in activities and work productivity. These results suggest there is a need for treatments that provide fast and sustained improvement in pain to reduce the impact pain has on patients' daily life as well as societal costs.

References:

- [1] Ware J, et al. User's Manual for the SF-36v2® Health Survey. Lincoln (RI): QualityMetric Incorporated; 2007:125–133.
 - [2] Strand et al. *Ann Rheum Dis*. 2009 Dec; 68(12): 1800–1804.
- Disclosure of Interest:** P. Conaghan Consultant for: Abbvie, Eli Lilly, Novartis, Pfizer, Speakers bureau: Abbvie, BMS, Roche, V. Strand Consultant for: Abbvie, Amgen, BMS, Celgene, Celltrion, CORRONA, Genentech/Roche, GSK, Janssen, Lilly, Merck, Novartis, Pfizer, Regeneron, Samsung, Sanofi, UCB, R. Alten Grant/research support from: Novartis Pharma AG, Speakers bureau: Novartis Pharma AG, E. Sullivan: None declared, S. Blackburn: None declared, L. Huneault Shareholder of: Novartis Pharma AG, Employee of: Novartis Pharma AG, H. Tian Shareholder of: Novartis Pharmaceuticals Corporation, Employee of: Novartis Pharmaceuticals Corporation, K. Gandhi Shareholder of: Novartis Pharmaceuticals Corporation, Employee of: Novartis Pharmaceuticals Corporation, S. Jugl Shareholder of: Novartis Pharma AG, Employee of: Novartis Pharma AG
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OP0108 INHIBITION OF RADIOGRAPHIC PROGRESSION IN PSORIATIC ARTHRITIS BY ADALIMUMAB INDEPENDENT OF THE CONTROL OF CLINICAL DISEASE ACTIVITY

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Background: Patients (pts) with psoriatic arthritis (PsA) may experience structural damage and irreversible functional impairment if not treated appropriately. Treatment with TNF inhibitors in rheumatoid arthritis (RA) pts showed inhibition of radiographic progression larger than expected based on the control of clinical disease activity.¹ Preliminary results showed that such a disconnect phenomenon may also be observed in PsA pts following treatment with adalimumab (ADA).²

Objectives: The objective of this analysis was to further examine the relationship between inhibition of radiographic progression and control of clinical disease activity using different disease activity measures following treatment with originator ADA versus placebo (PBO) in pts with active PsA.

Methods: ADEPT³ was a 24-week (wk), randomized, double-blind trial comparing the safety and efficacy of ADA with PBO in pts with active PsA. In this post hoc analysis, radiographic progression, defined as change from baseline (BL) to wk 24 in modified total Sharp score (Δ mTSS) > 0.5, was calculated in pts with evaluable radiographs at both time points. Pts were classified based on achieving minimal disease activity (MDA) and different subcategories of disease activity (remission, low, moderate, or high) based on time-averaged (TA) DAS28(CRP), DAPSA, and PASDAS. The associations between Δ mTSS and disease activity were assessed by Pearson (r_p) or Phi (r_ϕ) correlation coefficients.

Results: Of the 296 pts (ADA, N=144; PBO, N=152) included in this analysis, higher proportions of pts receiving ADA compared with PBO achieved MDA and remission/low disease activity status across all the outcome measures.

Table. Change from Baseline to Week 24 in modified Total Sharp Score (Δ mTSS) categorized by Disease Activity Status Across Each Outcome Measure in ADA and PBO Treated Patients.

Outcome measure Mean (SD)	Δ mTSS		P-value*
	ADA n = 144	PBO n = 152	
TA-DAS28(CRP) [†]			
Remission (≤ 2.6)	-0.3 (1.3)	0.1 (0.7)	.135
Low disease activity ($> 2.6 - 3.2$)	-0.2 (1.3)	0.6 (1.7)	.054
Moderate disease activity ($> 3.2 - 5.1$)	0.2 (1.3)	1.5 (3.6)	.085
High disease activity (> 5.2)	1.7 (2.9)	4.9 (8.2)	.893
TA-DAPSA [‡]			
Remission (≤ 4)	-0.1 (0.5)	0.0 (0.0)	.824
Low disease activity ($> 4 - 14$)	-0.2 (1.0)	0.0 (0.0)	.741
Moderate disease activity ($> 14 - 28$)	-0.2 (1.4)	0.4 (1.0)	.044
High disease activity (> 28)	-0.1 (1.8)	1.4 (3.5)	.002
TA-PASDAS [‡]			
Low disease activity (≤ 3.2)	-0.1 (0.9)	0.2 (0.4)	.373
Moderate disease activity ($> 3.2 - 5.4$)	-0.4 (1.5)	0.4 (1.3)	.001
High disease activity (≥ 5.4)	0.2 (1.9)	2.0 (4.3)	.039
MDA [‡]			
Yes	-0.2 (1.6)	0.0 (0.0)	.884
No	-0.2 (1.3)	1.1 (3.1)	<.001

*P-value for difference between treatment groups is based on ANCOVA.

[†]Time averaged (TA) variable is calculated as area under the curve (AUC) of that variable and standardized by length of study (24 weeks).

[‡]Minimal disease activity (MDA) was calculated in patients with at least 5 out of 7 MDA components available.

ADA = adalimumab, PBO = placebo; TA = time-averaged; DAS28(CRP) = 28-joint disease activity score based on C-reactive protein, DAPSA = disease activity index for psoriatic arthritis, PASDAS = psoriatic arthritis disease activity score, index, MDA = minimal disease activity; ANCOVA = analysis of covariance.

There was a significant interaction between treatment and disease activity status with respect to radiographic progression ($P < .001$ for all outcome measures). In addition, treatment with ADA for 24 wks compared with PBO resulted in significantly lower mean Δ mTSS even in pts with moderate or high disease activity (TA-DAPSA or TA-PASDAS) or not achieving MDA (Table). Radiographic progression showed a weak, but significant correlation with disease activity status in pts treated with PBO ($r_p \geq 0.3$, $P < .001$ for TA-DAS[CRP], TA-DAPSA, and TA-PASDAS; $r_\phi = -0.14$ [95% CI: -0.20 to -0.09 for MDA], but not ADA).

Conclusions: The results showed that the relationship between disease activity as determined by various outcome measures differed between ADA and PBO treated pts. ADA provided inhibition of radiographic progression which was somewhat larger and independent of the control of clinical disease activity. This supports the disconnect phenomenon in PsA following ADA treatment.

References:

- [1] Landewé R, et al. *Arthritis Rheum*. 2006; 54:3119–25.
- [2] Mease PJ, et al. *Arthritis Rheum*. 2010; 62 (suppl 10).
- [3] Mease PJ, et al. *Arthritis Rheum*. 2005; 52:3279–89.

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OP0109 IS MENTAL HEALTH COMPARABLE IN RHEUMATOID AND PSORIATIC ARTHRITIS PATIENTS? A COMPARATIVE ANALYSIS OF REAL LIFE LONGITUDINAL DATA FROM THE NOR-DMARD STUDY

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Background: Only few studies have compared health related quality of life (HRQoL) between rheumatoid arthritis (RA) and psoriatic arthritis (PsA) patients.

Objectives: To compare the Medical Outcomes Survey Short Form-36 (SF-36) Physical Component Summary (PCS) and Mental Component Summary (MCS) in RA and PsA patients from a large prospective observational registry.

Methods: We included RA and PsA patients from the prospective observational multicenter Norwegian-Disease-Modifying Antirheumatic Drug (NOR-DMARD) study, who started first-time tumour necrosis factor inhibitors or DMARD naïve patients starting methotrexate between year 2000 and 2012. Continuous variables were compared using independent t-test (normally distributed data). Prespecified ANCOVA analyses adjusted for age, gender and years since diagnosis were performed to compare SF-36 PCS and MCS between the RA and PsA patients at baseline and after 3 and 6 months follow-up.

Results: A total of 2735 RA and 1236 PsA patients were included. Mean (SD) age was 55.0 (13.5)/ 48.3 (12.4) years, median (25th-75th percentile) years since diagnosis 0.7 (0.02–6.4)/ 1.3 (0.09–7.7), 69.7/48.4% were women and 31.7/29.8% current smokers. Mean (SD) 28-joint Disease Activity Score was higher in RA vs. PsA patients at baseline (4.9 (1.4)/ 4.2 (1.3)) and at 3 (3.6 (1.5)/ (3.1 (1.4)) and 6 months follow-up (3.3 (1.4)/ 3.0 (1.3)), respectively ($p < 0.001$). Unadjusted means (SD) of SF-36 PCS and MCS were similar between the RA and PsA patients (Table 1).

In adjusted analyses SF-36 PCS was slightly higher and SF-36 MCS similar between RA and PsA patients at 3 and 6 months follow-up (Table 2).

Conclusions: Mental HRQoL reflected through SF-36 MCS was similar between RA and PsA patients at all time points, in spite of slightly worse physical HRQoL reflected through lower SF-36 PCS in the PsA group at 3 and 6 months follow-up.

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Table 1. Unadjusted means (SD) of SF-36 PCS and MCS

	Months	RA (mean (SD))	PsA (mean (SD))	p-value
SF-36 PCS	0	31.3 (10.0)	31.6 (9.7)	0.31
	3	36.7 (11.1)	37.3 (11.1)	0.16
	6	37.9 (11.3)	38.1 (10.9)	0.64
SF-36 MCS	0	45.6 (11.6)	46.3 (11.7)	0.08
	3	48.1 (10.9)	48.3 (10.9)	0.60
	6	48.8 (10.8)	49.1 (10.7)	0.49

Table 2. ANCOVA analyses with adjustment for age, gender and years since diagnosis

	Months	Estimated marginal means (95% CI)		P value
		RA	PsA	
SF-36 PCS	0	32.3 (31.9–32.7)	31.6 (31.0–32.2)	0.06
	3	37.9 (37.4–38.4)	36.8 (36.1–37.6)	0.02
	6	39.3 (38.8–39.9)	37.6 (36.9–38.4)	0.001
SF-36 MCS	0	46.3 (45.8–46.8)	46.2 (45.5–46.9)	0.90
	3	48.3 (47.8–48.9)	48.3 (47.6–49.0)	0.92
	6	49.5 (49.0–50.0)	48.9 (48.1–49.7)	0.21

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OP0110 ASSOCIATION OF PHARMACOLOGICAL BIOMARKERS WITH TREATMENT RESPONSE AND LONG-TERM DISABILITY IN PATIENTS WITH PSORIATIC ARTHRITIS: RESULTS FROM OUTPASS

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Background: Up to 40% of patients with inflammatory arthritis on TNF- α inhibitor (TNFi) treatment fail to respond either due to primary inefficacy or loss of response. One explanation is immunogenicity leading to the development of anti-drug antibodies (ADABs) and subsequent low drug levels. Few data exist on whether such pharmacological tests correlate with treatment response in psoriatic arthritis (PsA). The clinical utility of whether such tests should be incorporated into practice is in question.

Objectives: To identify (i) whether the presence of ADABs/drug levels predict treatment response and disability in TNFi-treated PsA patients (ii) the factors associated with drug levels (iii) a drug level threshold for optimal therapeutic response.

Methods: 75 patients were available from the Outcomes of Treatment in PsA Study Syndicate (OUTPASS) [n=49 adalimumab; n=26 etanercept], a national UK prospective observational cohort. Serum samples were collected at 3, 6 and 12 months following initiation of TNFi therapy. ADABs were measured using radioimmunoassay (RIA) and random (non-trough) drug levels using ELISA assays at 3, 6 and 12 months. Disease activity (DAS28) scores were measured at each visit. Patient self-reported adherence to TNFi was measured at each time-point. Generalised estimating equation (GEE) was used to test the association between ADABs and drug levels, both biomarkers and treatment response [as assessed by change in DAS28 score between pre-treatment and 12 months post-treatment (Δ DAS28)], Health assessment Questionnaire (HAQ) and the association between longitudinal/baseline factors with drug levels.

Results: 264 serial samples were suitable for pharmacological testing (n=174 adalimumab; n=90 etanercept). Mean age was 51 $\pm$ 12 years; 61% were female; median BMI 28.9 (IQR 26.0–34.9). 20% (n=10/49) of adalimumab-treated patients were positive for ADABs, but none were detected in etanercept-treated patients. There was no significant association between etanercept drug levels and Δ DAS over 12 months [β = -0.039 (95% CI -0.31, 0.23), p=0.77]. Using GEE, adalimumab drug levels were significantly associated with Δ DAS28 over 12 months [β =0.055 (95% CI: 0.011, 0.099) p=0.014] and inversely with HAQ scores over 12 months [β = -0.022 (95% CI: -0.043, -0.00063). Δ DAS28 was not independently associated with ADAB level [β = -0.0015 (95% CI: -0.0031, 0.000047), p=0.057]. Adalimumab concentrations between 4.5–8.5 mg/L were associated with an optimal treatment response at 6 months using concentration-effect curves. Factors that were significantly associated with adalimumab drug levels were ADAB level [β = -0.0073 (95% CI: -0.0014, 0.18), p<0.0001] and BMI [β = -0.15 (-0.29, -0.00450, p=0.043] in the final GEE model (adjusting for age, gender, adherence, BMI).

Conclusions: TNFi drug-level testing in adalimumab-initiated PsA patients may be useful in determining treatment response and disability over 12 months; interestingly, both the presence of ADABs and BMI were inversely associated with

drug levels. Identification of a drug level threshold for optimal response may help tailor adalimumab therapy for PsA patients in the future.

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OP0111 THE ASSOCIATION BETWEEN SONOGRAPHIC ENTHESITIS AND RADIOGRAPHIC JOINT DAMAGE IN PSORIATIC ARTHRITIS

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Background: Enthesitis is a common clinical finding and a key pathogenic feature in psoriatic arthritis (PsA). Ultrasound is emerging as a preferred method to assess enthesitis. Little is known about the relation between the presence of enthesitis and the severity of joint damage in patients with PsA.

Objectives: Our objective was to examine the association between sonographic enthesitis and the severity of radiographic features of damage in the peripheral and axial joints in PsA.

Methods: A cross-sectional study was conducted in consecutive patients with PsA. The Madrid Sonography Enthesitis Index (MASEI) scoring system was used to quantify the extent of sonographic enthesitis abnormalities in 12 enthesitis sites. Total MASEI was further categorized into: bone scores (enthesophytes, erosions) and soft tissue scores (structural changes, vascularization, bursitis). Radiographic joint damage in the peripheral joints and spine was assessed independently of the ultrasound results using the modified Steinbrocker score, Modified New York Criteria for sacroiliitis and the modified Stoke Ankylosing Spondylitis Spine Score (mSASSS). Additionally, the presence of ankylosis, arthritis mutilans and periostitis in the hands or feet was determined. Linear and logistic regression models were used to assess the association between MASEI score and the radiographic features of joint damage after controlling for age, sex, BMI, PsA duration and the use of DMARDs and biologic medications.

Results: 222 patients were included (58% men) with mean (s.d.) age of 55.9 (12.9) years and PsA duration of 16.7 (12.4) years. The mean MASEI score was 15.6 (12.6). The mean modified Steinbrocker score was 18.1 (32.3), mSASSS was 1.7 (7.3) and 37% had sacroiliitis. Multivariate regression analyses found an association between higher scores of MASEI scores and peripheral joint damage: modified Steinbrocker score (β 9.26, p<0.0001), joint ankylosis (Odds Ratio (OR) 2.09, p=0.0001) and arthritis mutilans (OR 1.73, p=0.005). The association between MASEI scores and periostitis was of borderline statistical significance (OR 1.29, p=0.06). Similarly, an association was found in multivariate analyses between higher MASEI scores and axial damage as measured by mSASSS (β 1.55, p<0.0001) and sacroiliitis (OR 1.36, p=0.02). Sub-analysis showed that the MASEI bone score were more strongly associated with radiographic damage outcomes than the MASEI soft tissue score.

Conclusions: The severity of sonographic enthesitis is a marker of radiographic peripheral and axial joint damage in PsA. The association was found with both erosive and bone formation lesions. These findings highlight the potential role of enthesitis in the pathogenesis of articular damage in PsA.

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OP0112 IN PSORIATIC ARTHRITIS FATIGUE IS DRIVEN BY INFLAMMATION, DISEASE DURATION, AND CHRONIC PAIN: AN OBSERVATIONAL DANBIO REGISTRY STUDY

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Background: Fatigue has been identified as one of the most significant symptoms and an outcome of great importance to patients with psoriatic arthritis (PsA), but the association between underlying components of experienced fatigue and the disease has been sparsely investigated. [1]

Objectives: To describe the degree of fatigue in a PsA population. Secondly, to explore which components of inflammation and non-inflammatory factors contribute to experienced fatigue.

Methods: The study was designed as a cross-sectional survey including patients