cases with RA (60% vs. 100%, $p=0.029$), in 2 with PsA (20% vs. 100%, $p<0.01$), 3 cases in healthy volunteers (30% vs. 100%, $p<0.01$).

Conclusions: The results of the present study indicate that US is a very sensitive and specific technique for detecting calcifications in patients with crystal-related arthropathy. The US findings were detected a trend of association between CC and RA. However, more studies, involving a larger number of pts, are required.

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FRI0591

WHOLE-BODY MRI DEMONSTRATES REDUCTION OF INFLAMMATION IN PERIPHERAL JOINTS AND ENTHESES DURING TNF-INHIBITOR TREATMENT IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS, BUT ALSO AGE-DEPENDENT PERSISTENT INFLAMMATION IN JOINTS PRONE TO OSTEOARTHRITIS

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Background: Patients with predominantly axial spondyloarthritis (axSpA) may also have inflammation of peripheral joints and entheses. Using a whole-body MRI (WBMRI) approach, peripheral joints and entheses can be assessed objectively and followed during treatment.

Objectives: To describe the localization and extent of inflammation of peripheral joints and entheses by WBMRI in patients with axSpA initiating TNF-inhibitor therapy, and to assess treatment-induced changes.

Methods: Fifty-three patients that fulfilled the ASAS criteria for axSpA were included. MRI of SIJs and spine and WBMRI of peripheral joints and entheses were performed at baseline and 4/16/52 weeks after starting TNF inhibitor treatment. 75 peripheral joints and 30 peripheral entheses were scored in chronological order by an experienced musculoskeletal radiologist (IE). Osteitis, synovitis and enthesal soft tissue inflammation were scored separately [0(none)/1(mild)/2 (moderate/severe)]. A WBMRI peripheral joint and entheses index (WBMRI index) was derived by summing scores of all peripheral lesions.

Results: Median age (IQR/range) was 35 years. (28–44/22–73); median symptom duration was 5 years. (3–13/0–31); 53% were male. Baseline median WBMRI index ($n=53$) was 7.4–14; 0–40 after 52 weeks ($n=46$) 4 (2–9; 0–26). WBMRI index decreased mean 0.6 at week 4 ($p=0.17$, paired t-test), 2.3 at week 16 ($p<0.001$) and 3.2 at week 52 ($p<0.001$). Thirty-seven patients (70%) had a relatively low baseline WBMRI index (≤ 10) with minor change over time, while patients with higher baseline scores tended to change more (figure 1A). The most frequently involved sites ($\geq 15\%$ of patients) were typical for SpA (sternoclavicular joint/plantar fascia) or osteoarthritis (carpometacarpal-1/metatarsophalangeal-1 synovitis). In univariate analysis, WBMRI index at week 52 was associated with age (2.5 higher per 10 years increase in age, $p<0.001$) and male sex (3.6 lower in men, $p=0.021$), but not with body-mass index, HLA-B27, C-reactive protein or ASDAS at week 52. In multivariate regression with age and sex as covariates, only age was significantly associated with WBMRI index (2.3 per 10 years increase in age, $p<0.001$) whereas sex was not ($p=0.24$).

In univariate analysis, higher age was not significantly associated with change in WBMRI index, but when adjusted for baseline WBMRI index, higher age was associated with a less prominent reduction in WBMRI index (+0.9 per 10 years increase in age).

A Individual patient trajectories

B Most frequently involved sites ($\geq 15\%$ of patients) for 46 patients with available data at baseline and 52 weeks of follow-up

	Baseline	52 weeks
JOINTS:		
Wrist synovitis	23	20
CMC1 synovitis	17	7
Ankle synovitis	11	7
MTP1 synovitis	15	10
MTP2-5 synovitis	9	5
Sternoclavicular synovitis	13	10
Sternoclavicular osteitis	16	11
Manubriosternal osteitis	7	5
Acromioclavicular synovitis	14	13
Shoulder synovitis	8	5
Knee synovitis	7	3
ENTHESES:		
Plantar fascia osteitis	7	4
Plantar fascia soft tissue infl.	6	2
Tuberculum humeri osteitis	8	8
Pubic symphysis osteitis	8	2
Greater trochanter soft tissue infl.	17	12

Conclusions: Inflammation of peripheral joints and entheses decreased over time in a cohort of patients with predominantly axSpA. Most patients had WBMRI index above zero during follow-up, and this was related to age and involved sites prone to osteoarthritis. Thus, the WBMRI Index may capture both disease activity related to axSpA and age-related degenerative changes.

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FRI0592

SCORING MRI INFLAMMATION AND STRUCTURAL LESIONS IN SACROILIAC JOINTS OF PATIENTS WITH AXIAL SPONDYLOARTHRITIS: IS INTER-READER RELIABILITY DEPENDENT ON THE NUMBER OF MRI SLICES?

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Background: The SPARCC sacroiliac joint (SIJ) scoring system assesses 6 semicoronal MRI slices for inflammation and 5 slices for structural lesions in patients with axial spondyloarthritis (axSpA).^{1,2} However, the cartilaginous SIJ compartment may show 1–2 additional slices anteriorly or posteriorly, depending on body size and scan orientation/tilt.

Objectives: To investigate inter-reader reliability of an “all slices” approach versus the standard SPARCC scoring of 6/5 slices.

Methods: Fifty-three patients with axSpA were treated with TNF inhibitor and had MRIs obtained at weeks 0/4/16/52. An experienced (UW) and two newly trained (GK, SK) blinded readers independently scored 199 SIJ MRI scans in chronological order. The cartilaginous SIJ compartment was scored slice by slice by the SPARCC 6/5 slices approach and by all available cartilaginous slices. Initially, the most anterior and posterior slices covering the cartilaginous compartment and the transitional slice were identified. The transitional slice was defined as the most anterior cartilaginous slice with the first portion of the ligamentous compartment, clearly visible on the left and/or right side. We scored SIJ inflammation, fat metaplasia, erosion and backfill, and a combined erosion and backfill score was created. Inter-reader reliability for reader pairs SK-UW/GK-UW/SK-GK was assessed using percent agreement (for individual scores) and intra-class correlation coefficients for sum scores.

Results: Pairwise percent agreement was 67%/63%/79% for identification of anterior slice, 47%/56%/44% for posterior slice and 69%/68%/72% for transitional slice. Using the “all slices” approach, readers UW/SK/GK scored mean 7.2/7.7/7.0 slices per MRI scan.

“6/5 slices” and “all slices” correlated closely with each other for status scores at baseline/status scores at week 52, and change scores at week 52; BME 0.983/0.985/0.983; fat metaplasia 0.994/0.982/0.953; erosion 0.981/0.974/0.957; backfill 0.993/0.983/0.978; combined erosion and backfill 0.983/0.971/0.919.

	Inflammation (standard 6 slices)		Inflammation ("all slices")		Inflammation (extra slices in "all slices" not part of 6 slices)	
	Scores	ICC(3,1)	Scores	ICC(3,1)	Scores	ICC(3,1)
Status score at baseline	13 (6-21; 0-49)	0.81/0.77/0.84	14 (6-23; 0-49)	0.84/0.77/0.86	1 (0-3; 0-19)	0.65/0.53/0.73
Status score at week 52	2 (0-4; 0-12)	0.67/0.70/0.50	2 (0-5; 0-13)	0.62/0.69/0.46	0 (0-1; 0-2)	0.19/0.65/0.20
Change score (baseline to week 52)	-12 (-20 to -3; -45 to 5)	0.84/0.81/0.87	-13 (-26 to -4; -64 to +7)	0.86/0.79/0.90	-1 (-3 to 0; -19 to 1)	0.61/0.54/0.74
	Fat metaplasia (standard 5 slices)		Fat metaplasia ("all slices")		Fat metaplasia (extra slices in "all slices" not part of 5 slices)	
	Scores	ICC(3,1)	Scores	ICC(3,1)	Scores	ICC(3,1)
Status score at baseline	3 (0-10; 0-38)	0.89/0.64/0.81	4 (1-12; 0-48)	0.92/0.63/0.77	0 (0-2; 0-10)	0.80/0.40/0.49
Status score at week 52	7 (2-14; 0-35)	0.81/0.53/0.77	9 (2-19; 0-51)	0.87/0.57/0.70	1 (0-4; 0-16)	0.70/0.53/0.55
Change score (baseline to week 52)	1 (0 to 4; -4 to 18)	0.75/0.26/0.47	2 (0 to 3; -5 to 26)	0.84/0.34/0.46	0 (0 to 1; -1 to 8)	0.60/0.44/0.46
	Erosion (standard 5 slices)		Erosion ("all slices")		Erosion (extra slices in "all slices" not part of 5 slices)	
	Scores	ICC(3,1)	Scores	ICC(3,1)	Scores	ICC(3,1)
Status score at baseline	7 (1-11; 0-18)	0.70/0.66/0.73	8 (1-14; 0-23)	0.74/0.67/0.70	1 (0-2; 0-6)	0.45/0.18/0.62
Status score at week 52	3 (1-6; 0-16)	0.43/0.39/0.75	4 (1-8; 0-18)	0.42/0.38/0.69	1 (0-2; 0-6)	0.20/0.09/0.40
Change score (baseline to week 52)	-2 (-5 to 0; -11 to 1)	0.25/0.23/0.60	-3 (-6 to 0; -13 to 0)	0.23/0.29/0.37	0 (-1 to 0; -3 to 1)	0.03/0.05/0.29
	Backfill (standard 5 slices)		Backfill ("all slices")		Backfill (extra slices in "all slices" not part of 5 slices)	
	Scores	ICC(3,1)	Scores	ICC(3,1)	Scores	ICC(3,1)
Status score at baseline	0 (0-3; 0-11)	0.53/0.82/0.60	0 (0-3; 0-13)	0.48/0.79/0.63	0 (0-0; 0-2)	0.08/0.40/0.50
Status score at week 52	3 (1-5; 0-16)	0.26/0.44/0.75	4 (1-6; 0-18)	0.23/0.43/0.71	0 (0-1; 0-4)	-0.01/0.28/0.44
Change score (baseline to week 52)	1 (0 to 3; -7 to 9)	0.33/0.41/0.66	2 (0 to 4; -9 to 11)	0.35/0.40/0.74	0 (0-1; -2 to 3)	0.01/0.22/0.58
	Combined erosion and backfill (standard 5 slices)		Combined erosion and backfill ("all slices")		Combined erosion and backfill (extra slices in "all slices" not part of 5 slices)	
	Scores	ICC(3,1)	Scores	ICC(3,1)	Scores	ICC(3,1)
Status score at baseline	10 (2-13; 0-18)	0.68/0.67/0.73	12 (2-16; 0-24)	0.70/0.68/0.73	1 (0-3; 0-7)	0.52/0.31/0.66
Status score at week 52	8 (3-13; 0-20)	0.57/0.69/0.78	10 (4-14; 0-24)	0.61/0.71/0.79	1 (0-3; 0-8)	0.46/0.36/0.71
Change score (baseline to week 52)	-1 (-3 to 0; -7 to 4)	0.22/0.18/0.45	-1 (-2 to 0; -10 to 3)	0.18/0.25/0.30	0 (-1 to 0; -3 to 2)	0.09/0.09/0.40

Scores reported as median (IQR; range). ICCs are ICC(3,1), single rating, agreement, in pairwise comparisons (SK-UW/GK-UW/SK-GK). N = 53 for status score at baseline; N = 46 for status score at week 52 and change score/baseline to week 52.

Conclusions: The standardised 6/5 slices SPARCC methods had equal reliability as compared to evaluation of all cartilaginous slices. There was limited reliability to identify the posterior slice in the "all slices" approach, as opposed to good reproducibility to determine the transitional slice in the "6/5 slices" approach. Combining erosion and backfill scores tended to result in superior reliability compared to the 2 lesions separately, indicating a challenge to identify the transition from erosion to backfill.

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FRI0593 MANTOUX TEST IS INADEQUATE TO DEFINE ALL SUBJECTS WITH LATENT TUBERCULAR INFECTION

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Background: Latent TB infection (LTBI), defined as 'a state of persistent immune response to *Mycobacterium tuberculosis* without clinically-manifested disease', inflicts a third of the world's population and nearly 10% of LTBI positive persons develop TB within 2-5 years. The tuberculin skin test (TST) and, more recently, interferon gamma release assays (IGRAs) are most commonly used for detection of LTBI. However, in a high TB burden setting such as India, both the assays have been found to grossly underestimate the true prevalence of LTBI, since almost equal number of new TB cases emerged from the test-positive and test-negative groups during the follow-up¹.

Objectives: This study was aimed at exploring whether an *in vitro* CD3 +T cell response to PPD can complement the *in vivo* TST response for the determination of true prevalence of LTBI in healthy Indians.

Methods: In this ongoing study, 80 apparently healthy workers (age 19-61 years) at SGPGIMS have been recruited. Their demographic data, including BCG vaccination status and duration of contact with TB patients, was recorded. TST was performed with 5 TU of PPD. Blood T cell (CD3+) responses to PHA (a mitogen, used as positive control) and PPD were determined by flow cytometry in terms of expression of the proliferation-induced nuclear protein Ki67.

Results: 48% of the study subjects showed positivity for TST (skin induration ≥ 10 mm) and the size of reaction could be correlated with age. There was no association between BCG vaccination status and TST positivity. 72% of the TST positive and 62% of TST negative persons showed positivity for CD3 +T cell response to PPD. Positivity for either assay was found to be 82%.

Conclusions: By combining TST with CD3 +T cell responses, the positivity for PPD was enhanced from 48% (TST alone) to 82%. Therefore, both the assays could be considered as complementary. It remains to be seen whether these assays, either singly or jointly, show a correlation with the emergence of TB in our study population during the follow-up.

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FRI0594 RETROCALCANEAL BURSITIS PRECEDES OR ACCOMPANIES ACHILLES TENDON ENTHESTITIS IN THE EARLY PHASE OF RHEUMATOID ARTHRITIS

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Background: We had reported the frequencies of various pathologies detected by ultrasound (US) in symptomatic ankles and heels in rheumatoid arthritis (RA) patients¹. Through that study, we recognised that Achilles tendon (AT) involvement is not rare in RA, because retrocalcaneal bursitis (RCB), AT enthesitis, AT tendonitis and AT paratendonitis was detected in 27%, 22%, 13%, and 6% of the symptomatic ankles examined, respectively. Recently, it has been reported that RA and SpA patients did not differ in enthesal abnormalities seen on US². However, we think that there is fundamental difference between the inflammation of synovio-enthesal complexes in RA and that in SpA.

Objectives: This study aims to investigate characteristics of enthesal abnormalities in RA by evaluating the association between US-detected RCB or AT enthesitis and clinical data.

Methods: We reviewed consecutive records of 100 ankles in 74 RA patients (filling the 2010 criteria) who underwent US examination of symptomatic ankles because of clinical need. The patients consist of 52 women and 22 men (median age 63.3 years, range 26-83 years) with median disease duration of 4.2 months (range 0.23 months to 19.4 years), as described previously. 55/74 (74%) of them were positive for RF and/or ACPA. The association between presence of RCB or AT enthesitis in a narrow definition (i.e., insertional tendinitis) and clinical data were analysed using Fisher's exact test or Mann-Whitney U test.

Results: Among the overall 100 ankles, the frequency of RCB-positive/AT enthesitis-negative ankles, that of RCB-positive/AT enthesitis-positive ankles and that of RCB-negative/AT enthesitis-positive ankles were all more than 10%. Interestingly, the frequency of RCB-negative/AT enthesitis-positive ankles among the 62 ankles with early RA (disease duration <6 months) was significantly lower as compared to that among the 38 ankles with established RA ($p=0.00595$). Similarly, the frequency of RCB-negative/AT enthesitis-positive ankles among the 58 ankles of untreated patients was lower as compared to that among the 42 ankles of already-treated patients. The disease duration was significantly longer in the RCB-negative/AT enthesitis-positive ankles than in the rest of the ankles (43.8 ± 74.6 months vs. 16.7 ± 35.3 months, $p=0.0179$).