SAT0631

LACK OF ASSOCIATION BETWEEN CLINICAL AND ULTRASOUND MEASURES OF DISEASE ACTIVITY IN RHEUMATOID ARTHRITIS IN CLINICAL REMISSION: A CROSS-SECTIONAL ANALYSIS

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Background: Ultrasound (US) measures of synovitis and tenosynovitis have been shown to persist in patients with rheumatoid arthritis (RA) who achieve clinical remission.

Objectives: To assess the prevalence of such US findings in RA clinical remission, and analyse whether the US abnormalities found in this group of patients could be predicted by their clinical parameters.

Methods: Patients with established RA (1987 or 2010 diagnostic criteria) in clinical remission (DAS28-CRP<2.4) on conventional synthetic disease-modifying anti-rheumatic drugs (DMARDs) were recruited as part of the Biomarkers of Remission in Rheumatoid Arthritis (BioRRA) Study. Patients who had received systemic glucocorticoids in the past 3 months were excluded. All patients underwent baseline clinical assessment followed by a 7-joint US scan (Backhaus et al). US assessment was performed by the same operator (KB) blinded to disease activity score. Synovial Power Doppler (SPD) and greyscale (SGS) change were measured using a 4-point semi-quantitative scale (0–3); tendon GS (TGS) and erosions were classified as either present¹ or absent (0). Intra- and inter-rater scoring agreement was good (Cohen's kappa 0.72 and 0.61 respectively). The association between individual dependent variables (SPD, SGS, TGS, and erosions) and clinical parameters was assessed by multivariate ordinal logistic regression, with Benjamini-Hochberg adjustment for multiple testing.

Results: 66 patients with RA in remission (median disease duration 6 years, median age 66 years) were included in the analysis. US abnormalities were common in both DAS28-CRP and ACR/EULAR 2011 Boolean remission (table 1). Seven associations were significant at the unadjusted p<0.05 level (figure 1). Only two associations remained statistically significant after multiple test correction, namely those of disease duration and TJC with higher and lower erosion scores respectively (table 2).

Abstract SAT0631 – Table 1.

Criterion	US parameter	Remission Definition		p (χ ²)
		DAS28-CRP<2.4 (n=66)	ACR/EULAR Boolean (n=40)	
n (%) patients with total score ≥ 1	SPD	17 (26)	10 (25)	0.931
	SGS	66 (100)	40 (100)	n/a
	TGS	29 (44)	17 (43)	0.885
	Erosions	45 (68)	25 (63)	0.549
n (%) patients with any joint score ≥ 2	SPD	8 (12)	6 (15)	0.671
	SGS	48 (73)	27 (68)	0.566

Abstract SAT0631 – Table 2.

US score	Clinical parameter	Odds ratio (OR) increase in US score	95% CI	Unadjusted multivariate p value	Adjusted multivariate p value
SGS	Male sex	5.04	1.47–17.26	0.010	0.139
	ESR (mm/hr)	1.05	1.00–1.09	0.038	0.245
TGS	SJC28	5.37	1.46–19.72	0.011	0.159
	Alcohol intake (units/week)	0.88	0.77–1.00	0.044	0.307
Erosion	Disease duration (years)	1.16	1.06–1.27	0.002	0.024
	TJC28	0.17	0.05–0.56	0.004	0.025
	ESR (mm/hr)	0.92	0.85–0.99	0.022	0.101

Multivariate p < 0.005: * Unadjusted, ** Adjusted

Conclusions: We demonstrate considerable subclinical US findings in RA patients in clinical remission, even when remission is defined using the more stringent ACR/EULAR Boolean criteria. Patients with longer disease duration and fewer tender joints had more joint erosions, though no other significant associations were seen after multiple test correction. Most strikingly SPD, which portends a poor prognosis, failed to show significant association with any of the clinical parameters. Our results suggest that clinical and ultrasound examinations may serve complementary, rather than duplicative, roles in the assessment of RA remission.

REFERENCE:

[1] Backhaus, et al. *Arthritis Rheum*;61:1194–201.

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SAT0632

ULTRASOUND IN THE MANAGEMENT OF RHEUMATOID ARTHRITIS USING A NOVEL PRAGMATIC ALGORITHM: A MULTICENTRIC OBSERVATIONAL STUDY

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Background: Recently, novel algorithms for the pragmatic use of US in the management of RA patients were published in order to guide US use in various clinical scenarios.

Objectives: To evaluate the performance of the 2016 algorithm¹ proposed for evaluation of therapeutic response and its potential to contribute in decision-making.

Methods: Multicentric (5 centres), cross-sectional and observational study. Inclusion criteria: Patients older than 18 years old, RA diagnosis (ACR/EULAR criteria), receiving stable doses of conventional synthetic disease-modifying antirheumatic drugs (csDMARDs) for the last six months. Exclusion criteria: use of biological DMARDs, severe articular deformities. Patients were submitted to clinical examination, CDAI (Clinical Disease Activity Index) was recorded and US examination performed by trained rheumatologists blinded to CDAI results. The following joints were examined: wrists, metacarpophalangeal (2 and 3), proximal interphalangeal (2 and 3) and metatarsophalangeal (2 and 5), in addition to any symptomatic joint. Synovitis was determined according to OMERACT. Joint distension (grey scale, GS) and Power Doppler (PD) graded on semiquantitative scale: absent=0, mild=1, moderate=2, intense=3. Total individual GS and PD scores were calculated by the sum of each joint scores. Therefore, each participant had two separate scores (GS and PD).

Results: 139 patients were included: 93% women, RF positive in 66%, age=57 $\pm$ 11 [mean $\pm$ SD]yr, disease duration=10 $\pm$ 8 year. Almost half (47.5%, n=66) of the patients had moderate/high disease activity, CDAI=20.65 $\pm$ 10.66[mean $\pm$ SD]; while 52.5%(n=73) were in low activity/remission, CDAI=4.43 $\pm$ 3.24.**US:** of the 66 patients with **moderate/high disease activity**, 26 patients (39.3%) presented negative PD and lowGS score: 5.11 $\pm$ 2.67[mean $\pm$ SD]vs.40 patients with positive PD(PD=4.93 $\pm$ 4.9)and a higher GS score (11.6 $\pm$ 6.29, p<0.0001). CDAI in positive and negative PD subgroups was similar: mean (SD) values 21.81 $\pm$ 11.32 vs. 18.86 $\pm$ 9.02, p=0.13.Regarding CDAI **low activity/remission group**, 74% had negative PD, GS=4.5 $\pm$ 3.6 and 5 (6.85%) were in US remission. Of these 5 patients, only one was in CDAI remission. From 26 patients in clinical remission, 4 (15.4%) patients had positive PD and GS score greater than 5, one was in US remission and the remaining (80.8%)presented negative PD but mild GS score.

Conclusions: Our study confirms that patients in CDAI remission may present active synovitis upon US exam. Likewise, patients with US remission may present falsely elevated clinical metrics possible due to the influence of other non-inflammatory comorbidities. Similarly in patients with moderate/high disease activity, US can alert to the possibility of other factors adding to high clinical scores. The US contributedto differentiate both clinical scenarios, with potential to optimise the therapeutic approach.

REFERENCE:

[1] D'Agostino MA, et al. Ann Rheum Dis 2016;0:1–7.

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SAT0633 ULTRASOUND PREDICTIVE VALUE IN PREARTHRTIS. A PROSPECTIVE LONGITUDINAL STUDY

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Background: Inflammatory arthritis have a period of subclinical disease before the development of synovitis. It is necessary to know adequately the characteristics of this period to identify serological/imaging markers that recognise patients at risk of developing inflammatory arthritis.

Objectives: To describe the clinical characteristics and ultrasound (US) findings in "pre-arthritis" phases. To investigate the association of the US parameters with clinical or laboratory parameters.

Methods: Prospective longitudinal study of a cohort of patients with suspicious joint pain (predominance in nights or mornings, improving at day or with movement, or with morning stiffness >30') of less than 1 year of evolution and involvement of at least one small joint of hands or feet. Patients with clear synovitis, previously treated with DMARDs/steroids, or those with a diagnosis of fibromyalgia or osteoarthritis were excluded. The number of painful and swollen joints (PJC, SJC) and laboratory parameters were evaluated. A blind and extensive ultrasound examination (US) was performed with a MyLabTwice (Esaote) equip with a 5–13 MHz probe for grayscale (GS) and Power Doppler (PD). We assess the presence of synovitis in GS, PD (0–3) and erosions in 36 joints (radio- Carpal, Inter-carpal, 1 st –5th MCP and IPP, 2nd –5th MTP, elbow, shoulder and knee bilaterally) and 14 tendon compartments (2nd, 4th, 6th wrist extensor tendon compartments, 3rd and 4th finger flexor tendons, posterior tibial and fibularis tendons). In addition, an overall score of EG and PD in the cohort is calculated. Statistics analysis was made by mean $\pm$ SD or median (IQR), and comparison was made by t- Student test (quantitative parameters) and non parametric test (qualitative) (p<0.05).

Results: 20 patients were included, 95% women (60% non-smokers). Symptoms duration was 8 $\pm$ 3 months. PJC median was 6 (RIC 2–9), without swollen joints in any case. ACPA and/or RF were positive in 6 patients (30%). ESR and/or RCP were elevated in 6 patients (30%). In the following 12 months, 45% of patients improved clinically, and 6 patients (30%) developed rheumatoid arthritis (RA). US results are exposed in the table 1, showing the number and percentage of patients with presence [$\geq$ 1] of synovitis in GS, PD and erosions at different locations. The mean overall PD score was significantly higher in patients who will evolve to RA (9.1 $\pm$ 2.8 vs 2.7 $\pm$ 1.9, p<0.01) and in those with US erosions (10 $\pm$ 1.4 vs 4.3 $\pm$ 3.5, p<0.05). In addition, the mean overall GE score was higher in the RA group (9.1 $\pm$ 2.8 vs 2.7 $\pm$ 1.9, p<0.01) No significant differences were found between patients with or without acute phase reactants or positive RF/ACPA.

	GE=1 (n;% patients)	PD=1 (n;% patients)	Us erosion (n;% patients)
Wrist	17 (85%)	17 (85%)	0
MCP	15 (75%)	9 (45%)	0
IFP	13 (65%)	8 (40%)	0
Elbow	0	1 (5.5%)	0
Shoulder	0	0	0
MTP	13 (65%)	4 (20%)	2 (16.6%)
Knee	7 (37%)	4 (20%)	0
Wrist extensor tendons (n=18)	7 (39%)	3 (17%)	-
Finger flexor tendons (n=18)	3 (17%)	3 (17%)	-
Posterior tibial tendon	5 (28%)	2 (11%)	-
Fibularis tendons	0	1 (5.5%)	-
Global score*	9.2 $\pm$ 4.9	5.3 $\pm$ 3.8	0.1 $\pm$ 0.3
*mean $\pm$ DS			
Patients affected%	20 (100%)	19 (95%)	2 (10%)

Conclusions: In patients with pre-arthritis, Doppler scores were significantly higher among those with US erosions and those who evolve to RA. This results demonstrate the usefulness of US to predict the development of clinical arthritis in patients with inflammatory pain without synovitis

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SAT0634 DOES THE PRESENCE OF MRI-DETECTED OSTEITIS AT DIAGNOSIS WITH RHEUMATOID ARTHRITIS LOWERS THE RISK FOR ACHIEVING DMARD-FREE SUSTAINED REMISSION? – RESULTS OF A LONGITUDINAL STUDY

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Background: Although infrequent, some rheumatoid arthritis (RA)-patients achieve disease-modifying antirheumatic drug (DMARD)-free sustained remission. Absence of RA-specific auto-antibodies, such as anticitrullinated protein antibodies (ACPA) are known to be associated with this outcome, but furthermore mechanisms underlying the chronic nature of RA are largely unknown.

Objectives: Magnetic resonance imaging (MRI)-detected bone marrow oedema (BME, osteitis) strongly predicts erosive progression and is associated with ACPA-positivity. Therefore, we hypothesised that presence of MRI-detected osteitis is also predictive of not achieving DMARD-free sustained remission and that the presence of osteitis mediates the association between ACPA and DMARD-free sustained remission.

Methods: A 1.5T unilateral hand and foot MRI was performed at disease presentation in 238 RA-patients, evaluating BME, synovitis and tenosynovitis (summed in MRI-inflammation score). The median follow-up duration was 3.8 years. DMARD-free sustained remission, defined as the absence of clinical synovitis after DMARD-cessation that persisted during the total follow-up, was assessed. Associations between the different MRI-detected inflammatory features and this outcome were studied. A mediation analysis was performed to study whether the presence of BME mediated the association between ACPA and DMARD-free sustained remission. Finally, patterns of MRI-detected inflammation (including type, severity and location) with regard to DMARD-free sustained remission were studied using partial least squares (PLS) regression.

Results: Forty-six (19.3%) patients achieved DMARD-free sustained remission. ACPA-positivity associated independently with remission (HR 0.16, 95% CI 0.06–0.39). In contrast, no associations were observed between MRI-detected BME (HR 0.99, 95% CI 0.94–1.03), or other MRI-inflammatory features, and achieving DMARD-free sustained remission. Thus, the presence of BME did not mediate the association between ACPA and DMARD-free sustained remission. Furthermore, PLS regression revealed that patients who did or did not achieve remission could not be distinguished by patterns of MRI-detected inflammation.

Conclusions: At disease presentation, osteitis, as well as other MRI-detected inflammatory features, were not associated with achieving DMARD-free sustained remission over time. The data indicate that imaging predictors for joint damage and disease persistence differ. The processes mediating RA chronicity remain largely unsolved.

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