PDAS2= $2.667+0.021 \times (\text{PGA out of } 100)+0.483 \times \text{HAQ} +0.033 \times (\text{patient } 28 \text{ SJC}) +0.002 \times (\text{EMS in minutes})$ whereas PGA=patient global assessment, TJC=tender joint count; SJC=swollen joint count; HAQ=Health Assessment Questionnaire; EMS=early morning stiffness

Objectives: To assess whether PDAS is sensitive to change for an evaluator-based flare and improvement and whether PDAS1 (with ESR) is better than PDAS2.

Methods: A prospective cohort of 92 RA patients completed PDAS1 and 2 scores at the first and second clinic visits in a tertiary referral rheumatology centre. **Flare** was taken as increased RA activity from Simplified Disease Activity Index (SDAI) (remission or low activity) at the 1st visit → (moderate or high activity) at the 2nd visit, while **improvement** was the reverse change. Overall changes (Δ) of SDAI and PDAS1 and 2, in both directions, between these two visits were correlated using Spearman correlation coefficients. Further subgroup analysis (flare and improvement) was done by comparing the magnitude of changes between SDAI and PDAS1 and 2 using Mann-Whitney U test.

Results: Mean age of the cohort was 60 years, mean RA duration 14 years, 90% female, 71% sero-positive, 64% in remission/low disease activity at the 1st visit and follow-up interval was 17.5 weeks (standard deviation 9.4 weeks). At the 2nd visit, 11 out of 59 patients had a flare while 10 out of 33 patients improved. The Spearman correlation coefficients of Δ SDAI with Δ PDAS1 and Δ PDAS2 were 0.55 and 0.54 respectively (both $p \leq 0.001$). Data distributions were depicted in the scatterplot.

For the subgroup of flare, both Δ PDAS1 and 2 were significantly associated with the corresponding Δ SDAI (all $p < 0.02$). However, this association was not significant in the subgroup of improvement (See table 1). PDAS1 did not appear to perform better than PDAS2 in both groups of flare and improvement.

Abstract FRI0027 – Table 1

Flare (n=59)			
	Flare (11/59)	No flare (48/59)	P-value
Δ SDAI	+6.90 (8.20)	0.12 (0.16)	<0.001
Δ PDAS1	+0.75 (1.40)	0.01 (0.59)	0.016
Δ PDAS2	+0.52 (0.74)	0.00 (0.32)	<0.001
Improvement (n=33)			
	Improved (10/33)	Not improved (23/33)	P-value
Δ SDAI	-6.80 (7.20)	0.40 (6.90)	<0.001
Δ PDAS1	-1.40 (0.96)	0.06 (0.49)	0.20
Δ PDAS2	-0.16 (0.35)	0.00 (0.54)	0.25

Values are median (interquartile range). P-values are results of Mann-Whitney U test.

Conclusions: Overall PDAS1 and 2 are sensitive to change, but both predicted flare better than improvement. Clinically signalling flare has a far greater utility than documenting improvement. PDAS2 was as sensitive as PDAS1 in predicting flare yet without the need of a blood test for ESR. Hence, PDAS2 is suitable to serve as a purely patient-based home monitoring tool to detect a flare.

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FRI0028

DEVELOPMENT AND IMPLEMENTATION OF AN EDUCATIONAL VIDEO THAT INSTRUCTS PATIENTS WITH RHEUMATOID ARTHRITIS FOR SELF-ASSESSMENT OF DISEASE ACTIVITY: METHODOLOGY OF THE AUTO-DAS IN MIDDLE EASTERN ARAB COUNTRIES STUDY

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Background: Using a treatment target in rheumatoid arthritis (RA), such as DAS-28 and involving patients in their disease management can improve prognosis.

Objectives: To develop and implement an educational video that instructs patients with RA for self-assessment of disease activity using DAS-28.

Methods : *Step 1:Initiation.* Rheumatologists from some Middle Eastern Arab countries were invited to participate in this study. International experts and societies were contacted to access pre-existing educational material.

Step 2: Development. Different material sources were synthesized and translated into Arabic and validated by the rheumatologists. The educational video was shot by a professional team with a real patient and a rheumatologist on set.

Step 3. Validation. The final products (leaflets and video) were validated by the rheumatologists and tested with patients (figure 1). Obstacles were noted at the various study levels.

Results: 23 rheumatologists from 7 Middle Eastern Arab countries participated in the study. A one-page educational leaflet was developed in Arabic and English languages. An educational video presenting the treat-to-target concept and the basics of DAS performance was produced in Arabic language with English subtitles. Obstacles at the rheumatologist, patient, cultural and logistic levels were identified and the potential solutions were addressed by the study team.

Abstract FRI0028 – Table 1

Rheumatologist	Patient	Cultural	Logistics
DAS as target	Patient empowerment	Uniform text	Multiple IRB
Patient empowerment	Video understanding	Acceptable video	Funding
Patient adherence	Confidence in performance	Cultural mix	Computerised data

Conclusions: Collaboration between several countries sharing the same language and similar cultural backgrounds was possible and able to produce an

educational video aiming at the empowerment of RA patients for the self-assessment of their disease activity. The video will serve for future studies in the Arabic-speaking countries and will be available later for clinical use according to the rheumatologist's clinical judgment.

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FRI0029

CLINICAL SIGNIFICANCE OF 14–3–3ETA PROTEIN LEVELS IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Background: 14–3–3 η is a protein that is overexpressed in serum and joint fluid of patients with rheumatoid arthritis (RA) and may represent a diagnostic biomarker for RA.

Objectives: We assessed the prevalence and serum levels of 14–3–3 η in patients with RA and with other rheumatic diseases.

Methods: Serum levels of 14–3–3 η were measured in 96 patients with RA, in 101 patients with other rheumatic diseases and in 66 healthy subjects. The RA group consisted of 51 patients with well-established RA who were treated with different DMARDs, and 45 patients with early untreated disease (onset of less than 1 year). The disease control group included 33 patients with systemic lupus erythematosus (SLE), 44 patients with ankylosing spondylitis (AS) and 24 psoriatic arthritis (PsA) patients. All of the sera samples were evaluated by JOINT stat 14–3–3 η ELISA test kits (Augurex Life Sciences Corp.). The cut-off was defined as 0.19 ng/ml.

Results: Median (IQR) 14–3–3 η levels were significantly higher in the early RA group [0.25 ng/ml (0.075–3.11)] and in established RA patients [0.15 ng/ml (0.08–1.26)] in comparison with healthy subjects [0 ng/ml (0–0)] and disease controls: SLE [0.01 ng/ml (0–0.055)], AS [0.05 ng/ml (0–0.255)] and PsA [0.01 ng/ml (0–0.065)].

The prevalence of 14–3–3 η positivity in early RA patients was 58%, significantly higher than in the disease control group (SLE: 9%, $p < 0.001$; AS: 27%, $p < 0.002$, PsA: 12.5%, $p < 0.001$) and in the healthy subjects group (5%, $p < 0.001$). In established-RA patients, this prevalence was 43%, and it was significantly higher than in disease control and healthy subjects groups ($p < 0.05$), excluding the AS group ($p = 0.054$).

Conclusions: The concentration of 14–3–3 η protein may be used to distinguish between patients with early RA and patients with other rheumatic diseases and serve as an additional biomarker in the diagnosis of RA.

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FRI0030

COMPARISON OF CLINICAL AND ULTRASOUND MEASURES OF DISEASE ACTIVITY IN A LARGE NATIONAL 'REAL LIFE' COHORT OF RA PATIENTS

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Background: Several studies have demonstrated that the clinical measures of disease activity, such as the DAS-score and ultrasound (US) scores can sometimes yield discordant results. Little research has attempted to understand the reasons for the discordances and how frequently these discordances occur in real life.

Objectives: The objectives of this study were to determine the percentage of patients presenting discordances between DAS and US assessments in a real-life cohort, to describe associated factors and to evaluate the evolution of both measures of disease activity over time.

Methods: All patients with at least one concomitant US assessment and DAS score, performed since the introduction of validated US scoring in the Swiss registry for inflammatory arthritis SCQM registry between 2009 and 2017 were included. Disease activity was categorised as remission, low, moderate and high activity based on previously established cut-offs (for clinical: DAS categories and for US: on cutoffs of SONAR score established in previous testing among RA patients and asymptomatic subjects^{1,2}). A search for potential clinical and US predictors of discordance was performed. Finally a longitudinal analysis was done in all patients with at least 2 subsequent visits. Discordances were analysed using successively DAS and US categories as references (see table 1)

Results: 1196 out of 2367 assessments were found discordant (50.4%). The proportion discordant assessments did not significantly differ by clinical disease status or when US categories were considered as the reference. Disease activity was equally frequently over-estimated by DAS compared to US-score (26.9%) and by US-score compared to DAS (23.5%). Factors associated with the presence of discordant results were all the components of the DAS when US categories were the reference. The presence of tenosynovitis was a significant factor when DAS was the reference. For 1181 patients with several DAS and US assessments, the proportion of discordances during follow up remained similar to the initial evaluation. Initial discordance/concordances could however change status without obvious reason in up to 30% of cases.

Abstract FRI0030 – Table 1

DAS	Remission (<2.6)	Low/moderate activity (DAS ≥ 2.6 and ≤ 5.2)	High activity (>5.1)	Total
Discordance: n (%)	449/893 (50.3%)	547/1138 (48.1%)	200/341 (58.7%)	1196/2372 (50.4%)
US > DAS n (%)	449/893 (50.3%)	189/1138 (16.6%)	0	638/2369 (26.9%)
US < DAS n (%)	0	358/1138 (31.5%)	200/341 (58.7%)	558/2369 (23.5%)
US	Remission	Low or moderate disease	Very active disease	Total
Discordance:	393/837 (47.0%)	558/1149 (48.6%)	245/386 (63.5%)	1196/2372 (50.4%)
US > DAS n (%)	0	393/1149 (34.2%)	245/386 (63.5%)	638/2372 (26.8%)
US < DAS n (%)	393/837 (47.0%)	165/1149 (14.4%)	0	558/2372 (23.5%)

Conclusions: Discordances between DAS and US assessments appear to be higher than expected in real life. Both outcome measures could lead to over- or under-estimations of the disease activity.

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