend: FOI: fluorescence optical imaging; PVM: PrimaVista Mode; RTX: rituximab

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AB1166 SUBCLINICAL ENTHESEAL INVOLVEMENT IN LOWER LIMBS IN PATIENTS WITH TYPE 2 DIABETES MELLITUS: AN ULTRASOUND STUDY

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Background: Diabetes mellitus (DM) is a group of metabolic diseases characterized by hyperglycemia, which results from defects in insulin secretion, insulin action, or both (1).

DM impacts the connective tissue and causes various changes in peri-articular and articular structures. An increase in enthesopathic complications in diabetic patients such as patellar tendinitis bursitis, achilles tendinopathy and plantar fasciitis, was observed in many studies.

Objectives: This study aims to detect subclinical lower limb enthesitis in type 2 DM by musculoskeletal ultrasonography & its relation to poor glycaemic control & disease duration

Methods: This study was carried out on 80 persons. Diabetic group forty patients diagnosed as diabetes according to ADA diagnostic criteria. Control group Forty apparent healthy volunteers both groups was matched at age and sex. Sonographic evaluations and scoring were performed according to Glasgow Ultrasound Enthesitis Scoring System (GUESS) on the entheses of both lower limbs.

Results: At the diabetic group the Musculoskeletal Ultrasound findings was as following. The Quadriceps tendon enthesitis in 30 patients (75%), proximal patellar enthesitis was in 28 patients (70%), Distal patellar enthesitis in 22 patients (55%), Achilles enthesitis in 27 patients (67.5) & planter aponeurosis enthesitis in 25 patients (55%). There is a statistically significant difference between age and Ultrasound findings p. value <0.05. There is a statistically significant correlation between disease duration and (proximal patellar ligament, Achilles tendon, quadriceps tendon and plantar fascia) thickness p. value <0.05.

Conclusion: Enteseal abnormalities can be documented by ultrasonography in clinically asymptomatic patients with Diabetes. These findings could be related to a subclinical enteseal inflammation.

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AB1167 RELIABILITY AND VALIDITY OF ULTRASOUND PATHOLOGIES IN KNEE OSTEOARTHRITIS FOR SEMI-QUANTITATIVE AND QUANTITATIVE METHODS WITH MRI AS A REFERENCE

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Background: Ultrasound can visualize both structural and inflammatory changes of osteoarthritis (OA) with greater accessibility. Therefore, the Outcome Measures in Rheumatology (OMERACT) Ultrasound Task Force

recently proposed a semi-quantitative knee ultrasound scoring system¹ which requires further validation.

Objectives: To investigate inter-rater reliability (IRR) of ultrasound pathologies between three raters with varying experiences and examine construct validity of these features against magnetic resonance imaging (MRI) using OMERACT semi-quantitative ultrasound image atlas and quantitative ultrasound measures.

Methods: According to standardized OMERACT scanning protocol, 20 participants with symptomatic and radiographic knee OA were scanned dynamically with a multi-frequency linear transducer (6-18MHz) of Aplio Platinum 500 machine, Toshiba, Japan.

Following an initial calibration of ultrasound scores using the image atlas, three raters with varying experience (a physician operator certified with RhMSUS, a musculoskeletal ultrasonographer and a medical student) independently obtained semi-quantitative scores (0-3) for synovitis and power Doppler activity in suprapatellar recess, medial osteophytes and medial meniscal extrusion, as well as quantitative measurements (mm) of synovitis, effusion, synovial hypertrophy, medial osteophyte and meniscal extrusion (maximal measures).

Semi-quantitative MRI Osteoarthritis Knee Score (MOAKS) scores of effusion-synovitis, osteophyte and meniscal extrusion were independently calculated by an experienced researcher. 3-T Sagittal proton-density (PD) weighted fat-suppressed turbo spin-echo (TSE) non-contrast MRI sequences were used for quantitative effusion-synovitis, and coronal plane for osteophyte and meniscal extrusion.

Weighted kappa coefficient (Kw) or intra-class correlation coefficient (ICC) were calculated for IRR, Spearman's rank (rs) and Pearson (rp) correlation coefficients for construct validity and Bland-Altman plots for extent of agreement between ultrasound and MRI.

Table 1. Inter-rater reliability of three operators of ultrasound pathologies in OA

Weighted Kappa (95% CI)	Meniscal Extrusion grade	Osteophyte grade	Power Doppler grade	Synovitis grade	Intra-class Correlation Coefficient (95% CI)	Effusion (mm)	Meniscal extrusion (mm)	Osteophyte (mm)	SH (mm)	Synovitis-effusion (mm)
PO vs MU	0.55 (0.25 to 0.84)	0.88 (0.72 to 1.00)	0.52 (0.17 to 0.87)	0.55 (0.36 to 0.75)		0.85 (0.15 to 0.95)	0.90 (0.39 to 0.97)	0.96 (0.84 to 0.98)	0.84 (0.59 to 0.93)	0.86 (0.18 to 0.96)
PO vs MS	0.27 (0.06 to 0.49)	0.73 (0.50 to 0.96)	0.14 (-0.36 to 0.63)	0.42 (0.21 to 0.64)		0.85 (0.16 to 0.96)	0.93 (0.83 to 0.97)	0.90 (0.55 to 0.97)	0.72 (0.25 to 0.89)	0.88 (0.31 to 0.97)
MU vs MS	0.28 (-0.01 to 0.56)	0.75 (0.56 to 0.94)	-0.11 (-0.21 to -0.01)	0.66 (0.43 to 0.90)		0.89 (0.73 to 0.96)	0.90 (0.75 to 0.96)	0.95 (0.88 to 0.98)	0.68 (0.22 to 0.87)	0.86 (0.66 to 0.95)

MU= Musculoskeletal Ultrasonographer; MS= Medical Student; PO= Physician operator; SH= Synovial Hypertrophy; mm= Millimeter

Value of K Strength of agreement
 <0.20 Poor
 0.21 - 0.40 Fair
 0.41 - 0.60 Moderate
 0.61 - 0.80 Good
 0.81 - 1.00 Excellent

Figure 1

Table 2. Correlation of ultrasound pathologies with MRI for semi-quantitative and quantitative methods

Ultrasound vs MRI (correlation)	Synovitis grade	Meniscal extrusion Grade	Osteophyte Grade	Synovitis (mm)	Meniscal extrusion (mm)	Osteophyte (mm)
Spearman (rs)	0.48 P=0.03	0.27 P=0.26	0.36 P=0.12			
Pearson (rp)				0.51 P=0.02	0.67 P<0.001	0.54 P=0.02

Significant test is denoted in bold.

Figure 1

Figure 1 Bland-Altman plots to illustrate the agreement between ultrasound and MRI quantitative measures (a) osteophyte, (b) Synovitis-effusion, (c) Meniscal extrusion

Figure 1