Objectives: To evaluate the utility of a new fluoroenzyme Immunoassay "EliA-CTD" as an alternative for screening patients suspected for autoimmune connective tissue diseases.

Methods: Sixteen Hundred (1600) consecutive patients' sera submitted for anti-nuclear antibodies were tested using the ANA-IIF (Diasorin S.P.A, Saluggia, Italy) and the new EliA-CTD screen (Phadia GmbH, Frieiburg, Germany). ANA testing was ordered by both primary and secondary care physicians. The EliA-CTD screening assay is a fluoroenzyme immunoassay which is performed on the Phadia-250 automated platform. The EliA–CTD assay contains ANA-targeted recombinant antigens including dsDNA, Sm-D, Rib-P, PCNA, U1-RNP (70, A, C), SS-A/Ro, SS-B/La, Centromere B, Scl-70, Fibrillarin, RNA Polymerase III, Jo-1, Mi-2, and PM-scl. The test results are expressed as ratio, with >1.0 considered positive. For ANA-IIF, the cut off for positive results was 1:40 or greater. Additionally, further testing for dsDNA and other extractable nuclear antigens (ENA) was undertaken on a subset of sera that were ANA-IIF+ or whenever there was discrepancy between the two methods.

Results: The overall agreement between the two methods was 84.2%. Three hundred and eight (308) out of 1600 (19.3%) samples tested positive by ANA-IIF positive as compared to 101/1600 (6.6%) for the EliA-CTD assay. Additional testing showed that 105 samples were positive for ENA including dsDNA. Of those, 101 were EliA-CTD positive and 81 were ANA-IIF positive. By incorporating the ENA results, the calculated sensitivity and specificity for the EliA-CTD were 97.1% and 99.7% respectively with positive and negative predictive values for the EliA-CTD assay of 96.1% and 99.8%, respectively. The corresponding sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) for the ANA-IIF assay at different dilutions is shown below:

Titer	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
≥1:40	77.7	84.8	26.0	98.2
≥1:80	60.3	95.3	32.4	98.4
≥1:160	57.4	97.4	41.3	98.4
≥1:320	46.5	98.7	48.8	98.5

Conclusions: The new automated EliA-CTD assay shows superior sensitivity and specificity compared to the conventional labor intensive ANA-IIF. The EliA-CTD can be used as an upfront screening tool for connective tissue diseases. Depending on the clinical details, any EliA-CTD positive results could be reflexly followed by additional testing including ANA-IIF testing to elucidate the titer and pattern.

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FRI0664 | **INFLUENCE OF JOINT PATHOLOGY ON OPTICAL SPECTRAL TRANSMISSION IMAGING, ASSESSING INFLAMMATION IN HAND AND WRIST JOINTS OF RHEUMATOID ARTHRITIS PATIENTS**

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Background: Rheumatoid arthritis (RA) patients benefit from treat-to-target strategies, aiming for remission or low disease activity[1]. Clinical disease activity measures like the Disease Activity Score (DAS28) have questionable reproducibility and lack sensitivity for low disease activity states; MRI and ultrasound (US) are sensitive, but scanning multiple joints is time-consuming. Optical spectral transmission (OST) is stronger than DAS28 associated with inflammation assessed by both US and MRI[2]. OST measures the blood-specific absorption of light transmitted through tissue, which is reduced in presence of joint inflammation, but also influenced by other joint pathology.

Objectives: Evaluating the influence of joint pathology on the misclassification of joint inflammation, in the hand and wrist joints of RA patients, determined by OST, as compared to US, the reference standard.

Methods: Fifty RA patients with at least one swollen joint, generally with low disease activity were included in this cross-sectional study. Assessments were US, OST, and DAS28, performed according to established guidelines[3] by separate experienced examiners, blinded for other study outcomes. US joint inflammation was defined as a gray-scale score>1 or a power Doppler score>0 (scales 0–3), assessed in MCP, (P)IP, and wrist joints. Using US as reference, diagnostic performance of OST in detecting inflammation at joint level was evaluated using receiver operating characteristic (ROC) analyses; at patient level, DAS28 and OST were correlated to US. Joint pathology potentially influencing misclassification of OST (erosions, osteophytes, tendon (sheet) inflammation, abnormal vasculature, and triangular fibrocartilage complex injuries) were evaluated for significance in a multivariate nominal logistic regression model.

Results: OST performed well at joint level, separately for the MCP (ROC-AUC:0.85), PIP (ROC-AUC:0.79) and wrist (ROC-AUC:0.72) joints and for all

joints together (ROC-AUC:0.83). On patient level, DAS28 correlated poorly with US (r=0.29), but OST correlation was good (r=0.72). The presence of joint pathologies per misclassification group is shown in table 1. In the regression model, inflammation in MCP and PIP joints had a higher risk of false negative misclassification in the presence of dorsal bone erosions (OR:3.5, 95% CI:1.7–7.3), volar erosions (OR:5.0, 95% CI:1.8–14.1), flexor tenosynovitis (OR:2.5, 95% CI:1.4–4.5), osteophytes (OR:1.9, 95% CI:1.2–2.8), and extensor tendonitis (OR:3.7, 95% CI:1.6–8.5), and a higher risk of false positive misclassification in the presence of osteophytes (OR:2.3, 95% CI:1.6–3.2).

Table 1: Frequency of joint pathologies, per misclassification group.

Misclassification	Erosions dorsal		Erosions volar		Osteophytes		Flexor tenosynovitis		Extensor tendonitis		Vascular pattern		TFCC	
	Absent	Present	Absent	Present	Absent	Present	Absent	Present	Absent	Present	Absent	Present	Absent	Present
True positives & true negatives	1546 84.4%	34 66.7%	1569 84.2%	12 63.2%	1265 86.6%	315 74.8%	1502 84.3%	79 78.2%	1556 84.3%	25 65.8%	1349 84.6%	231 80.5%	121 65.4%	2 50.0%
False negatives	116 6.3%	13 25.5%	122 6.5%	7 36.8%	85 5.8%	44 10.5%	114 6.4%	15 14.9%	121 6.6%	8 21.1%	109 6.8%	20 7.0%	13 7.0%	1 25.0%
False positives	169 9.2%	4 7.8%	173 9.3%	0 0.0%	111 7.6%	62 14.7%	166 9.3%	7 6.9%	168 9.1%	5 13.2%	137 8.6%	36 12.5%	51 27.6%	1 25.0%
Total	1831	51	1864	19	1461	421	1782	101	1845	38	1595	287	185	4

Conclusions: OST is a sensitive and specific technique to assess inflammation in hand and wrist joints of RA patients with low disease activity, nonetheless, joint pathology like erosions, tendonitis, and osteophytes increase the risk of misclassification of inflammation by OST.

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FRI0665 | **ANTI-HETEROGENOUS NUCLEAR RIBONUCLEOPROTEINS (ANTI- HNRNP) AND OTHER AUTOANTIBODIES FOR DETECTION OF EROSIVE ARTHROPATHY IN SYSTEMIC LUPUS ERYTHEMATOSUS WITH JOINT INVOLVEMENT IN COMPARISON BY JOINT X-RAY**

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Background: Joint involvement in SLE is very common, affecting 90% of patients at some stage in the course of their disease (1).Arthritis featuring prominent radiological erosion in SLE is less common; however, in a small subset of patients an erosive pattern similar to RA develops (2).

Anti- heterogenous nuclear ribonucleoprotein A2 (anti-hnRNP-A2) occur in about one-third of patients with RA but rarely in other arthritides such as OA, PsA or reactive arthritis. Interestingly, in SLE patients anti-hnRNP-A2 autoantibodies were found to be significantly associated with erosive arthritis (3).

Objectives: To investigate joint involvement in SLE and its relationship with autoantibodies to the hnRNP Ab A1 and A2, rheumatoid factor (R.F), Antinuclear antibody (A.N.A) and Anti-double stranded DNA (Anti-DSDNA) and correlation with articular involvement by joint x-ray.

Methods: Case series study comparing diagnosis of arthritis by hand and wrist x-ray with anti-hnRNP A1 and A2 in Fourty SLE patients aged 17–60 years old with disease duration 1–17 years complaining of arthralgia or arthritis. A controlled group of 21 clinically normal persons, age and sex matched and blood

Table 1. Comparison of serological features in SLE patients with and without erosive arthritis (EA)*

Characteristic	SLE patients with EA	SLE patients without EA	Total	P value
Rheumatoid Factor, N (%)[b]	5 (50)	6 (20)	11 (27.5)	0.079
ANA, N (%)[b]	8 (80)	14 (46.7)	22 (55)	0.069
Anti-double stranded DNA, N (%)[b]	9 (90)	13 (43.3)	22 (55)	0.011*

Table 2. Comparison of radiological findings of hand X-ray in SLE patients with and without erosive arthritis (EA)*

Characteristic	SLE patients with EA	SLE patients without EA	Total	P value
Juxta-articular osteoporosis, N (%)	9 (90)	21 (70)	30 (75)	0.204
Narrowing of joint space, N (%)	9 (90)	9 (30)	18 (45)	0.001*
Subchondral cysts, N (%)	4 (40)	1 (3.3)	5 (12.5)	0.010*
MCP sublaxation, N (%)	7 (70)	3 (10)	10 (25)	0.001*
Interruption of cortical surface, N (%)	7 (70)	1 (3.3)	8 (20)	<0.0001*
New bone formation, N (%)	1 (10)	0	1 (2.5)	0.250
AVN, N (%)	0	1 (3.3)	1 (2.5)	0.750

samples are drawn and centrifuged. RF and auto-antibodies to nuclear antigens anti-nuclear antibodies (ANA) and anti-double stranded DNA were determined in all the patients. All patients underwent X-rays of the hands and wrists.

Results: Anti-hnRNP A1 showed highly significant difference between study and control. Anti-hnRNP A2 showed significant difference between study and control.

Conclusions: This study showed a high frequency of erosive arthropathy and autoantibody to both hnRNP antigens might become useful marker for joint involvement in SLE patients and identify SLE patients prone to develop joint damage

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FRI0666   **INCREASED PREVALENCE OF SUBCLINICAL ATHEROSCLEROSIS IN MODERATE-SEVERE PLAQUE PSORIATIC PATIENTS**

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Background: Recent studies suggest that plaque psoriasis may be a risk factor for major adverse cardiac events. This has important therapeutic implications for cardiovascular (CV) risk stratification and prevention in patients with severe psoriasis. For that reason surrogate markers of subclinical atherosclerosis and CV mortality such as carotid plaques (CP) have been studied by carotid US examination.

In most studies of psoriasis done before, the results have shown an increased prevalence of carotid plaques, but it is not always the rule.

Objectives: To compare the prevalence of CP between patients with moderate-severe psoriasis and the general population.

Methods: A cross-sectional study that included 40 patients with moderate-severe psoriasis (PASI>10, BAS>10%), that fulfilled definitions for initiating treatment with a biological agent and 40 age-, sex- and traditional CV risk factors-matched healthy control subjects. Patients with history of CV events, diabetes mellitus, and chronic kidney disease or body max index (BMI)>35 were excluded. Carotid ultrasonography was performed by a MyLab 70 scanner (Esaote; Genoa, Italy), then carotid plaque was defined according to the Manheim Consensus Conference criteria. Statistical analysis: Qualitative data were expressed as number and percentages and quantitative data as mean (SD). Student's t test or Mann-Whitney U were used to compare continuous variables, as appropriate. Chi2 test or Fisher test were used for qualitative variables.

Results: The main data of the patients are summarized in the Table. It is important to highlight that it is based on a young population (mean age<40 years). The two groups did not present significant differences except for high sensitivity C-reactive protein (hsCRP)

As expected given the age of the group, CV risk measured by SCORE was low (0%) with a mean of 0.2 us 0.15. No patient had a high-very high CV risk as measured by SCORE (≥5%).

Patients with psoriasis had a long-standing disease (17.05±11.63 years). The presence of carotid plaques was found in a total of 10 patients with plaque psoriasis (25%, 5 of them had bilateral plaques) and one in the control group (2.5%) without bilateral plaques), p<0.003.

Variable	Plaque Psoriasis (n=40)	Controls (n=40)	P
Age: Mean (SD)	37,68 (11.83)	38.63 (11.83)	0.75
Sex (Male): n (%)	18 (45)	18 (45)	1.0
Psoriasis duration (years): Mean (SD)	17.05 (11.63)	ND	–
Psoriatic Arthritis: n (%)	11 (27.5)	ND	–
HLA-B27 Positive: n (%)	5 (13)	ND	–
BSA: Mean (SD)	38.99 (17.08)	ND	–
PASI: Mean (SD)	19.33 (8.89)	ND	–
hsCRP (mg/L): Mean (SD)	3.26 (3.31)	1.69 (2.62)	**0.001**
ESR (mm/h): Mean (SD)	13.79 (13.23)	8.53 (7.01)	0.17
Systolic hypertension (mmHg): Mean (SD)	121.33 (13.91)	120.08 (11.73)	0.86
Cholesterol (mg/dl): Mean (SD)	196.08 (34.31)	193 (36.42)	0.69
HDL-C (mg/dl): Mean (SD)	55.58 (17.05)	63.88 (20.7)	0.051
Smoking: n (%)	13 (33)	9 (22.5)	0.32
Dyslipidemia: n (%)	21 (53)	17 (42.5)	0.37
Arterial hypertension: n (%)	2 (5)	3 (7.5)	0.99
Obesity (BMI>30) n (%)	7 (18)	3 (7.5)	0.18
SCORE: Mean (SD)	0.2 (0.46)	0.15 (0.43)	**0.55**
Carotid plaques			
Yes: n (%)	10 (25)	1 (2.5)	**0.003**
Bilateral: n (%)	5 (13)	0 (0)	**0.02**

Conclusions: Moderate-severe psoriasis is associated with increased prevalence of carotid plaques.

FRI0667   **THE RECALL SURVEY: CAN ULTRASOUND AFFECTS CLINICIANS' DECISIONS ABOUT CHANGING TREATMENT IN RA?**

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Background: In Rheumatoid Arthritis (RA) treatment response is assessed using standard clinical disease activity measure. However ultrasound (US) is able to show subclinical synovitis in patients (pts) with RA who are in clinical remission (CR); further studies are still required to delineate the impact of US findings in the management of RA pts in daily clinical practice.

Objectives: to investigate the influence of US on the clinicians' treatment choices in pts with RA.

Methods: in 2015 an educational event (RECALL Survey) focused on the added value of US in RA pts was held in 22 rheumatology centers in Italy.In every center, the local rheumatologists provided RA pts to be examined by US. Pts signed an informed consent and a brief history of them was collected by the local rheumatologists (previous and current therapy, DAS28, HAQ score). Bilateral US examinations of wrists, metacarpophalangeal (MCP) and metatarsophalangeal (MTP) joints were performed by rheumatologists expert in US, to assess synovitis (joint effusion, synovial proliferation, and power Doppler (PD) signal), and bone erosions, using a Logiq E R7, General Electrics, with a 4.2–13 MHz linear probe. All US findings were scored using a 4 degree semiquantitative scoring system.

Results: 465 pts were evaluated. Clinicians, after US evaluations, changed therapy in 23.7% of pts, did not change therapy in 35.5% of pts.In general changes of therapy tended to be made by clinicians when joint effusion or power Doppler signal were present (table 1–2). The presence of erosion did not influence the clinicians' decisions.

Table 1. Changes of therapy and joint effusion

		Joint Effusion		
		Score ≤0	Score >0	Total
Change in therapy	No	86	79	165
	Yes	11	99	110
	Total	97	178	275

Table 2. changes of therapy and Power Doppler

		Power Doppler Signal		
		Score ≤0	Score >0	Total
Change in therapy	No	129	36	165
	Yes	24	86	110
	Total	153	122	275

Conclusions: Ultrasound may be an useful tool in daily rheumatologic practice to help clinicians make decisions about how to treat patients with RA. US results, especially joint effusion and Power Doppler signal, may influence the choice of clinicians to modify a patient's treatment regime.

FRI0668   **SONOGRAPHIC AND ANATOMICAL DESCRIPTION OF THE SUBTALAR JOINT**

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Background: The subtalar joint is commonly affected in many rheumatic and musculoskeletal diseases; however, subtalar joint involvement is often neglected or missed during clinical examination due to the fact that the joint is difficult to examine and most clinicians have a limited understanding of its anatomy.

Objectives: To provide a detailed anatomical and US description of the subtalar joint, a single joint that, anatomically, is divided into two separate compartments: the anterior subtalar joint (ASTJ) and the posterior subtalar joint (PSTJ).

Methods: Cadaver specimens of the ankle and foot were examined in detail by ultrasound (US) by rheumatologist experts in musculoskeletal US. The ASTJ of all