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.

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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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