$p < 0.001$) and had lower correlation with Δ ESR ($r = 0.28$, $p = 0.009$). Δ SAA correlated with Δ NBP-VAS ($r = 0.260$, $p = 0.016$), but ESR and CRP did not correlate with this parameter. We also found statistically significant correlation between Δ SAA and Δ ASDAS-VS ($r = 0.257$, $p = 0.017$), Δ ASDAS-CRP ($r = 0.387$, $p < 0.001$), Δ BASFI ($r = 0.301$, $p = 0.005$). Δ CRP also showed significant correlation with Δ BASFI, but it was weaker than that observed with Δ SAA ($r = 0.230$, $p = 0.033$). There was no statistically significant correlation between Δ SAA levels and Δ MASES, although Δ CRP had a weak correlation ($r = 0.217$, $p = 0.041$). There was no significant correlation between neither Δ SAA, Δ CRP or Δ ESR and the following parameters: Δ TBP-VAS, Δ PtGA-VAS, Δ PGA-VAS Δ BASDAI, Δ BASMI, Δ SPARCC, Δ TJC or Δ SJC.

Conclusions: This study suggests that SAA can be an useful tool in monitoring treatment with anti-TNF α and that could be introduced in clinical practice. However more studies, with larger sample sizes, should be undertaken to better assess this subject.

Disclosure of Interest: None declared

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THU0692 THE TURKISH VALIDATION AND RELIABILITY OF DISEASE-SPECIFIC, PATIENT REPORTED OUTCOME MEASURE IN RHEUMATOID ARTHRITIS: TR AIMS2-SF

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Background: Rheumatoid arthritis (RA) can have a major impact on health related quality of life (HRQoL). The revised AIMS-2 is the main outcome measure that has been used for measuring HRQoL in patients with rheumatic diseases. Guillemain et al. developed a short form of AIMS-2 (AIMS-2 SF) (1) which is more practical and less time consuming compared to AIMS-2.

Objectives: The purpose of this study was to investigate validity and reliability of the Turkish version of AIMS2-SF (TR AIMS-2 SF).

Methods: Turkish AIMS2-SF was developed after translation and back-translation method. Culturally adapted version preserved 5 component-structure (upper limb function, lower limb function, affect, pain and social interaction) with 26 items according to the original article (1). Subjects fulfilling ACR/EULAR 2010 classification criteria for RA were consecutively enrolled into the study. Patients with malignancy, fibromyalgia syndrome and other systemic inflammatory diseases were excluded. Demographic data, the body mass index (BMI), severity of pain (VAS), disease duration (month) and other clinical features was evaluated. Reliability was investigated with test-retest reliability (intraclass correlation coefficient-ICC) and internal consistency (Cronbach's alpha). Spearman's rank correlation coefficient was used to evaluate the relation between quantitative parameters and the validity. Construct validity was assessed by the correlation of TR AIMS2-SF with other clinical parameters (age, disease duration, VAS pain, DAS-28) and functional parameters such as Nottingham Health Profile (NHP), Health Assessment Questionnaire (HAQ), Beck Depression Inventory (BDI), Duruo² Hand Index (DHI). Statistical analyses were performed with SPSS version 20 and a value of $p < 0.05$ was considered as statistically significant.

Results: Sixty patients (6 males) were recruited into the study. The mean $\pm$ standard deviation (SD) of age (years) and disease duration (months) were 51.8 ± 12.5 and 71.4 ± 69.3 , respectively. Mean scores of TR AIMS2-SF were; upper limb function 7.3 ± 6.9 , lower limb function 7.7 ± 4.7 , affect 7.4 ± 3.2 , pain 6 ± 3.1 , social interaction 4 ± 2.3 and total score 35.5 ± 16.6 . The floor and ceiling effects of TR AIMS2-SF were 1.6 and 3.3, respectively. Both Cronbach's alpha and ICC were 0.83 indicating good reliability. There was significant correlation (ρ , p value) with parameters that were directly related to HRQoL which were NHP subscales (energy level: 0.46, pain: 0.63, emotional reaction: 0.55, sleep 0.33, social interaction: 0.60, physical activity: 0.63; $p < 0.0001$), HAQ (0.70, $p < 0.0001$), BDI (0.54, $p < 0.0001$), DHI (0.60, $p < 0.0001$). Poor or not significant correlation was found with parameters that were not directly related to HRQoL such as age (-0.004 , $p = 0.97$), disease duration (0.21, $p = 0.09$), vas pain (0.37, $p < 0.05$); on the other hand, disease activity (DAS-28) correlated moderate (0.49, $p < 0.0001$).

Conclusions: Turkish version of AIMS2-SF is a reliable and valid tool that can be used to evaluate the quality of life in RA. This is a feasible measure that can be used in daily practice easily.

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THU0693 FEASIBILITY AND RELIABILITY OF THE SPONDYLOARTHRITIS RESEARCH CONSORTIUM OF CANADA SACROILIAC JOINT INFLAMMATION SCORE FOR CHILDREN WITH SPONDYLOARTHRITIS

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Background: Clinical trials in children with pediatric spondyloarthritis and axial disease are lacking. In order to assess the effectiveness of medications we need an objective measure to quantify severity of inflammation in the pediatric sacroiliac joint.

Objectives: We evaluated the reliability and construct validity of the Spondyloarthritis Research Consortium of Canada (SPARCC) sacroiliac joint inflammation score (SIS) in children with suspected or confirmed juvenile spondyloarthritis (SpA).

Methods: The SIS divides the joint into quadrants and scores the presence, depth, and intensity of bone marrow edema (BME) on short tau inversion recovery (STIR) magnetic resonance imaging (MRI). Six consecutive semicoronal slices through the cartilaginous portion of the joint are scored for BME (total score 0-72). We developed a pediatric training module that included scoring instructions and examples of bright subchondral signal on STIR scans easily confused with inflammation (Figure). After reviewing the module, 6 readers (1 adult and 3 pediatric radiologists, 1 adult rheumatologist, and 1 pediatric rheumatologist), blinded to clinical details except age, scored 30 studies that included semicoronal T1-weighted and STIR sequences. Pain was recorded on a visual analogue scale (0-10). Disease activity was evaluated using the juvenile SpA disease activity (JSpADA) index (range 0-8). Inter-observer reliability was assessed using intraclass correlation (ICC). Correlation (convergent validity) of the mean SPARCC SIS developers' score with disease activity was tested using Spearman correlation. Discrimination was tested by comparing the mean SPARCC SIS developers' score between children with and without inflammatory back pain using the Mann-Whitney test.

Results: The SIS had face validity and was feasible to score in the 30 pediatric cases. 21 (70%) were male. Median age at the time of imaging was 15.5 years (IQR: 12.7-16.8). Median pain score and JSpADA index were 2 (IQR 0.5-6) and 2 (IQR: 0.5-3), respectively. Of the 180 scores submitted by 6 readers, 140 (78%) of the studies had a SIS ≥ 2 . Median SIS was 14 (IQR: 3-29). ICCs for all readers (N=6), SPARCC developers (N=2), rheumatologists (N=2), and pediatric radiologists (N=3) were 0.63 (95% CI: 0.45-0.78), 0.89 (95% CI: 0.75-0.95), 0.43 (95% CI: -0.02-0.71), and 0.85 (95% CI: 0.72-0.92), respectively. SIS had low correlation with disease activity as measured by the JSpADA ($r = 0.08$) and C-reactive protein ($r = 0.14$). SIS score did not discriminate between those with and without inflammatory back pain ($p = 0.16$).

Figure 1. Sample slice and scoring methods for sacroiliac joint inflammation score (SIS). A. Coronal oblique STIR image of the sacroiliac joints shows each joint divided into 4 quadrants. There is normal bright subchondral signal along both sides of the right sacroiliac joint and along the periarticular region of the left sacrum (solid arrows) in this skeletally immature patient. On the left, there is abnormal signal consistent with bone marrow edema within periarticular region of the left ilium in both the upper and lower quadrants (dashed arrows). B. Scoring schematic demonstrates a "1" within the left iliac bone in both the upper and lower quadrants representing bone marrow edema. An additional score of "1" is given as the depth of the bone marrow edema extends >1cm from the articular surface. The patient received a total score of "3" for this image slice.

Conclusions: The SIS was feasible to score and had near excellent reliability, even with limited calibration. SIS did not have convergent validity with clinical measures of disease activity, highlighting that imaging and clinical evaluations provide complementary but non-overlapping information. Responsiveness of the SIS should be evaluated in a prospective cohort of children who start biologic therapy.

Disclosure of Interest: None declared

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THU0694 EFFECTS OF ANTI-TNF THERAPY ON SOLUBLE UROKINASE PLASMINOGEN ACTIVATOR RECEPTOR (SUPAR) LEVELS IN ARTHRITIS

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Background: The urokinase plasminogen activator receptor (uPAR) is expressed mainly on immune cells, smooth muscle cells and endothelial cells, favoring extracellular matrix degradation, cell adhesion, cell proliferation and regulates cell migration. The suPAR is the soluble form of the cell membrane-bound protein

uPAR, elevated levels may reflect increased activation of immune system which observed in the autoimmune diseases.

Objectives: The aim of this study was to assess the effects of anti-TNF therapy on uPAR production in rheumatoid arthritis (RA) and ankylosing spondylitis (AS). We also wished to correlate suPAR levels with various autoimmune-inflammatory biomarkers.

Methods: Altogether 33 arthritis patients including 22 RA patients treated with either etanercept (ETN) or certolizumab pegol (CZP) and 11 AS patients treated with ETN were included in a 12-month follow-up study. Circulating suPAR levels were assessed by suPARnostic Quick Test Reader. In addition, disease activity (DAS28 or BASDAI), CRP, IgM rheumatoid factor, anti-CCP were also assessed. Assessment were performed at baseline, as well as 6 and 12 months after treatment initiation.

Results: Anti-TNF treatment was highly effective in both disease, as the mean DAS28 decreased in RA, mean BASDAI decreased in AS. There were no significant change in the suPAR levels after 12 months of anti-TNF therapy, although resulted non-significant decrease ($p<0.18$) in RA patients with critical suPAR levels ($>9\text{ng/ml}$). Baseline suPAR levels positively correlated with anti-CCP ($p<0.001$) and rheumatoid factor ($p=0.024$) in RA patients. Circulating suPAR levels did not correlate with DAS28, BASDAI or CRP.

Conclusions: In a mixed cohort of RA and AS patients, anti-TNF therapy did not affect the suPAR levels after 12 months. suPAR levels correlated with rheumatoid factor and anti-CCP. Based on these results suPAR may be a marker of autoimmunity rather than that of disease activity.

Disclosure of Interest: None declared

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THU0695 THE RA FLARE QUESTIONNAIRE (RA-FQ) IS RESPONSIVE TO CHANGE IN RA SYMPTOMS AND IMPACTS IN CLINICAL AND OBSERVATIONAL TRIALS

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Background: The RA-FQ is a new tool to measure RA flares. We have previously provided evidence of construct validity and reliability.

Objectives: We evaluated sensitivity to change of the RA-FQ in clinical trials and observational studies of RA patients with low disease activity.

Methods: RA patients in observational studies [CATCH-Canada (n=896) and STPR-France (n=138)], and an RCT (DRESS-Netherlands; n=178) completed 5 items asking whether they were in flare (yes/no), and if so, the severity and duration. We selected patients who said they were not in flare and had a DAS28 <3.2 at the first visit (V1). Flare at the next study visit (V2) was defined three ways: 1) patient report (yes/no); 2) patient report-stringent (Boolean: patient report yes AND severity $\geq 4/10$ AND duration > 7 days [to increase this reflected increased inflammatory disease activity]); and c) DAS definition often used in studies (DAS28 <3.2 at V2 required increase of 1.2; DAS ≥ 3.2 at V2 required increase of 0.6). We compared RA-FQ scores with other PROs and disease activity indicators between flaring and non-flaring patients at V2. Effect size was estimated using Cohen's SMD. We hypothesized that at V2, RA-FQ scores would be similar in patients not flaring at both visits, and would be significantly higher in those flaring at V2.

Results: The mean difference in RA-FQ scores at V2 ranged from 7.3 (95% CI 1.4, 13.2) in STPR (DAS def) to 19.6 (95% CI 16.7, 22.6) in CATCH (patient report-stringent). The standardized mean difference effect sizes (SMDES) ranged from 0.82–1.95, and were largest for patient report-stringent in 2 studies. SMDE

were strong (range 0.84–2.42) for patient global, MD global, HAQ, DAS28, and other clinical indicators except ESR.

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Conclusions: Data from clinical and observational studies support the responsiveness of the RA-FQ in detecting change over time. The robust psychometric properties of the RA-FQ suggest it reliably detects clinically relevant worsening of RA symptoms consistent with increased disease activity and support its use in research and clinical care.

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THU0696 ANTI-CARBAMYLATED PROTEINS ANTIBODIES IN SLE PATIENTS WITH JOINT INVOLVEMENT: A POSSIBLE NEW BIOMARKER FOR EROSION DAMAGE

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Background: The traditional concept of non-erosive arthritis in Systemic Lupus Erythematosus (SLE) patients changed during the last years, thanks to the use of more sensitive imaging techniques, such as ultrasonography (US). The predictive role of Rheumatoid Arthritis (RA)-specific autoantibodies for bone loss in SLE patients has been investigated. In particular, anti-citrullinated peptide antibodies (ACPA) have been identified in about 50% of SLE patients with x-Ray detected erosive arthritis. More recently, anti-carbamylated proteins (anti-CarP) antibodies have been demonstrated in seronegative RA patients, with a prevalence of about 16% and a significant association with erosive damage.

Objectives: In the present cross-sectional study, we aimed at assessing the association between anti-CarP antibodies and erosive damage in a large cohort of SLE patients with joint involvement.

Methods: For this purpose, we evaluated 152 SLE patients (1997 ACR criteria; M/F 11/41, mean $\pm$ SD age 46.4 $\pm$ 11.3 years, mean $\pm$ SD disease duration 144.9 $\pm$ 110.5 months) with joint involvement (arthralgia/arthritis). The clinical and laboratory data were collected in a standardized computerized electronically filled form. All patients underwent blood draws to detect Rheumatoid Factor (RF) and ACPA, by using commercial ELISA kits according to the manufacturer's instructions, and anti-CarP antibodies by home-made ELISA (results were expressed in arbitrary units (AU)/ml and values above 340 IU/ml were considered positive). US was performed to assess the bone surfaces of metacarpophalangeal and proximal interphalangeal. At each joint, according with OMERACT definition, the presence of erosions was registered with a dichotomous value (0/1), allowing the possibility to obtain a total score, ranging from 0 to 20.

Results: The prevalence of anti-CarP antibodies was 28.3%, similar to RF (27.6%) and significantly higher to ACPA (11.2%, $p=0.003$). The mean $\pm$ SD titer of anti-CarP antibodies was 890.5 $\pm$ 794.9 IU/ml. Thirty-nine patients (25.6%) showed erosive arthritis: all the patients referred the occurrence of at least one episode of clinical synovitis. Erosive arthritis was significantly associated with anti-CarP antibodies ($p=0.004$) and ACPA ($p=0.0008$). Moreover, a significant correlation between anti-CarP antibody titer and US-erosive score was observed ($r=0.2$, $p=0.01$). Of note, anti-CarP antibodies were identified in 24.5% of double negative (ACPA-/RF-) patients, with erosive damage in 25% of them. Interestingly, anti-CarP antibodies resulted significantly associated with the presence of anti-dsDNA ($P=0.01$).

Conclusions: In the present study, for the first time, we identified a significant association between anti-CarP antibodies and erosive damage in SLE-related arthritis, in terms of frequency and severity. We found these antibodies in about 25% of ACPA-/RF- SLE patients, a prevalence higher than that described in seronegative RA patients. Taken together, our results suggest that anti-CarP antibodies could be considered as a candidate biomarker of severity in SLE patients with joint involvement.

Disclosure of Interest: None declared

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	Flare (Second Visit)		No Flare (Second Visit)		Mean difference RA-FQ Score (95% CI)	Effect Size
	V1	V2	V1	V2		
CATCH ¹ (Canada)						
Patient Report	13.4	22.5	9.8	8.5	14.0 (11.4,16.5)	1.39
Patient Report - Stringent*	16.6	29.0	9.9	9.4	19.6 (16.7, 22.6)	1.95
DAS-defined flare*	11.8	26.8	10.0	9.3	17.5 (13.6, 21.5)	1.73
DRESS ² (Netherlands)						
Patient Report	17.4	22.4	11.6	12.2	10.2 (5.6, 14.8)	1.10
Patient Report - Stringent*	16.7	31.3	12.2	12.9	18.3 (8.9, 27.8)	1.10
DAS-defined flare*	18.7	24.6	11.6	12.2	12.4 (7.7, 17.2)	1.37
STPR ³ (France)						
Patient Report	17.5	22.7	13.0	13.0	9.6 (3.6,15.6)	1.10
Patient Report - Stringent*	17.1	25.3	13.3	13.7	11.5 (2.3, 20.8)	1.30
DAS-defined flare*	16.5	20.5	13.9	13.2	7.3 (1.4,13.2)	0.82

¹Canadian Early Arthritis Cohort; ²Dose Reduction Strategy of Subcutaneous TNF Inhibitors in Rheumatoid Arthritis; ³Strategy of Treatment in Patients with Rheumatoid Arthritis
*Stringent= Boolean: patient report flare yes AND severity $\geq 4/10$ AND duration > 7 days.
*DAS28 < 3.2 at V2 required increase of 1.2; DAS ≥ 3.2 at V2 required increase of 0.6