Figure 1. The Data tab following the upload of data. Criteria are calculated by the selecting the appropriate checkbox.

Figure 2. A density plot of DAS28 scores grouped by ACR/EULAR 2010 RA classification. Statistical analysis has been performed and shows a significant difference in DAS28 score between the two groups.

Conclusion: The acR/EULAR R package facilitates the easy calculation of ACR/EULAR RA related disease measures for whole patient cohorts. Calculations can be performed either from within R or by using the accompanying web application, which also enables the graphical visualisation of data and the calculation of comparative statistics. We plan to further develop the package by adding additional RA related criteria and by adding ACR/EULAR related measures for other rheumatic disorders.

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AB0211 DIFFERENTIAL INFLUENCE OF CDAI COMPONENTS BASED ON DISEASE STATE IN RHEUMATOID ARTHRITIS PATIENTS: REAL-WORLD RESULTS FROM THE ONTARIO BEST PRACTICES RESEARCH INITIATIVE (OBRI)

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Background: Treat-to-target recommendations for rheumatoid arthritis (RA) dictate that remission or low disease activity should be aimed. Although numerous composite indices are available, the clinical disease activity index (CDAI) is commonly used in routine clinical care due to its simplicity and non-reliance on acute phase reactants.

Objectives: The purpose of this analysis was to evaluate the CDAI properties both cross-sectionally and longitudinally in a cohort of RA patients followed in Canadian routine care.

Methods: RA patients enrolled in the Ontario Best Practices Research Initiative (OBRI), with available follow-up for ≥ 6 months and data on CDAI, disease activity score based on 28 joints (DAS28), health assessment questionnaire (HAQ), and ACR/EULAR Boolean remission were included. For both the CDAI score and its change from baseline to 6 months, construct validity was assessed with principal component analysis, internal consistency with the Cronbach's alpha coefficient (α), correlational validity with the Spearman's rho coefficient, agreement in disease state classification with percent concordant pairs and the kappa statistic. Stratified analysis by presence of CDAI low disease activity (LDA) or remission was performed.

Results: 1,582 patients met the inclusion criteria. Principal component analysis showed that CDAI could be reduced to a single component when CDAI is >10 with SJC28 accounting for most variance in score and patient global assessment (PtGA) the least; whereas, when CDAI is ≤ 10 , two distinct components were identified, the first comprising PtGA and physician global assessment (PhGA) and the second SJC28 and TJC28. In terms of internal consistency, high levels were observed for both CDAI at baseline ($\alpha=0.83$) and its change from baseline to 6 months ($\alpha=0.81$); however, the consistency between CDAI components was very low when CDAI is ≤ 10 ($\alpha=0.23$).

Overall, a strong positive correlation was observed between CDAI and DAS28 ($\rho=0.86$) and their changes ($\rho=0.87$) while its correlation with HAQ was weak. When stratifying by CDAI levels, the correlation of CDAI with DAS28 was moderate when CDAI is ≤ 10 and very weak when CDAI is ≤ 2.8 . Similarly, agreement in the classification of LDA between CDAI and DAS28 or HAQ was fair to moderate, and agreement in classification of remission was poor to fair.

Conclusion: CDAI and DAS28 correlate well when disease activity is moderate or high and poorly in LDA or remission. PtGA had a stronger influence on CDAI at LDA or remission state compared to moderate or high disease state. Thus, careful interpretation of PtGA is necessary particularly in patients who are identified as CDAI non-remitters.

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AB0212 FLARE RISK AFTER DISCONTINUING LONG-TERM METHOTREXATE TREATMENT IN PATIENTS HAVING RHEUMATOID ARTHRITIS WITH LOW DISEASE ACTIVITY

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Background: Several recent studies have reported that MTX could be discontinued in patients with low disease activity who are taking biologic DMARDs or tofacitinib. However, there are limited studies on whether MTX could be discontinued in patients with low disease activity who have taken MTX for a long term.

Objectives: We investigated the disease flare rate in patients with rheumatoid arthritis (RA) who achieved low disease activity following long-term methotrexate (MTX) treatment and the factors related to flare.

Methods: This retrospective longitudinal cohort study included patients with RA and low disease activity who were exposed to MTX for >10 years. Disease flare was defined as an increase in DAS28 of >1.2 within 6 months of discontinuation of MTX. Logistic regression analysis was performed to identify the factors associated with flare.

Results: In total, 97 patients with RA were included in the study. The mean baseline DAS28 was 1.96 ± 0.56 . The median cumulative MTX dose was 11.7g; the median duration of exposure to MTX was 19 years. Following MTX discontinuation, flare occurred in 43 (44.3%) patients; the mean time to flare was 98 ± 37.7 days. According to univariable logistic regression analysis, C-reactive protein, erythrocyte sedimentation rate (ESR) at discontinuation, the average ESR in the 6 months before discontinuation of MTX, a weekly dose of MTX before discontinuation, and use of other conventional synthetic DMARDs were associated with a higher risk of disease flare. In multivariable regression analysis, a weekly dose of MTX before discontinuation (OR, 1.014; 95% CI, 1.014–1.342; $p = 0.031$) was significantly associated with flare risk.

Conclusion: Among patients with RA who achieved low disease activity with long-term treatment with MTX, more than half of the patients remained flare free after MTX discontinuation. A higher MTX dose before discontinuation was associated with a high flare risk.

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AB0213

THE USE OF MUSCULOSKELETAL ULTRASOUND AND PATIENT REPORTED OUTCOMES TO IDENTIFY THE FACTOR TO GIVE RESIDUAL SYMPTOMS AMONG PATIENTS WITH RHEUMATOID ARTHRITIS IN SDAI-REMISSION OR LOW DISEASE ACTIVITY.

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Background: The goal of treatment in rheumatoid arthritis (RA) is to achieve remission. There is the patient with residual symptoms in the Japanese RA patient who achieved clinical remission. There are not many studies to examine the relation between everyday life, social activity and evaluation of disease activities using musculoskeletal ultrasound (MSKUS).

Objectives: To identify the factor to give residual symptoms of RA patients in SDAI-remission (REM) or low disease activity (LDA), using MSKUS.

Methods: 300 patients were enrolled. The synovitis evaluated gray scale (GS) and power doppler (PD) with 22 both hands joints by MSKUS. We evaluated age, sex, the number of tender joint (TJ) and swelling joint (SJ), the serologic characteristics (CRP, ESR, CCP, RF, MMP-3), Patient Reported Outcomes (PROs) (morning stiffness (MS), pain-VAS, fatigue-VAS), HAQ and EQ5D-5L.

Results: (1). Stratified analysis was performed between HAD/MDA group (N=106) and LDA/REM group (N=194). As a result of single variable analysis, many factors were extracted with significant difference. As a result of the multivariate analysis, MTX dose, number of TJ and SJ, MS, fatigue-VAS, HAQ, EQ5D-5L, and GS ≥ 2 were extracted with a dominant difference. (2). For the stratified analysis in GS ≥ 2 , the ratio was low, and the disease duration was short significantly in the LDA/REM group. (3). Next, stratified analysis was performed between Low group (N=95) and REM group (N=99). As a result of single variable analysis, number of TJ and SJ, MTX dose, HAQ, EQ5D-5L, MS, pain-VAS, fatigue-VAS, EGA, GS ≥ 1 , GS ≥ 2 , GS total score, PD ≥ 1 and PD total score were extracted with significant difference. As a result of the multivariate analysis, number of TJ and fatigue-VAS were extracted with a dominant difference.

Conclusion: (1). It became clear that the factor which participated in the achievement with SDAI-remission or low disease activity was enough quantity of MTX dose, use of b/t DMARD, US-GS level, residual symptoms (lassitude - pain joint) to be caused by RA. Particularly, the ratio of GS ≥ 2 was low, and the disease was short. (2). In the LDA patients (who do not achieve clinical remission), they had residual symptoms (fatigue and TJ). (3). In the REM patients, remaining inflammation was not seen in MSKUS. The conclusion is that the induction of remission is important from the viewpoint of not only the prevention of joint destruction but also improvement and maintenance of long-term QoL.

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AB0214

4-YEAR EXPERIENCE OF AN OUTPATIENT CLINIC OF PATIENTS WITH CLINICALLY SUSPECTED ARTHRALGIAS OF EVOLVING TO ARTHRITIS

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Background: Although genetic and serological risk factors have been extensively studied in rheumatoid arthritis (RA), the phase of symptoms without clinical arthritis is poorly characterized.

Objectives: To identify baseline clinical and immunological markers in patients with clinically suspicious arthralgia (CSA) progressing to chronic arthritis.

Methods: Prospective longitudinal study of a cohort of patients with CSA. Patients are followed up for at least 2 years, with clinical and analytical data collection by means of standardized protocols every 6 months. Inclusion criteria were an onset of symptoms ≤ 12 months, inflammatory arthralgias involving small joints of hands or feet (predominantly in nights or mornings, improving throughout the day or with movement, and morning stiffness ≥ 30 min). Patients with clinical synovitis, diagnosis of fibromyalgia or osteoarthritis at baseline visit were excluded from the study.

Results: 45 patients were recruited from November 2015 in our CSA clinics. The majority were women (42 patients), with a mean age at entry of 44 ± 13 years, a mean duration of symptoms before entry of 32.3 ± 15.1 weeks, and a mean follow-up time of follow-up of 17.2 ± 13.3 months. A third (30%) of patients had a family history of autoimmune diseases, 18.6% were seropositive, an average body mass index (BMI) of 27.6 ± 6.6 , and 14 (31.3%) were smokers or ex-smokers. Most patients reported a progression of arthralgia over time (53%) and a joint swelling (57%). Out of 45 patients, 18 (40%) developed clinical arthritis or autoimmune disease (11 RA, 2 undifferentiated arthritis, 3 spondyloarthritis, 2 undifferentiated connective diseases), after 7 ± 8.6 months of follow-up. Among patients with ≥ 6 months follow-up, 47.1% progressed to a clinical arthritis (CA). CA patients had a longer follow-up time (22.4 ± 13.9 vs. 16.8 ± 13 months; $p = 0.015$), and a higher frequency of smoking (60 vs. 21.7%; $p = 0.037$). Likewise, CA patients presented a higher age at baseline, family history of autoimmune disease and higher baseline scores of HAQ, PGA and VAS pain, although without statistical significance (Table 1). In the subset of patients with a final diagnosis of RA, patients presented a significantly longer follow-up, and higher scores of baseline VAS pain compared to non-progressors (Table 2).

Table 1. Baseline characteristics of patients

	Arthritis (N=18)	No arthritis (N=27)	p
Age at onset (years)	48.5 $\pm$ 12.1	41.2 $\pm$ 12.5	0.06
Time of follow-up (months $\pm$ SD)	22.4 $\pm$ 13.9	16.8 $\pm$ 13.0	0.02
FR and / or ACPA (+)	5 (31.3%)	7 (31.8%)	0.70
Smokers / former smokers	9 (60%)	5 (21.7%)	0.04
Familial history of autoimmune disease	5 (27.8%)	4 (15.4%)	0.65
HAQ	6.5 $\pm$ 7.0	3.6 $\pm$ 4.5	0.20
VAS pain	46.6 $\pm$ 35	33.4 $\pm$ 18.5	0.17
PGA	40.2 $\pm$ 30.5	29.6 $\pm$ 23.2	0.28
BMI	24.3 $\pm$ 4.2	27.1 $\pm$ 7.4	0.18
Increased levels of acute phase reactants	31.3%	31.8%	1.00

VAS: visual analogue scale; PGA: patient global assessment; BMI: body mass index

Table 2. Baseline characteristics of patients with RA vs. no arthritis

	RA (N=11)	No arthritis (N=27)	p
Age at onset (years)	48.9 $\pm$ 11.4	41.2 $\pm$ 12.5	0.09
Time of follow-up (months $\pm$ SD)	25.5 $\pm$ 15.6	12.8 $\pm$ 10.9	0.01
FR and / or ACPA (+)	36.4%	16.7%	0.23
Smokers / former smokers	44.4%	21.7%	0.23
Familial history of autoimmune disease	22.2%	17.4%	1.00
HAQ	8.5 $\pm$ 8.1	3.8 $\pm$ 4.5	0.08
VAS pain	58.2 $\pm$ 31.9	33.4 $\pm$ 18.5	0.02
PGA	49.7 $\pm$ 23.7	29.6 $\pm$ 23.2	0.08
BMI	24 $\pm$ 4.9	27.1 $\pm$ 7.4	0.25
Increased levels of acute phase reactants	36.4%	16.7%	0.23

VAS: visual analogue scale; PGA: patient global assessment; BMI: body mass index

Conclusion: In our CSA clinic, 40% of the patients progressed to clinical arthritis, while almost half of those who were followed for more than 6 months progressed.