Conclusions: Comorbidities typically associated with AS affect TNFi drug survival, but in different directions. Possible explanations include a differential effect of TNFi on these morbidities themselves, or other inherent differences in the AS inflammatory phenotype. The association with psoriasis decreased after adjustment, suggesting the influence of other factors. The role of inflammatory comorbidities in determining response and persistence of TNFi should be further examined.

Disclosure of Interest: U. Lindström: None declared, T. Olofsson: None declared, S. Wedrén: None declared, I. Qirjazo: None declared, J. Askling Grant/ research support from: JA has received grants from Abbvie, BMS, Merck, Pfizer, Roche, Samsung, UCB, mainly for safety monitoring via the Swedish ARTIS system

DOI: 10.1136/annrheumdis-2018-eular.1449

OP0024

WHAT HAPPENS TO PATIENTS WITH ANKYLOSING SPONDYLITIS WHO START A FIRST BIOLOGIC? A SWEDISH STUDY OF TREATMENT TRAJECTORIES IN CLINICAL PRACTICE

U. Lindström¹, T. Olofsson², S. Wedrén¹, I. Qirjazo³, J. Askling¹, on behalf of ARTIS. ¹Rheumatology Unit and Clinical Epidemiology Unit, Department of Medicine, Karolinska Institutet, Stockholm; ²Department of Clinical Sciences, Lund University, Lund; ³Rheumatology Department, Linköping University Hospital, Linköping, Sweden

Background: Clinical trials have shown that 40%–50% of patients with ankylosing spondylitis (AS) achieve a good response ($\geq 40\%$ improvement) to treatment with tumour necrosis factor inhibitors (TNFi). By contrast, observational studies indicate that less than two out of three patients continue their first biological disease modifying anti-rheumatic drug (bDMARD) up to two years. During the past six years, five TNFi and one IL-17-inhibitor have been marketed for AS in Sweden. Yet, an assessment of long-term treatment trajectories in AS is lacking. In particular, there is a need for a better understanding of the proportion of patients who fail their first bDMARD, when this happens, and which drugs become their ensuing treatments.

Objectives: To describe contemporary five-year treatment trajectories for patients initiating a first ever bDMARD in AS, and to explore whether the dose of bDMARD is gradually tapered in those patients who remain stable on their bDMARD treatment.

Methods: Swedish patients with AS starting a first ever bDMARD in 2010–2015 were identified in the Swedish Rheumatology Quality Register (SRQ). At the end of each full year (1–5 years) after treatment start, the treatment status of each patient was determined. Censoring occurred at the first of: death, emigration, 31 December 2015 or loss to follow-up. In addition, data on collected prescriptions for the subcutaneous bDMARDs were retrieved from the National Prescribed Drug Register. For patients remaining on their first subcutaneous bDMARD, according to SRQ, the proportion of patients collecting $\geq 75\%$ of the yearly 'defined daily doses' (DDD) at a pharmacy during each full year was determined.

Results: 1698 patients with AS starting a first bDMARD in the study-period were identified, all of which were TNFi. After the end of the first year, 74% remained on their first bDMARD and after five years 38% (figure 1). Of the 72% of patients who remained on any bDMARD after five years, 85% were on their first or second bDMARD. After five years 24% were not on any DMARD and around five percent of the patients discontinuing bDMARD treatment did so due to low disease activity or remission. Among those remaining on their first subcutaneous bDMARD the proportion collecting $\geq 75\%$ of the yearly DDD gradually decreased from 88% to 56% over the 5 years of follow-up (black line in figure 1).

Abstract OP0024 – Figure 1 Proportion of patients with ankylosing spondylitis on each treatment after 1–5 years of follow-up from initiating their first bDMARD

Conclusions: While a minority of patients with AS remain on their first-line bDMARD after 5 years of treatment, most are still on any bDMARD. Further, despite a low rate of discontinuation due to remission, one fourth of patients no longer use any bDMARDs treatment after 5 years. Patients remaining stable on treatment gradually but substantially decrease their use over time.

Disclosure of Interest: U. Lindström: None declared, T. Olofsson: None declared, S. Wedrén: None declared, I. Qirjazo: None declared, J. Askling Grant/ research support from: JA has received grants from Abbvie, BMS, Merck, Pfizer, Roche, Samsung, UCB, mainly for safety monitoring via the Swedish ARTIS system

DOI: 10.1136/annrheumdis-2018-eular.1450

OP0025

IDENTIFICATION OF PREDICTORS OF STRUCTURAL DAMAGE PROGRESSION IN THE SACROILIAC JOINTS IN PATIENTS WITH EARLY AXIAL SPONDYLOARTHRITIS ON A LONG-TERM ANTI-TNF TREATMENT

V. Rios Rodriguez^{1*}, K.-G. Hermann², H. Haibel¹, C. Althoff², O. Behmer³, J. Sieper¹, D. Poddubnyy^{1,4}, ¹Rheumatology; ²Radiology, Charité Universitätsmedizin; ³Pfizer Pharma; ⁴German Rheumatism Research Centre, Berlin, Germany

Background: Several observational studies showed a low, but still detectable progression of structural damage in the sacroiliac joints (SIJ) in patients with axial spondyloarthritis (axSpA) over 2 to 5 years. Few predictors of progressions, such as elevated C-reactive protein (CRP) and active inflammation on magnetic resonance imaging (MRI), have been identified, mostly in patients not treated with TNF inhibitors. To date, it is not clear whether these predictors also work in patients treated with anti-TNF agents and whether anti-TNF therapy is able to retard such a progression.

Objectives: To evaluate the radiographic progression in the sacroiliac joints (SIJ) and to identify predictors of such a progression during long-term (up to six years) treatment with tumour necrosis factor (TNF) blocker etanercept in patients with early axSpA.

Methods: In the ESTHER trial¹ a total of 76 patients with early (up to 5 years symptom duration) and active axSpA were randomised to be treated with either etanercept or sulfasalazine for one year. Between year 1 and year 6, all patients who continued in the study were treated with etanercept. X-rays of SIJ were collected at baseline and every 2 years thereafter. Two trained readers, who were blinded for all clinical data, scored independently the SIJ x-rays in a concealed and randomly selected order, according to the grading system of the modified New York (mNY) criteria (grade 0 to 4). Patients with bilateral sacroiliitis of grade ≥ 2 or unilateral of grade ≥ 3 were classified as radiographic axSpA (r-axSpA), and as non-radiographic axSpA (nr-axSpA) otherwise. The sacroiliitis sum score (0–8) was calculated as a sum of means of both readers for the left and right SIJ. Active and chronic inflammatory changes on MRI of SIJ were assessed at baseline, year 2 and year 4 according to the Berlin MRI scoring system. A longitudinal mixed model analysis was performed to identify predictors of the radiographic sacroiliitis progression.

Abstract OP0025 – Table 1. Longitudinal mixed model analysis of the association between structural damage in the sacroiliac joints (sacroiliitis sum score) and disease-related parameters in patients with early axSpA treated with etanercept for up to 6 years.

Disease-related parameters	Univariable analysis β (95% CI)	Model 1 β (95% CI)	Model 2 β (95% CI)
Elevated CRP (>5mg/l)	0.44 (0.13 – 0.75)	-	0.45 (0.11 – 0.78)
SIJ osteitis score on MRI (0-24)	0.05 (0.01 – 0.08)	0.04 (0.01 – 0.08)	-
Age, years	0.00 (-0.02 – 0.01)	-0.00 (-0.02 – 0.01)	-0.00 (-0.02 – 0.01)
Male sex	-0.03 (-0.35 – 0.27)	-0.18 (-0.53 – 0.16)	0.00 (-0.33 – 0.33)
HLA-B27 positivity	-0.07 (-0.47 – 0.32)	-0.08 (-0.55 – 0.38)	-0.08 (-0.54 – 0.36)
Treatment duration with ETN, years	-0.04 (-0.13 – 0.03)	-0.03 (-0.15 – 0.09)	-0.01 (-0.12 – 0.09)
Symptoms duration, years	-0.01 (-0.07 – 0.05)	0.01 (-0.07 – 0.11)	0.01 (-0.07 – 0.10)

axSpA, axial spondyloarthritis; CRP, C-reactive protein; CI, confidence interval; ETN, etanercept; MRI, magnetic resonance imaging, SIJ, sacroiliac joints.

Results: Totally, 55 patients with axSpA contributing with 159 SIJ radiographs were included in the analysis. At baseline, 19 patients were classified as r-axSpA and 36 as nr-axSpA based on the independent SIJ reading. Radiographic progression from nr- to r-axSpA was observed in 5 (18%) patients between baseline and year 2. Progression decelerated to 4.1% between year 2 and 4, and no further progression was observed up to year 6. The mean $\pm$ SD change of sacroiliitis sum score was 0.13 ± 0.73 , -0.26 ± 0.76 and -0.09 ± 0.67 , in the time intervals baseline-year 2, year 2 year 4, and year 4 year 6, respectively. In the longitudinal mixed model analysis, elevated CRP (model 2) and osteitis on MRI (model 1) were independently and significantly associated with a higher sacroiliitis sum score (table 1).

Conclusions: Long-term therapy with a TNF blocker seems to decelerate progression of structural damage in the SIJ. Elevated CRP and presence of osteitis in MRI were independently associated with SIJ radiographic progression.

REFERENCE:

- [1] Song IH, et al. Ann Rheum Dis 2011;70(4):590–596.

Acknowledgements: the ESTHER study was supported by an unrestricted research grant from Pfizer.

Disclosure of Interest: V. Rios Rodriguez Consultant for: Abbvie, Novartis, K.-G. Hermann Speakers bureau: Abbvie, MSD, Pfizer, UCB, H. Haibel: None declared, C. Althoff: None declared, O. Behmer Employee of: Pfizer, J. Sieper Grant/research support from: Abbvie, MSD, Pfizer, Consultant for: Abbvie, MSD, Pfizer, UCB, D. Poddubnyy Grant/research support from: Abbvie, MSD, Novartis, Consultant for: Abbvie, BMS, MSD, Novartis, Pfizer, UCB, Speakers bureau: Abbvie, BMS, Janssen, MSD, Novartis, Pfizer, Roche, UCB

DOI: 10.1136/annrheumdis-2018-eular.4942

OP0026

ADALIMUMAB SERUM CONCENTRATION FAILS TO PREDICT ACHIEVEMENT OF SUSTAINED REMISSION OR ABSENCE OF FLARE FOR PATIENTS WITH NON-RADIOGRAPHIC AXIAL SPONDYLOARTHRITIS IN THE ABILITY-3 STUDY

N.V. Kwatra¹, M. Magrey², P.J. Mease³, J. Sieper⁴, R. Landewe⁵, X. Wang¹, A. Lertratanakul¹, J.K. Anderson¹, N.M. Mostafa¹. ¹Abbvie Inc., North Chicago;

²Case Western Reserve University School of Medicine at MetroHealth Medical Center, Cleveland; ³Swedish Medical Center and University of Washington, Seattle, USA; ⁴Charité Universitätsmedizin Berlin, Berlin, Germany; ⁵Amsterdam Rheumatology and Clinical Immunology Center, Amsterdam, Netherlands

Background: In patients (pts) with active non-radiographic axial spondyloarthritis (nr-axSpA) in the ABILITY-3 study who achieved sustained remission with adalimumab (ADA), continued ADA therapy was associated with significantly fewer pts flaring than treatment withdrawal. Sustained remission is an important treatment goal in pts with nr-axSpA, but factors predicting sustained remission and absence of flare are unknown.

Objectives: To determine whether an ADA concentration threshold is predictive of achievement of sustained remission and absence of flare in pts with nr-axSpA.

Methods: ABILITY-3 included a 28-wk open-label (OL) ADA (40 mg every other wk) lead-in in which pts who achieved sustained remission (ASDAS <1.3 at wks 16, 20, 24, and 28) were randomised to double-blind (DB) placebo (PBO) or continued ADA for 40 wks (68 wks total). Pts not achieving remission were discontinued at wks 20, 24, or 28. The primary efficacy variable was the proportion of pts who did not experience a flare (ASDAS ≥2.1 at 2 consecutive visits) by wk 68. Pts who flared received OL ADA rescue. ADA trough concentrations at wks 12 or 28 were used to predict achieving sustained remission by wk 28 (all OL patients, n=673) and absence of flare at wk 68 (patients randomised to DB ADA, n=152). Threshold analysis was conducted by constructing receiver operating characteristic (ROC) curves (R Ver 3.3.3) to assess predictive ADA trough concentration thresholds based on specificity and sensitivity values.

Results: Of 673 pts enrolled in the OL phase, 305 met criteria for remission at wk 28 and were randomised to DB treatment. Mean ±SD ADA trough concentrations were 6.68±5.23 µg/mL at wk 12 and 8.36±5.27 µg/mL at wk 28. During the DB phase, 81 and 45 pts flared and 68 and 36 pts received ≥12 wks of OL ADA rescue in PBO (n=153) and ADA (n=152) arms, respectively. ADA mean ±SD trough concentration at wk 68 for pts randomised to DB ADA with flare (7.64±5.22 µg/mL) was slightly lower than for DB ADA pts without flare (8.12±4.35 µg/mL). ROC curves showed AUC values ≤0.6 for achieving sustained remission by wk 28 and absence of flare at wk 68, with no concentration threshold meeting sensitivity and specificity criteria for reliable prediction of such endpoints (figure 1).

Abstract OP0026 – Figure 1 Receiver operating characteristic curves to predict sustained remission by week 28 and absence of flare at week 68 by adalimumab serum concentration

Conclusions: ROC analyses did not identify an ADA trough concentration threshold that reliably predicted whether a pt with nr-axSpA would achieve sustained remission (by wk 28) or absence of flare (at wk 68).

Acknowledgements: AbbVie funded the study and approved the abstract for submission. Medical writing support was provided by Janet Matsuura, PhD, of Complete Publication Solutions, LLC (North Wales, PA) and was funded by AbbVie.

Disclosure of Interest: N. Kwatra Employee of: AbbVie, M. Magrey Grant/research support from: Amgen, AbbVie, and UCB Pharma, Consultant for: UCB and Janssen, P. Mease Grant/research support from: AbbVie, Amgen, Bristol-Myers Squibb, Celgene, Janssen, Lilly, Novartis, Pfizer, Sun Pharma, and UCB, Consultant for: AbbVie, Amgen, Bristol-Myers Squibb, Celgene, Janssen, Lilly, Novartis, Pfizer, Sun Pharma, and UCB, Speakers bureau: AbbVie, Amgen, Bristol-Myers Squibb, Celgene, Genentech, Janssen, Novartis, Pfizer, and UCB, J. Sieper Consultant for: AbbVie, Janssen, Lilly, Merck, Novartis, Pfizer, Sun Pharma, and UCB, Speakers bureau: AbbVie, Janssen, Lilly, Merck, Novartis, Pfizer, and UCB, R. Landewe Grant/research support from: Abbott, Amgen, Centocor, Novartis, Pfizer, Roche, Schering-Plough, UCB, and Wyeth, Consultant for: Abbott/AbbVie, Ablynx, Amgen, Astra-Zeneca, Bristol Myers Squibb, Celgene, Janssen (formerly Centocor), Galapagos, GlaxoSmithKline, Novartis, Novo-Nordisk, Merck, Pfizer, Roche, Schering-Plough, TiGenix, UCB, and Wyeth, Speakers bureau: Abbott/AbbVie, Amgen, Bristol Myers Squibb, Janssen (formerly Centocor), Merck, Pfizer, Roche, Schering-Plough, UCB, and Wyeth, X. Wang Employee of: AbbVie, A. Lertratanakul Employee of: AbbVie, J. Anderson Employee of: AbbVie, N. Mostafa Employee of: AbbVie

DOI: 10.1136/annrheumdis-2018-eular.6515

OP0027

CHARACTERISTICS OF CYTOKINES AND CHANGES IN INTERLEUKIN-17 LEVELS IN THE SYNOVIAL FLUID OF PATIENTS WITH ANKYLOSING SPONDYLITIS ON TREATMENT WITH BIOLOGICS

B.S. Koo¹, S. Jo², E. Kwon², J.H. Shin², T.-H. Kim². ¹Rheumatology, Inje University Seoul Paik Hospital, Inje University College of Medicine; ²Rheumatology, Hanyang University Hospital for Rheumatic Diseases, Seoul, Korea, Republic Of

Background: Biologic drugs targeting the inflammatory cytokines have been recommended in rheumatoid arthritis (RA) and ankylosing spondylitis (AS). Yet, some patients require a change in treatment because an adequate response is not achieved.

Objectives: The current study aimed to evaluate the levels of tumour necrosis factor alpha (TNF-α), interleukin (IL)–17, IL-23, and granulocyte-macrophage colony-stimulating factor (GM-CSF) in the joint fluid in patients with AS and RA and identify the important cytokines related with treatment-response.

Methods: Synovial fluid was obtained from 18 patients with AS and 19 with RA who suffered from arthritis of the knee; and the levels of the cytokines were measured. The differences in their levels between patients with AS and RA, and between patients treated with and without biologics (biologics group and non-biologics group) were analysed.

Results: TNF-α and GM-CSF levels in patients with AS were significantly lower than those in patients with RA (figure 1A, both p<0.01); however, IL-17 and IL-23 levels were not significantly different between the two groups. Furthermore, levels of IL-17 were markedly elevated in the biologics group compared with the non-biologics group in AS (figure 1B, p=0.04). However, in RA, there were no significant differences between the non-biologics and biologics group (figure 1C).

Conclusions: In AS, IL-17 in synovial fluid is a good marker of non-response to biologics and may be a good target for non-responders to TNF inhibitor.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.2007