In multivariable modeling, after adjusting for age, sex, and education, large joints had greater effects (tender 0.074 (0.065–0.084), swollen 0.027 (0.014–0.04)) on HAQ than hand joints (tender 0.013 (0.009–0.017), swollen 0.008 (0.003–0.013)).
Conclusions: Both Lansbury and standard joint count trajectories correlate similarly with HAQ in ERA. The weighting of large joints in LAI was insufficient to reflect the full impact of large joint involvement in ERA probably because HAQ questions emphasize large joint activities. The effects of large joint swelling may be under recognized due to difficulty in measuring hip, shoulder or elbow swelling. Overall, tender joints had a greater impact on function than swollen joints and large tender joints had the most impact on function.
Disclosure of Interest: S. H. L. Lim: None declared, O. Schieir: None declared, S. Bartlett Consultant for: Pfizer UCB, G. Boire: None declared, B. Haraoui Grant/research support from: AbbVie, Amgen, BMS, Janssen, Pfizer, Roche and UCB, Consultant for: AbbVie, Amgen, BMS, Celgene, Eli Lilly Janssen, Merck, Pfizer, Roche and UCB, Speakers bureau: Amgen,BMS Janssen, Pfizer and UCB, E. Keystone Grant/research support from: Abbott Laboratories, Amgen Inc, AstraZeneca Pharmaceuticals LP, Bristol-Myers Squibb, F.Hoffmann-La Roche Inc, Janssen Inc, Lilly Pharmaceuticals, Novartis Pharmaceuticals, Pfizer Pharmaceuticals, Sanofi-Aventis, UCB, Consultant for: Abbott Laboratories, AstraZeneca Pharma, Biotest, Bristol-Myers Squibb Company, Crescendo Bioscience, F Hoffmann-La Roche Inc, Genentech Inc, Janssen Inc, Lilly Pharmaceuticals,Merck, Pfizer Pharmaceuticals, UCB, Speakers bureau: Abbott Laboratories, AstraZeneca LP, Bristol-Myers Squibb Canada, F Hoffmann-La Roche Inc, Janssen Inc, Pfizer Pharmaceuticals, UCB,Amgen, D. Tin: None declared, C. Thorne Grant/research support from: AbbVie, Amgen, Celgene, CareBiodam, Lilly, Norvartis, Pfizer, Sanofi, UCB, Consultant for: AbbVie, Amgen, Celgene, Centocor, Genzyme, Hospira Janssen, Lilly, Medexus/Medac, Merck, Novartis, Pfizer, Sanofi, UCB, Speakers bureau: Medexus/MEdac, J. Pope Grant/research support from: Amgen, BMS, Pfizer, Roche, UCB, Consultant for: AbbVie, Actelion, Amgen, Bayer, BMS, Genzyme, Hospira, Lilly, Merck, Norvartis, Pfizer, Regeneron, Roche, Sandofi, UCB, V. Bykerk Shareholder of: Biogen (family), Consultant for: Abbvie, Pfizer, Genenech/Roche, Regeneron, BMS, UCB, Employee of: Biogen (family), C. Hitchon Grant/research support from: UCB
DOI: 10.1136/annrheumdis-2017-eular.3328

SAT0040 ASSESSING 5-YEAR RADIOGRAPHIC PROGRESSION IN RHEUMATOID ARTHRITIS PATIENTS WITH MODERATE DISEASE: FINDINGS FROM A UK MULTI-CENTRE PROSPECTIVE OBSERVATIONAL STUDY

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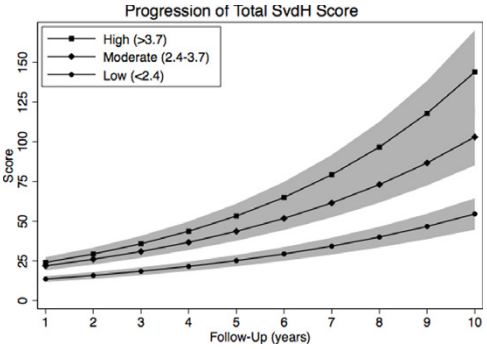
Background: Early, intensive treatment to achieve remission, or at least low disease target (Treat-to-Target, T2T), is advocated to prevent and/or reduce structural joint damage and disability in early Rheumatoid Arthritis (RA). A recent study shows how patients with moderate disease exhibit similar rates of functional disability and orthopaedic surgical interventions to those patients with high disease[1]. To our knowledge, no study has looked at longitudinal observational data to investigate the progression of structural joint damage in these patient sub-groups.
Objectives: To investigate the long-term progression of radiographic joint damage in patients with sustained moderate disease activity.
Methods: Demographic, clinical, laboratory and radiographic data from the Early Rheumatoid Arthritis Study (ERAS) was available for 1,465 patients. Radiographic damage was scored using the modified Sharp/van der Heijde (SvdH) method. The original three variable 44 joint count Disease Activity Score (DAS-44) was used. Mean DAS-44 over the first 5 years was estimated for patients with at least two DAS-44 scores. Patients were stratified based on EULARs thresholds of low ($<$2.4), moderate (2.4–3.7) and high ($>$3.7) disease. Mixed-effects negative binomial regression modelled patients' radiographic progression over 5 years, whilst controlling for key confounders, including age at onset, sex, rheumatoid factor status and baseline functional disability.
Results: A total of 1,110 patients with 3,751 observations over the 5 year period (mean =3.4 observations per patient) were analysed. 396 (36%), 363 (33%) and 351 (32%) patients were classified in the low, moderate and high DAS-44 groups respectively. The low group had lower SvdH scores at 1 year compared to the moderate group (12.9 vs. 19.2, $p<0.001$). Furthermore, the low group also experienced half the annual rate of change over the 5 years compared to the moderate group (3.6 vs. 7.4, p=0.002). In contrast, the high group had similar SvdH scores at year 1 compared the moderate group (20.4 vs. 19.2, p=0.884), but increased annual progression over the 5 years (10.0 vs. 7.4, p=0.010). Despite the increased annual progression rate, the difference in SvdH scores between the moderate and high groups remained non-significant at 5 years.
Conclusions: Sustained moderate disease over the first five years of RA indicates similar levels of radiographic progression compared to sustained high disease.



This study provides support on the importance of tight treatment control with early and aggressive therapy according to T2T principles. Preventing sustained moderate disease activity states can help reduce radiographic progression and consequently joint destruction, minimising the risk of disability in the long-term.
References:
[1] Nikiphorou, E. et al. Association between rheumatoid arthritis disease activity, progression of functional limitation and long-term risk of orthopaedic surgery: combined analysis of two prospective cohorts supports EULAR treat to target DAS thresholds. Ann. Rheum. Dis. annrheumdis–2015–208669 (2016).
Disclosure of Interest: L. Carpenter Grant/research support from: NIHR Programme Grant, S. Norton: None declared, E. Nikiphorou: None declared, K. Jayakumar: None declared, D. McWilliams: None declared, J. Dixey: None declared, P. Kiely: None declared, D. Walsh: None declared, A. Young: None declared
DOI: 10.1136/annrheumdis-2017-eular.3893

SAT0041 EFFICACY OF ABATACEPT VERSUS ADALIMUMAB IN PATIENTS WITH SEROPOSITIVE, EROSIVE EARLY RA: ANALYSIS OF A RANDOMIZED CONTROLLED CLINICAL TRIAL (AMPLE)

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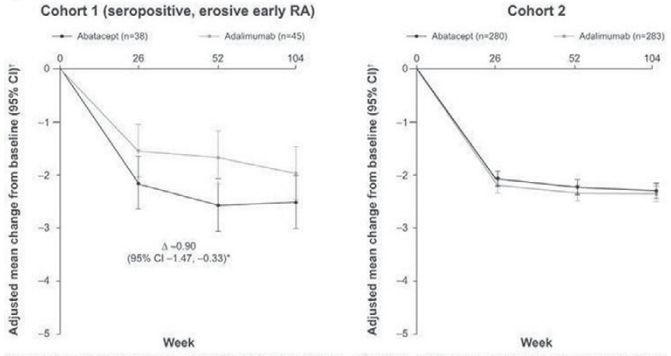
Background: Patients (pts) who are anti-citrullinated protein antibody (ACPA) positive tend to develop more severe erosive disease than ACPA-negative pts.[1] The presence of seropositivity and erosions have been noted in EULAR treatment guidelines as poor prognostic factors to identify pts with RA who require early and aggressive clinical intervention.[2] Since the disease in pts with seropositive, erosive early RA is mostly driven by immunological features, response to RA therapy may vary based on therapeutic mechanism of action (MOA).
Objectives: To investigate the efficacy of abatacept (ABA) vs adalimumab (ADA) in pts with seropositive, erosive early RA.
Methods: AMPLE (NCT00929864)[3] was a 2-year, Phase IIIb study in which biologic-naïve pts with RA were randomized 1:1 to either SC ABA 125 mg weekly or SC ADA 40 mg biweekly, both with background MTX. This *post hoc* analysis of AMPLE compared clinical outcomes between treatment groups in a subpopulation of pts with specified baseline criteria: disease duration $\leq$6 months, RF or ACPA seropositivity and $>$1 radiographic erosion. Disease activity and patient-reported outcomes were evaluated at Weeks 26, 52 and 104. Endpoints were compared between ABA and ADA groups using chi-square test for categorical variables, analysis of covariance model (ANCOVA) controlling for baseline covariates and DAS28 (CRP) stratification for continuous variables.
Results: Of 318 and 328 pts in the ABA and ADA groups, respectively, 38 and 45 pts had all specified baseline characteristics (Cohort 1) and 280 and 283 pts had an absence of at least 1 of the specified characteristics (Cohort 2). Overall, the baseline characteristics, including anti-cyclic citrullinated peptide titres, were well balanced between the groups, with the exception of weight. For Cohort 1, adjusted mean change (95% CI) from baseline DAS28 (CRP) with ABA vs ADA was –2.18 (–2.61, –1.75) vs –1.56 (–2.01, –1.11) at Week 26, –2.58 (–2.99, –2.17) vs –1.68 (–2.10, –1.25) at Week 52 and –2.50 (–2.97, –2.03) vs –2.0 (–2.49, –1.50) at Week 104. Similar trends of increased efficacy with ABA vs ADA were observed for changes from baseline CDAI, SDAI, HAQ-DI, pain and fatigue; no differences in radiographic progression were observed. For Cohort 2, no differences in clinical outcomes between ABA and ADA groups were observed. Given the differences in baseline weight between ABA and ADA groups in Cohort 1, sensitivity analyses that excluded pts $>$100 kg and adjusted for baseline weight were performed and demonstrated minimal effect of weight on treatment efficacy.
Conclusions: This *post hoc* analysis seems to indicate a trend of increased efficacy for abatacept in pts with seropositive, erosive early RA compared with the TNF inhibitor adalimumab. Given the small sample size, additional pre-specified randomized studies are needed to compare the benefit of biologic DMARDs with different MOAs in pts with early, rapidly progressing RA.
References:
[1] Combe B, et al. Ann Rheum Dis 2016 Dec 15. doi: 10.1136/annrheumdis-2016–210602.

Figure. Adjusted Mean Change from Baseline in DAS28 (CRP) at Weeks 26, 52 and 104 by Patient Type



*Adjusted mean change from baseline at Day 365 (−2.58 [−2.99, −2.17] vs −1.68 [−2.10, −1.25]) for abatacept ERP vs adalimumab ERP patients
†Adjustment based on ANCOVA model with treatment as factor and baseline values, DAS28 (CRP) stratification as covariates
For 95% CI within each group, normal approximation was used if n>5, otherwise exact method was used
ERP=early rapidly progressing

[2] Aletaha D, et al. Arthritis Rheum 2010;62:2569–81.
[3] Weinblatt M, et al. Arthritis Rheum 2013;65:28–38.
Disclosure of Interest: R. Fleischmann Grant/research support from: AbbVie, Amgen, Astellas, AstraZeneca, Bristol-Myers Squibb, Celgene, Janssen, Eli Lilly, Merck, Novartis, Pfizer, Roche, sanofi-aventis, UCB, Consultant for: AbbVie, Amgen, AstraZeneca, Bristol-Myers Squibb, Celgene, Janssen, Eli Lilly, Pfizer, Roche, sanofi-aventis, UCB, M. Weinblatt Grant/research support from: Amgen, Bristol-Myers Squibb, Crescendo Bioscience, UCB, DxTerity, Consultant for: Amgen, Bristol-Myers Squibb, Crescendo Bioscience, UCB, AbbVie, Lilly, Pfizer, Roche, H. Ahmad Shareholder of: Bristol-Myers Squibb, Employee of: Bristol-Myers Squibb, M. Maldonado Shareholder of: Bristol-Myers Squibb, Employee of: Bristol-Myers Squibb, E. Alemao Shareholder of: Bristol-Myers Squibb, Employee of: Bristol-Myers Squibb, J. Ye Shareholder of: Bristol-Myers Squibb, Employee of: Bristol-Myers Squibb, M. Schiff Consultant for: AbbVie, Bristol-Myers Squibb, Eli Lilly, JNJ, UCB, Speakers bureau: AbbVie
DOI: 10.1136/annrheumdis-2017-eular.3521

SAT0042 SEVERITY OF RADIOGRAPHIC DESTRUCTION ON PERIPHERAL JOINTS IS A STRONG INDEPENDENT RISK FACTOR FOR CAROTID ATHEROSCLEROSIS

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Background: In our previous study, we identified that cumulative inflammatory burdern contributes to the development of carotid atherosclerosis through a synergistic interaction with conventional cardiovascular (CV) risk factors in patients with rheumatoid arthritis (RA). However, it is controversial whether the presence of joint destruction which result from inflammatory burden may be a risk factor for carotid atherosclerosis.
Objectives: To investigate whether intima-media thickness (IMT) and plaques of carotid artery are influenced by radiographic joint destruction in patients with RA.
Methods: A total of 186 patients with RA were included in the present study. Plain X-ray of joints were used to assess the severity of joint destruction. We developed a new radiographic scoring system, named Rheumatoid Arthritis-Radiographic Severity Score (RA-RSS), which scores 21 joint groups with the modified Steinbrocker method. The following joint groups were included: 2 proximal interphalangeal (PIP) joint group, 2 metacarpophalangeal (MCP) joint group, 2 wrist joint group, 2 elbow joint group, 2 shoulder joint group, 1 atlantoaxial joint group, 2 hip joint group, 2 knee joint group, 2 ankle joint group, 2 tarsometatarsal (TMT) joint group, and 2 metatarsophalangeal (MTP) joint group. The grade was determined by the worst changes in each joint group of PIP, MCP, TMT, and MTP joints. RA-RSS grades are assigned as follows: 0 = No radiographic changes; 1 = mild destruction of bone and cartilage; 2 = moderate destruction of bone and cartilage or joint deformities; 3 = Severe destruction of bone and cartilage or bony ankylosis (Score ranges from 0–63). We performed carotid ultrasound to detect the presence of carotid atherosclerosis.
Results: Among 186 patients who were graded using RA-RSS, 110 patients had carotid plaques (59.1%). RA-RSS was significantly higher in patients with plaques compared to patients without plaques (11.2±8.79 vs. 7.6±7.72, p=0.004). Patients were divided into two groups by the cut-off value of plaque development as determined using receiver operating characteristic (ROC) curves: 115 (61.8%) patients with RA-RSS $<$10 and 71 (38.2%) with RA-RSS $\geq$10. There was a significant difference between the groups with respect to the presence of plaques (48.7% vs. 76.1%, $p<0.001$), while there was no difference in mean carotid IMT (0.87±0.19 vs. 0.88±0.14, p=0.684). The mean age, the presence of conventional CV risk factors, Korean version of the modified HAQ (mKHAQ), DAS28-ESR, and RA-RSS $\geq$10 were significantly associated with plaque development. Multivariate logistic regression analysis showed that RA-RSS $\geq$10 (OR 2.94 [95% CI 1.48–5.84]) and the presence of conventional CV risk factors (OR 2.30 [95% CI 1.21–4.35]) were independent risk factors for plaque development.
Conclusions: The present study shows that radiographic destruction over peripheral joints, which directly reflects cumulative inflammatory burden, is a strong independent risk factor for plaque development that is associated with CV events and mortality.
References:
[1] Churl Hyun Im, et al. Inflammatory burden interacts with conventional cardiovascular risk factors for carotid plaque formation in rheumatoid arthritis. Rheumatology (Oxford). 2015 May;54(5):808–15.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.5985

SAT0043 FACTORS AFFECTING THE NEED FOR ORTHOPAEDIC SURGERY IN PATIENTS WITH RHEUMATOID ARTHRITIS. RESULTS FROM 1010 PATIENTS DIAGNOSED WITH RA FROM 1972-2009

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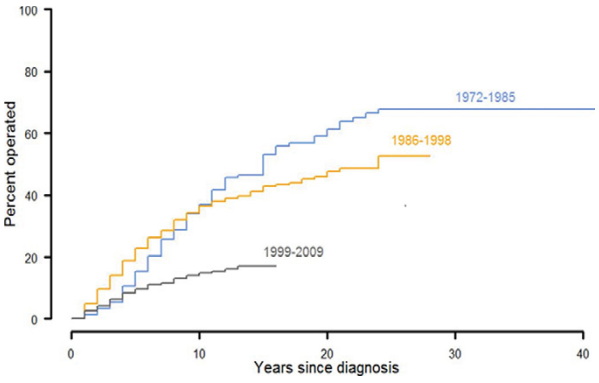
Background: Surgery still comprises a necessary part of treating RA patients, when medication fail to prevent joint destruction. Orthopaedic corrective procedures are considered a reliable and objective proxy for a destructed joint, and is an important outcome measure in RA.
Objectives: To investigate how patient characteristics, time of diagnosis and treatment affect the need for orthopaedic surgery in patients with rheumatoid arthritis (RA).
Methods: We reviewed the medical history of 1544 patients diagnosed with RA at Haukeland University Hospital in Bergen, Norway from 1972 to 2009, of which 1010 (mean age 57, 69% women) were included in the study. Relevant orthopaedic procedures were obtained from the Norwegian Arthroplasty Register and the hospital's administrative patient records. 693 procedures (joint synovectomies 22%, arthrodeses 21%, prostheses 41% and forefoot procedures 12%) were performed in 315 patients. Survival analyses were completed to evaluate the impact of age, sex, radiographic changes and year of diagnosis, on the risk of undergoing surgery.
Results: Patients diagnosed in 1972–1985 and 1986–1998 had a relative risk (RR) of 2.4 and 2.2 ($p<0.001$) respectively, of surgery compared to patients diagnosed in 1999–2009. Radiographic changes at diagnosis and female sex were also significant risk factors. Disease activity at baseline did not affect the outcome. Anti-rheumatic medication was significantly different in the three time periods.

Variable category	5 years[a]	10 years[a]	RR	95% CI	p-value
Gender, male	13	22	1		
female	19	30	1.35	1.02–1.77	0.035
Age (years)					
<69	15	27	1		
≥70	22	31	1.04	0.77–1.42	0.78
Radiolographic changes at diagnosis					
No arthritis	12	21	1		
Possible arthritis, or MR findings only	19	26	1.01	0.66–1.57	0.92
Arthritis	23	34	1.46	1.10–1.94	0.008
Osteoarthritis	35	55	2.81	1.94–4.05	<0.001
Time period					
1999–2009	12	18	1		
1986–1998	25	38	2.16	1.62–2.87	<0.001
1972–1985	15	37	2.38	1.71–3.31	<0.001

[a]5- and 10-year survival, in percent.



Conclusions: Patients with early years of diagnosis had greatly increased risk of having an RA related procedure performed. This is probably due to the year of diagnosis being a proxy for the type and intensity of medical treatment.
References:
[1] Goodman SM. Rheumatoid Arthritis Therapy and Joint-replacement Surgery: Are We Making a Difference? J Rheumatol. 2016;43:833–5.