(ACPA+ve vs ACPA-ve vs PsA) and pathotypes (fibroid, myeloid and lymphoid) (table1) we demonstrated a significantly higher prevalence of a lymphoid pathotype in ACPA+ve RA vs ACPA-ve or PsA.

	RA aCPA + N90 Ungraded	RA aCPA- N55 Ungraded	PsA N41 Ungraded	P value fisher test	P value aCPA+vs aCPA-	P value aCPA+vs PsA	P value aCPA- vs PsA
F	15 (16%)	17 (31%)	15 (36%)	0.01*	0.03*	0.005*	0.41
M	25 (28%)	14 (25%)	11 (27%)				
L	41 (45%)	12 (22%)	10 (24%)

Conclusions: Our results suggest that the synovial cell infiltrate (B cells, T cells, macrophages and plasma cells) in ACPA-ve RA is significantly different from ACPA+ve patients. They also suggest shared pathophysiological mechanisms between PsA and ACPA-ve RA and support a role for future refinement of diagnosis of ACPA-ve RA according to synovial pathobiology.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.3489

OP0041

DOES TREATMENT STRATEGY INFLUENCE THE ABILITY TO ACHIEVE AND SUSTAIN DMARD-FREE REMISSION IN RA?; RESULTS OF A LONGITUDINAL STUDY COMPARING AN INTENSIVE DAS-STEERED TREATMENT STRATEGY WITH TREAT-TO-TARGET IN ROUTINE CARE

L.E. Burgers¹, J.A. van der Pol², T.W.J. Huizinga¹, C.F. Allaart¹, A.H.M. van der Helm-van Mil¹. ¹Rheumatology; ²Leiden University Medical Centre, Leiden, Netherlands

Background: Disease-modifying anti-rheumatic drug (DMARD)-free remission is an achievable outcome in rheumatoid arthritis (RA). The influence of treatment strategy on the ability to achieve and sustain this outcome is unclear. Therefore, we compared the prevalence and sustenance of DMARD-free remission in RA-patients treated in a trial with intensive DAS-steered care aimed at DMARD-free remission versus RA-patients treated to target in routine care.

Methods: 279 consecutive RA-patients (2010-criteria), diagnosed in the Leiden University Medical Centre between March 2007-September 2010, were studied. Of these, 155 participated in a DAS <1.6 steered trial aimed at DMARD-free remission (IMPROVED-study). These patients were initially treated with high-dose prednisone (60 mg/day) and methotrexate. Medication was intensified in case of a DAS ≥1.6 and tapered in case of a DAS <1.6. The other 124 RA-patients were treated according to routine care, consisting of initial methotrexate and subsequent DAS <2.4 steered treatment. The median follow-up was 7.8 years. Medical records were studied on achieving DMARD-free remission, defined as the absence of synovitis for ≥1 year after DMARD-cessation, and 'late flares', defined as recurrence of clinical synovitis ≥1 year after DMARD-cessation. Sustained DMARD-free remission was defined as the sustained absence of clinical synovitis after DMARD-cessation for ≥1 year and the total follow-up duration; i.e. patients with a late flare were not in this group. Percentages of remission and late flares were compared between the two treatment strategies, in all patients and after stratification by ACPA.

Results: Patients receiving intensive treatment were more often ACPA-positive (59% vs 40%). DMARD-free remission was achieved by 35% of patients receiving intensive treatment and by 29% of patients receiving routine care (HR 1.2, 95% CI: 0.8 to 1.8). Within the ACPA-positive and ACPA-negative strata patient characteristics were similar, except for a younger age in patients receiving intensive treatment. Within ACPA-positive patients, DMARD-free remission was achieved more often in the intensive treatment group than in the routine care group (25% vs 6%, HR 4.9, 95% CI: 1.4 to 17, corrected for age). In ACPA-negative patients no differences were observed (49% vs 44%, HR 1.1, 95% CI: 0.6 to

1.8, corrected for age). A late flare occurred in 20% of patients receiving intensive treatment and in 8% of patients receiving routine care (HR 2.3, 95% CI: 0.6 to 8.3). After excluding late flares from the remission group, the prevalence of DMARD-free sustained remission was not different for both treatment strategies in the total group (28% vs 27%, HR 1.0, 95% CI: 0.6 to 1.5). Also in the ACPA-positive group no significant effect remained (17% vs 6%, HR 3.1, 95% CI: 0.9 to 11, corrected for age).

Conclusions: An intensive treatment strategy was not associated with a higher prevalence of DMARD-free sustained remission compared to up-to-date routine treatment. Within ACPA-positive RA, intensive treatment resulted in more remission but also in more late flares. Together these data do not provide evidence to prioritise the studied intensive treatment strategy above current routine care.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.4698

OP0042

IN ACPA POSITIVE AT-RISK INDIVIDUALS, WHICH MRI AND US FINDINGS BEST PREDICT DEVELOPMENT OF CLINICAL SYNOVITIS?

L. Hunt, J. Nam, E.M. Hensor, K. Mankia, E. Rowbotham, A.J. Grainger, P. Emery. Leeds Institute of Rheumatic and Musculoskeletal Medicine and NIHR Leeds Biomedical Research Centre, LTH, Leeds, UK

Background: ACPA + individuals with non-specific MSK symptoms are at risk of inflammatory arthritis (IA) and may benefit from early intervention. Clinical, serological and US markers have previously been assessed to determine risk of progression.¹

Objectives: Evaluate the value of MR and US imaging in characterising and quantifying risk in a large ACPA + cohort.

Methods: Eligible ACPA + individuals without clinical synovitis had gadolinium enhanced 3.0 T MRI of the dominant hand and wrist. Images were scored by 2 radiologists for synovitis, bone marrow oedema (BME), erosions and tenosynovitis (TSV) according to OMERACT RAMRIS. Joint counts for each abnormality at each joint were corrected for age using a healthy controls reference range.² US of the same regions were scored using OMERACT definitions. Maximum MRI and US abnormality scores observed per patient across all joints scored were dichotomised <2, ≥2. Potential associations between baseline US (greyscale (GS) and powerDoppler (PD)) and MRI findings and i) progression to IA and ii) development of clinical synovitis within a joint were identified using Cox and penalised regression.

Results: Imaging of 98 individuals (mean age 47, 69% female) was available. 30% (29/98) progressed to IA. Median time to progression was 31 weeks (IQR 24, 67). BME and erosions scores ≥2 were reported in 10%, preferential location to the carpal bones/wrist joints. Synovitis score ≥2 was present in 9%, preferential location at MCP5 and radial carpal/intercarpal joints. TSV was the most frequent reported abnormality with 22% scoring ≥2, 40% scoring 1. US GS and PD scores ≥2 were reported in 23% and 9% respectively. The unadjusted analysis HRs for all imaging abnormalities were high, indicating potential association with risk of progression. Controlling for variables, MRI TSV was associated with time to IA with an increased HR. US GS and PD were also independently associated with time to progression and confirmed on penalised regression, table 1. At the joint level MRI TSV, BME and US GS were associated with the risk of progression to clinical synovitis, HR=7.03 p<0.001, HR 4.22 p=0.076 and HR 8.04 p<0.001 respectively.

Abstract OP0042 – Table 1. Patient-level Cox regression proportional hazard modelling of associations between maximum observed score per patient for baseline MRI abnormalities and time to IA (n=95)

Abnormality	No IA% (n=66)	IA% (n=29)	Unadjusted HR (90% CI), P value	Adjusted HR (90% CI), P value	Penalised HR
Small joint tenderness	44(29)	55(16)	1.60 (0.87,2.97), p=0.207	1.20 (0.58,2.46), p=0.679	1
RF and/or ACPA>3ULN	83(55)	93(27)	2.14 (0.64,7.16), p=0.301	1.02 (0.27,3.80), p=0.981	1
EMS≥30 min	27(18)	45(13)	2.00 (1.08,3.71), p=0.064	1.52 (0.69,3.37), p=0.384	1
US PD≥2	2 (1)	28(8)	7.21 (3.62,14.36), p<0.001	5.09 (1.93,13.44), p=0.006	4.37
US GS≥2	11(7)	52(15)	4.97 (2.69,9.19), p<0.001	2.69 (1.14,6.34), p=0.059	2.17
MRI erosion≥2	6 (4)	17(5)	2.15 (0.96,4.82), p=0.120	0.59 (0.20,1.76), p=0.431	1
MRI BME≥2	8 (5)	17(5)	2.30 (1.01,5.23), p=0.097	1.55 (0.56,4.27), p=0.482	1
MRI synovitis≥2	3 (2)	24(7)	4.22 (2.03,8.75), p=0.001	1.08 (0.46,2.54), p=0.881	1
MRI TSV≥2	14(9)	41(12)	3.51 (1.89,6.55), p=0.001	4.02 (1.91,8.44), p=0.002	3.16

Conclusions: ACPA +at risk individuals have features on imaging which assists prediction of development to IA. MRI TSV provides additional predictive ability over and above the clinical and US variables.

REFERENCES:

- [1] Rakieh C. 2014.
- [2] Mangnus L. 2016.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.2397

OP0043 PREDICTORS OF DRUG-FREE REMISSION IN RHEUMATOID ARTHRITIS: RESULTS FROM THE PROSPECTIVE BIOMARKERS OF REMISSION IN RHEUMATOID ARTHRITIS(BIORRA) STUDY

K.E. Baker, A. Skelton, D. Lendrem, B. Thompson, A.G. Pratt, J.D. Isaacs. *Musculoskeletal Research Group, Newcastle NIHR Biomedical Research Centre, Newcastle University and Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK*

Background: Remission is now a realistic and achievable target for many patients with rheumatoid arthritis (RA) using disease-modifying anti-rheumatic drugs (DMARDs) prescribed in modern treat-to-target regimens. However, DMARDs carry risks of potentially serious adverse effects, and require regular and expensive blood monitoring. Recent studies suggest that half of patients with RA in remission can discontinue DMARDs without a flare of arthritis activity, though this cannot currently be reliably predicted.

Abstract OP0043 – Table 1

Demographic	Value
Satisfied 2010 ACR/EULAR classification criteria: n (%)	44 (100%)
Age: median (IQR) [range]	66.5 (54.5–71.3) [35 – 82]
Female: n (%)	23 (52%)
Years since RA diagnosis: median (IQR) [range]	5.5 (3–11) [1–40]
Seropositive (rheumatoid factor and/or anti-citrullinated peptide antibody): n (%)	32 (73%)
Current methotrexate use: n (%)	38 (86%)
Baseline DAS28-CRP: median (IQR) [range]	1.07 (0.99–1.63) [0.96–2.34]
ACR/EULAR Boolean remission: n (%)	29 (66%)
Presence of joint erosion on baseline 7-joint ultrasound scan: n (%)	29 (70%)

Objectives: To identify baseline biomarkers that can predict sustained drug-free remission (DFR) versus arthritis flare following DMARD cessation.

Methods: Patients with established RA satisfying clinical (disease activity in 28 joints with CRP [DAS28-CRP] < 2.4) and ultrasound (absence of power Doppler synovitis on a blinded 7-joint scan) remission criteria discontinued conventional synthetic DMARDs (methotrexate, sulfasalazine, and/or hydroxychloroquine) and

were monitored for 6 months. The primary outcome was time-to-flare, defined as DAS28-CRP ≥ 2.4. Baseline clinical and ultrasound parameters (synovial/tenosynovial greyscale and joint erosions), circulating levels of 26 cytokines/chemokines, and gene expression by peripheral CD4 + T cells (RNA sequencing) were assessed for their ability to predict time-to-flare and flare/DFR status by multivariate Cox regression and receiver-operating characteristic (ROC) analysis.

Results: 44 patients were eligible for DMARD cessation (table 1); 23 (52%) experienced an arthritis flare at a median (IQR) of 48 (31.5–86.5) days. A composite score incorporating five variables (three genes [currently subject to patent application], one cytokine [IL-27], and one clinical [ACR/EULAR Boolean remission]) differentiated future flare and DFR with an area under the ROC curve of 0.96 (95% CI: 0.92 to 1.00), sensitivity 0.91 (0.78–1.00) and specificity 0.95 (0.84–1.00) (figure 1).

Conclusions: Our study provides proof-of-concept evidence for the existence of biomarkers of DFR in RA. If validated in an external cohort, these biomarkers may hold promise in guiding DMARD withdrawal, with consequent minimisation of medication adverse events and healthcare costs.

Acknowledgements: KB was supported by the Wellcome Trust [102595/Z/13/A] and the NIHR Newcastle Biomedical Research Centre [BH136167/PD0045]. A patent application is currently in process regarding the gene expression biomarkers, the identity of which will subsequently be disclosed.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.2775

OP0044 AFTER HOW LONG OF DISEASE DURATION DOES THE INCREASED MORTALITY RISK APPEAR IN RECENT ONSET RHEUMATOID ARTHRITIS?

J. Widdifield¹, S. Bernatsky², A. Huang³, E.C. Sayre⁴, M. Paterson³, D. Lacaille⁴.

¹Sunnybrook Research Institute, Toronto; ²McGill University, Montreal; ³Institute for Clinical Evaluative Sciences, Toronto; ⁴Arthritis Research Canada, Vancouver, Canada

Background: For decades studies showed that rheumatoid arthritis (RA) patients died earlier than their general population counterparts. Some inception cohorts have failed to detect an increased mortality risk, possibly due to limited followup or to improvement in mortality risk in cohorts of more recent onset.

Objectives: To evaluate the risk of all-cause mortality in incident RA patients and to estimate when the increased risk appears amongst two Canadian inception cohorts with RA onset after 2000

Methods: Using a common protocol, we conducted 2 independent population-based cohort studies, using administrative health data, of incident RA patients in British Columbia (BC) and Ontario (ON), Canada over 2000 to 2015. In each province, we identified all RA patients (using validated criteria) diagnosed between 2000 and 2005 (to allow a minimum of 10 years of follow-up), and identified non-RA general population comparators for each RA patient, matched 1:2 on age, sex and index years. All patients were followed from index date until death (ascertained from vital statistics), out-migration, or end of study period (2015). Adjusted hazard ratios (HRs) and 95% CIs were estimated using multivariable Cox regression, controlling for baseline comorbidities, healthcare use, and socio-demographic factors. To estimate when the increased mortality risk appeared in incident RA patients, and to assess the proportional hazards assumption, we included an interaction between RA diagnosis and follow-up time in the multivariable model, to detect if and how the HR varied according to RA duration. Quadratic and logyear interactions were tested in the multivariable Cox models to assess linearity of the interaction.

Results: Among 13 834 incident RA patients in BC (27 668 matched comparators), 66% were female with a mean (SD) age of 58¹⁶ years at cohort entry. Among 27 405 incident RA patients in ON (54 810 matched comparators), 70% were female with a mean (SD) age of 56¹⁶ years. The prevalence of individual comorbidities at baseline was comparable across RA cohorts. During follow-up, 3139 (23%) of BC RA patients and 6270 (23%) ON RA patients died, with corresponding crude mortality rates of 2.3 deaths per 100 person-years in both provinces. Crude mortality rate ratios for BC and ON were 1.11 (95% CI: 1.07 to 1.16) and 1.27 (95% CI: 1.23 to 1.31), respectively. Multivariable analyses detected an increased risk of all-cause mortality in incident RA (relative to non-RA) patients by 6 years of follow-up, with a linear relationship suggesting further increase over time (figure 1). By 10 years of followup, the adjusted HR for RA was 1.14 (95% CI: 1.07 to 1.22) in BC and 1.13 (95% CI: 1.08 to 1.18) in ON.