The time for diagnosis and treatment initiation is statistically shorter in "long term remission" group compared to the "no remission group" (mean of 1.4 months vs 3.4 months; $p=0.042$).

Additionally, global remission (DAS28-CRP <2.6 , HAQ <0.5 and no X-ray progression) was observed in 41.5% of the long term remission group. The majority of these patients (79%) are treated with Methotrexate.

Conclusion: Early and long term remission is an achievable goal in our observational CAP 48 study cohort. Early diagnosis is critical in standard of care. At 6 months, DAS28-CRP and SDAI were the best remission criteria to predict long term remission.

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SAT0077

IMPACT OF THE COMBINED PRESENCE OF EROSIONS AND ACPA ON 6 AND 12 MONTHS CLINICAL OUTCOMES OF RHEUMATOID ARTHRITIS: RESULTS FROM THE METEOR REGISTRY

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Background: Despite efforts to predict treatment response, treatment of rheumatoid arthritis (RA) patients remains mostly a case of trial and error. Presence of erosions and ACPA are often considered poor prognostic factors based on their association with radiographic progression, but with the introduction of treat-to-target ever fewer patients develop significant radiographic damage. Therefore research into prognostic factors should focus on clinical outcomes.

Objectives: To investigate in newly diagnosed RA patients if presence of erosions and/or ACPA are associated with functional ability, disease activity and treatment survival during the first year of treatment in daily practice.

Methods: Newly diagnosed patients with a clinical diagnosis of RA, ≥ 3 months follow-up and available data on ACPA, erosions and medication were identified in the international, observational METEOR registry (n patients=4623). Timing and frequency of follow-up visits were according to daily practice. We focused at results after a maximum follow-up duration of 6 months or of 1 year from baseline. Associations between the presence of erosions and/or ACPA (4 groups) with the change of DAS and HAQ over time were assessed using linear mixed models.

Time to treatment change during the first year of follow-up was compared between the ACPA/erosions groups using multiple failure-times Cox regression. Treatment change was defined as a change in type of treatment. A change in medication dose or tapering was not considered a treatment change.

Missing data were imputed using multiple chained equations (40 cycles) and models were adjusted for the potential confounders age, gender, smoking, symptom duration, BMI, initial medication and country. In case of statistically significant effect modification ($p<0.20$) by country, medication group (csDMARD monotherapy, csDMARD combination therapy, csDMARD + glucocorticoid and other) or symptom duration group (<1 year, 1-2 years, 2-5 years and >5 years), results were stratified.

Results: Baseline characteristics and follow-up duration of each ACPA/erosions group are shown in table 1. Baseline DAS and HAQ were slightly higher in erosions+ patients. Follow-up duration was similar between the 4 groups. We found statistically significant differences in DAS and HAQ change over time between the 4 groups, both after maximum follow-up durations of 6 months and of 1 year (table 1), but differences were small and not clinically relevant.

Patients who were erosions-/ACPA- were less likely to switch treatment [HR (95% CI) 0.79 (0.69; 0.90)] compared to a reference group of erosions-/ACPA+ patients. Patients who were erosions+/ACPA- [HR (95% CI) 0.92 (0.79; 1.08)] or erosions+/ACPA+ [HR (95% CI) 1.01 (0.92; 1.10)] were not statistically significantly different from the reference group in their likelihood to switch treatment. No effect modification was found by country, medication or symptom duration.

Conclusion: In this analysis of worldwide real life data, we found statistically significant, but no clinically relevant differences in treatment response to initial DMARD therapies as measured by DAS and HAQ in ACPA-/erosions-, ACPA-/erosions+, ACPA+/erosions- and ACPA+/erosions+ RA patients. However, ACPA-/erosions- patients were less likely to switch treatment. Thus, in newly diagnosed RA patients who are treated according to modern treatment strategies, the (combined presence of) ACPA and erosions was no risk factor for worse disease activity or physical functioning, although ACPA-/erosions- patients had fewer treatment changes.

Table 1. Baseline characteristics and follow-up duration of each ACPA/erosions group.

	ACPA negative		ACPA positive	
	Erosions negative n=701	Erosions positive n=344	Erosions negative n=1585	Erosions positive n=1993
Female (%)	83.0	83.4	81.4	84.9
RF (% positive)	31.0	33.5	93.0	95.3
Smoking (%)	81.2	88.6	85.3	91.6
	7.3	4.7	9.3	5.2
	11.6	6.7	5.4	3.2
Age (years) mean (SD)	51 (16)	50 (14)	48 (13)	49 (12)
BMI mean (SD)	27.7 (6.0)	27.0 (6.0)	25.9 (5.9)	25.7 (5.7)
Symptom duration (months) median (IQR)	12 (4-36)	36 (12; 72)	18 (6-48)	48 (19; 108)
HAQ mean (SD)	0.98 (0.61)	1.1 (0.6)	0.88 (0.59)	1.1 (0.6)
DAS mean (SD)	3.5 (0.93)	4.0 (1.0)	3.6 (0.97)	4.0 (0.95)
ESR mean (SD)	47.5 (32.8)	60.1 (37.8)	65.5 (36.0)	72.8 (36.0)
Initial treatment (%)	51.8	42.2	55.5	29.1
	csDMARD mono			
	14.3	17.4	17.9	22.6
	csDMARD combi			
	27.5	37.2	23.9	45.1
+ GC				
	6.43	3.2	2.7	3.2
Other				
Follow-up duration (months) median (IQR)	9.2 (6.0; 10.6)	8.8 (6.0; 10.7)	9.0 (6.2; 10.6)	9.3 (6.7; 10.6)

Based on non-imputed data. ACPA = anti-citrullinated protein in antibodies, RF = rheumatoid factor, BMI = body mass index, HAQ = health assessment questionnaire, DAS = disease activity score, ESR = erythrocyte sedimentation rate, mono = monotherapy, combi = combination therapy, GC = glucocorticoid.

Table 2. Associations between the presence of erosions and/or ACPA on the change of DAS and HAQ over time (n=4623).*

	6 months		12 months	
	p-value [†]	p-value [‡]	B(95% CI)	B(95% CI)
Interactions with time				
DAS				
Ero- ACPA-	0.481	0.551	-0.24 (-0.27; -0.22)	-0.11 (-0.12; -0.10)
Ero+ ACPA-	0.001	<0.001	-0.30 (-0.34; -0.26)	-0.14 (-0.16; -0.12)
Ero- ACPA+	Ref	Ref	-0.24 (-0.25; -0.22)	-0.11 (-0.11; -0.099)
Ero+ ACPA+	<0.001	<0.001	-0.30 (-0.32; -0.29)	-0.12 (-0.13; -0.12)
HAQ				
Ero- ACPA-	0.035	0.121	-0.081 (-0.096; -0.065)	-0.034 (-0.040; -0.027)
Ero+ ACPA-	0.072	0.034	-0.084 (-0.10; -0.064)	-0.038 (-0.047; -0.029)
Ero- ACPA+	Ref	Ref	-0.062 (-0.072; -0.053)	-0.027 (-0.031; -0.023)
Ero+ ACPA+	<0.001	0.047	-0.086 (-0.095; -0.078)	-0.033 (-0.037; -0.029)

*Results stem from multivariable linear mixed models analyses with random intercept and slope and exchangeable covariance matrix, adjusted for age, gender, smoking, symptom duration, BMI, initial medication and country. Regression coefficients represent the units of change in the outcome per unit of time, in this case, per month. Missing data were imputed using multiple chained equations (40 cycles).

[†]P-values are only shown for the interaction between erosions/ACPA and time in months. In the presence of a statistically significant interaction, results are stratified by gender and the evolution of DAS and HAQ over time is shown for the erosions/ACPA groups separately.

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SAT0078

MAJOR CHANGES IN THERAPY PRODUCE SIGNIFICANT CLINICAL IMPROVEMENT ACROSS A BROAD RANGE OF CLINICAL DISEASE ACTIVITY IN US VETERANS WITH RHEUMATOID ARTHRITIS

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Background: Our recent work showed that 41% of patients with moderate/severe rheumatoid arthritis (RA) by Disease Activity Score for 28 joint count (DAS28) did not have changes in RA therapy as recommended by current guidelines (1). Reasons identified for the decision not to escalate therapy was provider's opinion that RA disease was adequately controlled despite moderate/severe disease activity by DAS28, and that changes in therapy may not produce significant improvements in disease activity (1).

Objectives: 1) Compare short-term differences in ACR20 response between patients with and without a major therapeutic change (MTC) over a range of disease activity; 2) Determine whether ACR20 responses vary by disease activity measures (DAMs) used to assess disease activity (i.e., DAS28, Clinical Disease Activity Index [CDAI], Routine Assessment of Patient Index Data 3 [RAPID3]).

Methods: Each clinic visit for US Veterans enrolled in the VA Rheumatoid Arthritis (VARA) registry was evaluated if the visit had: 1) a complete set of DAMs (DAS28, CDAI, RAPID3) recorded; 2) two other visits with all DAMs during the preceding 18 months separated by at least 60 days and one visit with all DAMs between 60 and 180 days following the visit date; 3) clinical data available for 18 months prior to visit date; and 4) ≥ 6 tender and ≥ 6 swollen joints at visit date. Each patient was assessed for MTC within 1 week before and 30 days after visit date. MTC was defined as any of the following: 1) initiation of new biologic or nonbiologic disease-modifying antirheumatic drug (DMARD) or prednisone (as new agent or after 90-day gap during baseline); 2) escalation of DMARD dose by $\geq 25\%$; or 3) increase in monthly average prednisone dose by 25%; and/or 4) injection of 2 or more joints with corticosteroids. Clinical improvement was defined as an ACR20 response comparing each eligible visit DAM to the first follow-up visit DAM observed between 60 and 180 days of the eligible visit date. ACR20 response was compared between eligible visits with and without a MTC and stratified by quartiles of disease activity by each DAM. The Generalized Estimating Equations (GEE) model was fitted using the exchangeable working covariance structure to account for clustering of visits within patients. Models for each DAM were adjusted for age, disease duration, race, seropositive status, comorbidities, disease stability, and recent medication changes in the observations period prior to the visit date.

Results: There were 383 patients (92% were male, mean age was 62.9 years, mean disease duration was 12.5 years, 83% tested positive for rheumatoid factor, and 79% positive for anti-cyclic citrullinated peptide antibodies) who contributed 1,193 eligible visits. Visits with a MTC had a higher rate of ACR20 response in comparison to visits without a MTC at all levels of disease activity. A MTC at a visit with the highest disease activity (quartile 4) consistently had the largest proportion of follow-up visits with an ACR20 response. The overall effect for MTC was statistically significant across all 3 DAMs. Across quartiles, the MTC group consistently had a higher proportion of follow-up visits with ACR20 response compared to the group without a MTC. Risk Ratios from the adjusted analysis are presented in the table.

Conclusion: All patients with active RA have a significant potential to benefit with a MTC. This potential for improvement was seen across all degrees of disease activity and with all three DAMs.

ACR 20 response with or without major therapeutic change (MTC)			
DAMs, quartiles (Q)	With MTC	Without MTC	Risk Ratio
DAS28			
Overall effect	34% (29%, 39%)	22% (18%, 28%)	1.52 (1.23, 1.88)
Q1: 2.35–4.87	25% (17%, 33%)	15% (10%, 22%)	1.60 (0.98, 2.54)
Q2: 4.88–5.60	33% (24%, 43%)	20% (14%, 28%)	1.65 (1.07, 2.56)
Q3: 5.61–6.29	30% (23%, 39%)	23% (16%, 30%)	1.31 (0.89, 1.95)
Q4: 6.30–8.76	47% (40%, 57%)	30% (22%, 41%)	1.55 (1.12, 2.38)
CDAI			
Overall effect	35% (31%, 40%)	23% (19%, 31%)	1.52 (1.19, 1.89)
Q1: 14.7–26.6	31% (22%, 41%)	15% (10%, 21%)	2.10 (1.28, 3.35)
Q2: 26.7–32.9	27% (20%, 35%)	21% (15%, 31%)	1.25 (0.84, 1.95)
Q3: 33.0–41.7	41% (33%, 49%)	30% (23%, 39%)	1.34 (1.02, 1.87)
Q4: 41.9–71.0	42% (34%, 52%)	26% (18%, 39%)	1.60 (1.10, 2.52)
RAPID3			
Overall effect	34% (29%, 38%)	21% (17%, 26%)	1.59 (1.28, 2.00)
Q1: 0.33–3.61	22% (14%, 31%)	18% (12%, 25%)	1.23 (0.69, 1.91)
Q2: 3.62–4.99	39% (31%, 49%)	21% (15%, 28%)	1.86 (1.32, 2.70)
Q3: 5.00–6.28	31% (23%, 39%)	20% (13%, 29%)	1.53 (0.92, 2.46)
Q4: 6.31–9.55	42% (35%, 51%)	25% (17%, 34%)	1.68 (1.19, 2.62)

Data presented with 95% confidence intervals

REFERENCE

- 1] Stever, et al. Utility of administrative and clinical data to predict major change in medical treatment in US Veterans enrolled in the Veterans Affairs Rheumatoid Arthritis (VARA) registry. Clin Exp Rheumatol; 2018 Epub ahead of print.

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SAT0079

PREDICTING PATIENTS WITH HIGH PAIN & PSYCHOLOGICAL SYMPTOMS (P&PS) IN EARLY RHEUMATOID ARTHRITIS USING LATENT CLASS ANALYSIS. RESULTS FROM THE TACERA, A LONGITUDINAL COHORT

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Background: Despite advances in the treatment of rheumatoid arthritis (RA), pain and psychological symptoms remain a burden for many patients. The precise relationship between inflammation and patient reported symptoms, such as pain, fatigue and mental health in the disease is unclear. However, evidence suggests that over time there may be discordance between inflammation and patient reported outcomes, such that some patients with low inflammation will experience persistent symptoms. It is hypothesised that three distinct patient sub-groups exist; low inflammation/low symptoms, low inflammation/high symptoms, and high inflammation/high symptoms.

Objectives: To identify sub-groups of patients with respect to inflammatory markers and levels of P&PS over time.

Methods: Demographic, clinical and laboratory data were recorded at baseline (pre-treatment), 6, 12, and 18-months from 239 early RA patients recruited to the Towards A Cure for Early Rheumatoid Arthritis (TACERA) cohort. Individual components of the DAS28 (tender joints, swollen joints, ESR, CRP and patient global) at post-treatment assessments, along with patient reported visual analogue scales for pain, fatigue and the SF-36 Mental Component Score (MCS) were used to identify sub-groups using longitudinal latent class analysis (LCA). Logistic regression models identified variables associated with class membership at 6, 12 and 18-months follow-up.

Results: LCA indicated two rather than the hypothesised three sub-groups; low inflammation/low symptoms and low inflammation/high symptoms. This was likely because ESR and CRP were well controlled by 6-months and maintained by 18-months for the majority of individuals. There were 86 (36%) 59 (35%) and 41 (39%) classified as having high symptoms at 6, 12 and 18-months. 78% of patients initially in the low symptom group remained in the low symptom group between 6 and 18-