Methods: DMARDs-naïve patients with early (<12 months) RA (n=97) and patients with established RA failing synthetic DMARDs and candidate to biologic treatment (n=27) underwent ultrasound-guided synovial biopsy. Sections of paraffin embedded synovial tissue were stained with H and E to measure the degree of synovitis (Krenn Score). Sequentially cut sections were stained by immunohistochemistry to evaluate the presence of immune cells, including CD117 (c-kit) positive mast cells. Upon SQ scoring (0–4), patients were stratified into synovial pathotypes (Lymphoid, Fibroid, and Myeloid), as previously described

Results: In the cohort of DMARDs-naïve early RA (mean disease duration 6 months), MC+ve patients (67.7%) had significantly higher synovial inflammation (Krenn score), higher prevalence of the lymphoid pathotype, higher inflammatory markers and disease activity; however, they did not differ in terms of response to sDMARDs at 6 months (table 1, left). In established RA (mean disease duration 5 years), MC+ve patients (48.1%) had significantly higher synovial inflammatory scores and higher prevalence of the lymphoid pathotype, while systemic inflammatory markers or disease activity scores were not different. At 6 months follow-up, MC+ve patients had significantly higher rates of response to anti-TNF α (table 2, right).

Abstract SAT0076 – Table 1

	Early RA				Established RA			
	All (n=99)	MC- (n=32)	MC+ (n=67)	P value*	All (n=27)	MC- (n=14)	MC+ (n=13)	P value*
Disease duration, months (SD)	6 (3)	5 (3)	6 (3)	0.664	62.6 (56.2)	68.5 (62.1)	56.3 (50.77)	0.616
ESR, mean (SD)	38 (30)	28 (24)	44 (31)	0.008	33 (26)	31 (31)	36 (22)	0.231
CRP, mean (SD)	17 (25)	8 (14)	21 (29)	0.007	11 (23)	13 (32)	10 (5)	0.025
ACPA+, %	75.8%	75%	76.1%	0.839	63%	64.3%	61.5%	0.883
DAS28, mean (SD)	5.65 (1.41)	5.55 (1.41)	5.95 (1.00)	0.405	6.53 (0.88)	6.54 (0.94)	6.52 (0.86)	0.905
Lymphoid pathotype, %	45.9%	9.4%	63.6%	<0.001	53.8%	30.8%	76.9%	0.018
High synovitis, %	48.4%	12%	62.1%	<0.001	46.2%	23.1%	69.2%	0.018
6 months DAS28, mean (SD)	3.48 (1.95)	3.13 (1.79)	3.67 (2.02)	0.248	3.87 (1.3)	4.44 (1.23)	2.89 (0.71)	0.004
6 months DAS28<3.2, %	52.4%	62.1%	47.2%	0.196	36.8%	8.3%	85.7%	0.001

*Mann-Whitney or Chi square as appropriate

Conclusions: We here show that early RA patients with MC+ve synovitis and high levels of local and systemic inflammation do not respond differently to synthetic DMARDs. In the context of established RA after sDMARDs failure, patients with MC+ve synovitis, despite having similar levels of systemic inflammatory markers and disease activity, had higher chances of responding to anti-TNF- α . Although the latter observation will need validation on larger cohorts, our data suggests that the analysis of synovial MCs might help defining synovial histopathology and possibly contribute to the prediction of treatment response.

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SAT0077 CHANGE IN FREQUENCY OF ARTHROPLASTY SURGERY IN RHEUMATOID ARTHRITIS: A 13 YEAR POPULATION HEALTH STUDY

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Background: Improvement in the medical management of rheumatoid arthritis (RA) over the past two decades may have reduced the need for arthroplasty surgery but the literature to date has reported inconsistent findings.

Objectives: To compare the annual frequency of hip, knee and other arthroplasty surgery in a prevalent cohort of RA cases and matched controls over 13 years.

Methods: A retrospective cohort study was performed utilising administrative healthcare data from approximately 1 million people with access to universal

healthcare between 1997 and 2010. RA cases were identified using a previously validated RA case definition in the same dataset.¹ Each case was matched by age and sex to 4 randomly selected controls. The annual frequency of arthroplasties in cases and controls was compared. In addition the frequency of coronary artery interventions (bypass grafting, angioplasty and stenting) was compared. Data included physician billings, hospital discharges and patient registry information using ICD-9 and ICD-10. Statistical analysis used least squares regression t-tests and 2-proportion z-tests.

Results: The number (prevalence) of RA cases increased from 3913 (0.42%) to 4911 (0.52%) over the study. The mean (SD) age changed from 56.7 (15.9) to 60.1 (14.9) years and the proportion of females from 70.8% to 73.9%. In both the first and last years of the study the frequency of all arthroplasty procedures was higher in cases than controls (p<0.001) (Table). Over time there was a gradual and significant reduction in arthroplasty surgery in RA cases by 51.9% (p<0.001). This was in contrast to controls in whom the frequency of procedures increased by 31.9% (p=0.002) with the exception of hip arthroplasty. For the latter procedure, the frequency decreased by 63% in RA cases (p<0.001) and 35% in controls (p=0.617). In contrast to arthroplasty procedures the frequency of cardiac procedures, which were higher in RA cases in both the first (p=0.013) and final (p=0.003) years of observation, increased in both cases and controls over time although did not reach statistical significance in either.

Abstract SAT0077 – Table 1. Demographics and surgical procedures in RA patients and controls

Demographics	1997		2010	
	RA cases	Controls	RA cases	Controls
Age (SD) in years	56.7 (15.9)	56.7 (15.9)	60.1 (14.9)	60.1 (14.9)
Female (%)	70.8	70.8	73.9	73.9
% population undergoing procedure in 1997		% population undergoing procedure in 2010		
Surgical procedures		RA cases		Controls
Total arthroplasties	4.78	0.47	2.30	0.62
Hip arthroplasty	1.43	0.20	0.53	0.13
Knee arthroplasty	1.74	0.13	0.81	0.27
Other arthroplasty	1.76	0.13	0.98	0.22
Cardiac procedures	0.36	0.16	0.57	0.29

Conclusions: There was a striking reduction in arthroplasty surgery in RA cases over 13 years of observation. Lack of similar changes in controls and sustained rates of cardiac procedures over the same time suggests that this was not due to limited surgical access for RA patients. Improvement in medical treatment of RA is likely responsible.

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SAT0078 WHICH CDMAID STRATEGY IS MOST EFFECTIVE IN NEWLY DIAGNOSED SERONEGATIVE RHEUMATOID ARTHRITIS PATIENTS; POST-HOC ANALYSIS OF THE TREACH STUDY

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Background: The disease spectrum of rheumatoid arthritis (RA) is heterogeneous. Literature suggests that these different disease subsets could be treated differently, with less aggressive treatment for rheumatoid factor and anti-citrullinated protein antibody negative RA patients ("seronegative RA"). Current treatment guidelines, however, do not take this into account since evidence is lacking. Especially, data about standardised treatment strategies in seronegative patients are needed.

Objectives: To compare 1 year clinical efficacy of 4 different initial treatment strategies in newly diagnosed, seronegative RA patients, according to the 2010 criteria.

Methods: For this post-hoc analysis data of the tREACH trial (stratified, single-blinded, randomised clinical trial) were used. Eligible patients, for the tREACH, were stratified into 3 probability tertiles (low, intermediate and high) according to their likelihood of progressing to persistent arthritis based upon the prediction model of Visser. For this analysis we selected all seronegative RA patients, of whom respectively 81% and 19% were in the intermediate and high stratum. Patients received 1 of the following 4 initial treatment strategies, which were

based upon the tREACH randomization within each stratum (figure 1): [A] triple DMARD combination therapy (MTX 25 mg/wk.+SASP 2 gr/day+HCQ 400 mg/day+GCs (intramuscular or an oral tapering scheme, starting with 15 mg/day), [B] MTX 25 mg/wk.+GCs orally starting with 15 mg/day, [C] HCQ 400 mg/day and [D] GCs orally starting with 15 mg/day. Treatment strategies were 'tightly controlled', with patients being examined every 3 months. Treatment decisions were based upon the original Disease Activity Score (DAS) threshold for low disease activity (DAS <2.4). Primary outcomes were DAS and functional ability, measured with the Health Assessment Questionnaire (HAQ), over time, using a linear mixed model (LMM). In our final model we corrected for baseline DAS and HAQ and visser score, which is a confounder by indication on forehead.

Results: 162 patients were grouped into treatment arms A (n=17), B (n=64), C (n=40) or D (n=41). Patients were mostly female (67%) with an average symptom duration of 161 days (95% CI: 146–175). At baseline the average visser score was 4 out of 13 (IQR 4–5). The difference in visser score was mainly due to the difference in erosions (figure 1A). Figure 1B and C show the DAS and HAQ over time per treatment arm. Our corrected LMM showed that there was no significant difference between treatment arms for DAS over time. After 3 months 56%, 38%, 35% and 69% respectively treated with A, B, C and D had an active disease (DAS ≥ 2.4), and thus needed a treatment intensification (P.003 for C versus D). However, after 1 year there was no difference between DAS over all treatment arms. HAQ over time did differ between treatment arms. Patients who received HCQ showed a better functional ability over time compared to patients receiving 1 of the other treatments (C versus respectively B ($\beta = -0.18$, p.0.000), D ($\beta = -0.14$, p.0.004) and A ($\beta = -0.17$, p.0.016)).

Abstract SAT0078 – Figure 1. (A) Baseline characteristics and clinical response after 12 months for each induction therapy group, according to intention-to-treat. (B) Mean DAS over time per treatment arm. (C) Mean HAQ over time per treatment arm. ^a Not everyone filled out a (complete) questionnaire and therefore n is different for HAQ. MTX 25 mg/wk, SASP 2 gr/day, HCQ 400 mg/day, GCs intramuscular or an oral tapering scheme starting with 15 mg/day for treatment A and only oral for treatment B+D. * P.0.011 for C versus D. Abbreviations: DAS, Disease Activity Score; GCs, glucocorticoids; HAQ, Health Assessment Questionnaire; HCQ, hydroxychloroquine; MTX, methotrexate; RA, rheumatoid arthritis; SASP, sulfasalazine

Conclusions: This research supports current hypothesis that seronegative RA patients can be treated with less aggressive treatment with similar efficacy.

Disclosure of Interest: None declared

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SAT0079 TREATMENT EXPECTATIONS INFLUENCE BOTH SUBJECTIVE AND OBJECTIVE OUTCOME PARAMETERS IN PATIENTS WITH RHEUMATOID ARTHRITIS- A PROSPECTIVE COHORT STUDY

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Background: The prediction of individual response to treatment in rheumatoid arthritis (RA) is challenging and often limited. Here we evaluate the influence of patients' expectations and attitudes towards newly initiated disease-modifying anti-rheumatic drugs (DMARDs) on clinical outcome in RA.

Methods: 100 patients (74 female) with RA according to 2010 ACR/EULAR classification criteria with upcoming change in DMARD treatment were included. Patients' treatment beliefs, health related quality of life, treatment expectations, and pain-related cognitions were measured using the *beliefs about medicines*

questionnaire (BMQ), the SF-36, the *questionnaire about patient expectation* (PE), and the *pain-related self-statement scale* (PRSS), respectively before treatment initiation (T0) and their DAS28-CRP was calculated at T0 and after 4 months (T4). Associations between patients' beliefs, expectations and their attitude according to the questionnaires and changes in DAS28-CRP between T0 and T4 were explored by regression analyses using the Akaike information criterion.

Results: Regression analyses revealed that 42.2% of all variability in treatment response measured as a decline in DAS28-CRP (Δ DAS28) could be explained by expectations, psychological factors and laboratory parameters assessed with the applied questionnaires. Among these we identified the expected *improvement rate* with 23.4% as well as the patients' *fear of side effects* with 22.0% as the main predictors of Δ DAS28. The CRP-value at T0 accounted with 15% to the variability in Δ DAS28. Other highly influential factors were PRSS *catastrophizing* scale (10.7%), the BMQ *concern* scale (8.1%), other BMQ scales (7.9%) and medications' route of administration (8.0%).

Conclusions: The present study indicates a high impact of patients' expectations and their attitude towards new therapies on clinical response effecting both objective and subjective outcome parameters. Integration of individual patient's preferences and their expectations in treatment decisions and management can significantly increase treatment response.

Disclosure of Interest: None declared

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SAT0080 SECULAR TRENDS PRIOR TO-AND AFTER DISSEMINATION OF BEST PRACTICE RECOMMENDATIONS SHOWED EARLIER INTENSIFIED MEDICATION STRATEGIES AND IMPROVED OUTCOMES IN CANADIANS WITH EARLY INFLAMMATORY ARTHRITIS

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Background: International and local best-practice recommendations released in 2010–11 aimed to improve outcomes in early RA via earlier diagnosis and a treat-to-target approach. These should be associated with improved outcomes.

Objectives: To examine secular trends in patient characteristics and treatment strategies at RA diagnosis and disease activity outcomes in the 1st year of follow-up comparing earlier (2007–2010) and later (2011–2016) time periods, prior to and following dissemination of 2011 guidelines in a large Canadian early inflammatory arthritis (EIA) cohort of RA patients.

Methods: Data were from patients with early classifiable (87%) or probable (13%) RA (<1 year of symptoms) enrolled each year in an ongoing prospective multi-centre cohort study between 2007–2016 with ≥12 M follow-up undergoing 3-monthly visits including clinical assessments, questionnaires, and laboratory tests in the 1st year. Treatment was decided by their rheumatologist. These were cohort investigators who met annually to discuss means to improve outcomes. Descriptive statistics compared patient characteristics, early treatment strategies with conventional synthetic(cs) and biologic(b) DMARDs and disease activity (DAS28) outcomes. Differences in DAS28 targets achieved per time period were compared using Chi-Squares and medication doses by Cochrane Hermitage trend tests.

Results: Of 2227 patients enrolled in CATCH (Canadian Early Arthritis Cohort), symptom duration was 6 (3) months. There was a slight increase in number recruited, education and income and slight decrease in baseline symptom duration from early to later time periods. Baseline smoking, obesity rates, comorbidities, positive serology, inflammatory markers and joint counts did not differ significantly between time periods. Baseline erosions were less frequent (17% vs. 24%, p<0.0001) and mean symptom duration decreased slightly (5.6 vs. 5.9 months, p=0.018) in earlier vs later periods. Most (87%) entered in moderate or high disease activity (MDA or HDA);disease activity at 3, 6 and 12 M markedly improved over calendar time (figure 1). Respective DAS28 REM/LDA rates at 12 M from early to late periods significantly increased (p<0.01), 20% (p<0.001)used higher doses of MTX (≥20 mg); and more used subcutaneous (sc) MTX, MTX combo therapies sooner and more rapidly escalation to bDMARDs all p's<0.05).