

measurement. As cost data were not normally distributed, standard errors (SEs), 95% confidence intervals (CIs) and *P* values were estimated by bootstrap resampling (10,000 samples).

Results: Data were available for 95 PsA patients (female: n=43). Mean HAQ-DI score was 0.81 (SE 0.08); mean age at HAQ-DI measurement was 58.6 (SE 1.04). Mean total annual healthcare costs, excluding medication costs, were £ 1,588 (SE 172.3). Regression modelling indicated that a 1-point increase in HAQ-DI score was associated with an increase in total costs, excluding medications, of £ 547.49 (SE 222.7; 95% CI 191.7–1,103.8; *P*=0.004) (Table). Subgroup analyses suggested trends for higher cost increases within the lower HAQ-DI cutoff subgroup (HAQ-DI 0–1) and for those with greatest disease duration (>10 years). Costs associated with secondary care consultations seemed to be the primary factor in the association between HAQ-DI and total costs.

Estimated HAQ-DI Coefficient (£/Unit) From Regression of Costs on the HAQ-DI (Bootstrapped SE, 95% CI, and <i>P</i> Value)			
Outcome	Estimate (SE)	95% CI	<i>P</i> Value
Tests	21.45 (14.18)	-7.93 – 47.5	0.130
Accident and emergency	15.67 (5.46)	6.46 – 28.89	0.002
Primary care consultation	69.98 (24.32)	20.97 – 115.90	0.004
Secondary care consultation	293.67 (48.26)	205.81 – 398.67	<0.001
Admitted care	162.25 (201.13)	-132.82 – 707.29	0.434
Total cost	547.49 (222.74)	191.69 – 1,103.82	0.004

Conclusions: Models incorporating total healthcare costs were highly significant; this association appears to be driven mainly by secondary care consultation costs. Costs in this study were similar to previous studies in RA populations. A study limitation was that only direct medical costs were considered, which may underestimate the true burden of PsA on healthcare systems and the wider society.

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SAT0443 IDENTIFICATION OF PREDICTORS OF MINIMAL DISEASE ACTIVITY IN EARLY PSORIATIC ARTHRITIS

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Background: Psoriatic arthritis (PsA) is a systemic inflammatory disease with articular and extra-articular features, the disease activity ranges from mild mono-oligoarthritis to destructive polyarthritis. Hence, establishing the prognosis of a patient with PsA is important to better define the treatment strategy. Furthermore, minimal disease activity (MDA) is a validated composite outcome measure since it correlates well with long-term outcomes (e.g. development of joint damage)¹.

Objectives: The aim of this study was to identify the baseline clinical variables associated with MDA at 12th month of follow up in two cohorts of early PsA.

Methods: Consecutive PsA patients, attending the outpatient Early Arthritis Clinic in Udine or Verona in the last two years, were assessed. All the included patients had: I) CASPAR score ≥ 2 II) new diagnosis of PsA III) a complete clinical data and follow-up of at least 12 months. The GRAPPA recommendations on the management of PsA were followed. Statistical analysis included T-test, ANOVA and Pearson's test in order to find possible predictors of MDA.

Results: Eighty-one early PsA patients were included in the study, 47/81 (58.2%) reached MDA at 12th month of follow-up; 68/81 (83.9%) were in c-DMARDs while 11/81 (13.6%) were in b-DMARDs. Two variables at baseline were selected comparing the groups based on achievement of MDA. These were: 1) LEI, which was significantly lower at baseline in patients reaching MDA (0.43 Vs 0.86, *p*=0.001); and 2) a lower baseline CRP (1.2 mg/dl vs 2.8 mg/dl, *p*=0.008). Of note, neither the baseline disease activity evaluated with DAPSA nor the time to referral were selected by statistical analysis.

Conclusions: Baseline lower LEI score and lower CRP were identified as clinical predictors of MDA after 12 months of treatment in PsA. Therefore, patients with a more active enthesitis or higher inflammation may have a less responsive disease. This may be relevant to select proper treatments at baseline, and indirectly confirms that enthesitis is a key therapeutic target in PsA.

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SAT0444 DETECTION OF PSORIATIC ARTHRITIS AT EARLY ONSET: A MULTI-PROTEOMIC APPROACH TO DEVELOPING A NEW BLOOD TEST

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Background: Psoriatic Arthritis (PsA) is an inflammatory arthritis (IA) frequently associated with psoriasis. Clinically, it is a complex heterogeneous disease and there are no diagnostic tests or criteria [1]. At first presentation, PsA may resemble other disease types - especially rheumatoid arthritis (RA). Making an accurate and early diagnosis is particularly important to ensure that individual patients receive effective and safe medication and so optimise long-term patient outcomes. Thus, it is widely acknowledged by physicians and patients alike that a new diagnostic test is needed to facilitate the early and specific diagnosis of PsA [2].

Objectives: To (i) identify and verify candidate biomarkers with the potential to segregate patients with PsA from those with RA; and (ii) explore the value of combining different proteomic discovery platforms.

Methods: Serum samples were obtained from a cohort of 64 patients (32 PsA and 32 RA) defined as early onset (<12 months) and DMARD naïve. Individual baseline samples were analysed with label free LC-MS/MS (n=64), the Luminex xMAP (n=62) and an aptamer based platform called SOMAscan (n=36). The random forest test was applied to each individual data set as well as to a combined-matched data set (n=36). To verify MS data, a multiple reaction monitoring (MRM) assay was developed for 54 of the most discriminatory proteins to be applied to both pooled (PsA n=9, RA n=9) and individual patient samples (n=64).

Results: In this study, it was possible to quantify 387, 48 and 1129 proteins from LC-MS/MS, Luminex and SOMAscan analysis, respectively. Proteins with the ability to segregate PsA patients from those with RA were identified by random forest analysis; LC-MS/MS (AUC 0.94), Luminex (AUC 0.69) and SOMAscan (AUC 0.73). The application of the random forest model to the (i) combined data and (ii) MRM data set is part of ongoing work.

Conclusions: To date, statistical analysis revealed LC-MS/MS identified proteins were the most discriminatory. An MRM assay has been developed to the top 54 LC-MS/MS proteins and this assay has been applied to the discovery cohort (data analysis ongoing). The assay will next be applied to additional evaluation cohorts that include patients with spondyloarthritis and psoriasis. Discriminatory proteins verified here represent candidates for inclusion in a blood based multi-analyte test that could ultimately be used in the diagnosis of PsA.

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SAT0445 SHORT-TERM EFFECTS OF SECUKINUMAB ON BONE TURNOVER MARKERS AND WNT SIGNALING ANTAGONISTS IN PATIENTS WITH PSORIATIC ARTHRITIS

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Background: psoriatic arthritis (PsA) is a chronic inflammatory disease characterized also by increased levels of cells producing IL-17 [1], and these levels have been shown to correlate with measures of disease activity and structural damage and bone loss [2]. Secukinumab is a new monoclonal antibody licensed with the treatment of PsA which selectively binds to and neutralizes interleukin-17 (IL-17). Currently, data about the effects on the activity of either bone-resorbing cells and bone-forming cells secondary to the inhibition of the IL-17 pathway are completely absent.

Objectives: the aim of our study was to explore the short-term effects of secukinumab on bone turnover markers (BTM) and Dkk-1 and sclerostin.

Methods: we enrolled 28 patients with PsA, classified with the CASPAR criteria and 43 healthy controls (HC). For the PsA group DAS28 was recorded and serum samples were stored at baseline and then at the first, the third and the sixth month of therapy. Intact N-propeptide of type I collagen (PINP) and C-terminal

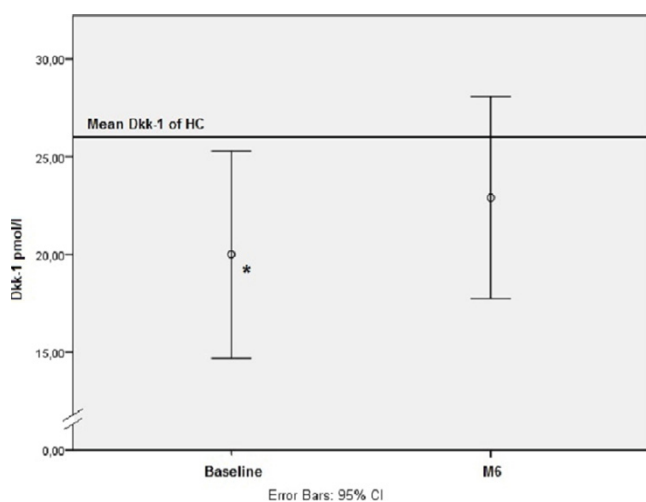
telopeptide of type I collagen (CTX-I). Dickkopf-related-protein 1 (Dkk-1) and sclerostin were dosed too. For the HC group, a single blood sample was taken.

Results: Neither P1NP nor CTX showed any statistically significant variation. Baseline Dkk-1 for the PsA group was lower than HC. Both Dkk-1 and sclerostin demonstrated a significant increase at the sixth month. When the PsA groups was compared to HC, the difference between the levels of Dkk-1 lost significance at month six.

Table 1

Healthy controls (N=43)				
Dkk-1 pmol/l	25,92±11,26†			
Sclerostin pmol/l	33,11±16,85			
PsA patients (N=28)				
	Baseline values (Mean ± SD)	month 1	month 3	month 6
DAS28	3,97±1,30	3,78±1,21	3,57±1,58	3,41±1,55
P1NP ng/ml	43,5±14,5	-0,31±12,91	-0,81±11,97	0,96±14,87
CTX ng/ml	0,25±0,16	0,02±0,14	0,04±0,20	0,08±0,27
Dkk-1 pmol/l	20,0±13,64	-1,45±7,89	-1,38±9,49	2,90±7,45*
Sclerostin pmol/l	30,9±12,02	-0,76±8,39	3,09±7,54*	3,03±7,77*

*p<0,05 vs baseline, †p<0,05 vs Dkk-1 of the PsA group at baseline, month 1 and month 3.



Conclusions: our study demonstrated that the treatment with secukinumab has little influence on the levels of BTM within the first six months of treatment but a definite influence on some fine regulators of the bone cells activity such as the WNT inhibitors and it is able, in some way, to normalize the Dkk-1 levels in PsA patients. The clinical implications of this trend are currently unclear though it might suggest an drug-induced inhibition of the over-proliferation of bone typical of the joint lesions of PsA. Further studies with greater numbers of patients are warranted to determine whether these preliminary results have clinical relevance.

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SAT0446 IXEKIZUMAB IMPROVES PATIENT-REPORTED OUTCOMES IN PATIENTS WITH ACTIVE PSORIATIC ARTHRITIS AND PREVIOUS INADEQUATE RESPONSE TO TUMOUR NECROSIS FACTOR-INHIBITORS

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Background: Ixekizumab (IXE), a monoclonal high affinity antibody that selectively targets interleukin-17A, was superior to placebo (PBO) in achieving clinical responses and improving health related quality of life (HRQoL) for psoriatic arthritis (PsA) patients who were biologic-naïve.¹ Herein, results are presented from a phase 3 trial (SPIRIT-P2; NCT02349295) with IXE in patients with active PsA and previous inadequate response to tumor necrosis factor-inhibitors (TNF-i).

Objectives: To explore the impact of IXE on patient reported HRQoL outcomes up to 24 weeks (wks) in patients with active PsA.

Methods: In this phase 3, multicentre, double-blind study, 363 adult patients with active PsA were randomly assigned in the ratio of 1:1:1 to subcutaneous administration of either 80-mg IXE every 4 wks (Q4W; N=122) or every 2 wks

(Q2W; N=123) following a 160-mg starting dose at Wk 0 or PBO (N=118). All patients entering the study had an inadequate response to one or two TNF-i or were intolerant to TNF-i. At baseline and Wk 24, HRQoL was measured by the Short Form-36 Health Survey (SF-36) Physical Component Summary (PCS) and Mental Component Summary (MCS), European Quality of Life 5 Dimensions Visual Analog Scale (EQ-5D VAS), Work Productivity and Activity Impairment-Specific Health Problem (WPAI-SHP; absenteeism; presenteeism, work productivity, and activity impairment), the Itch Numeric Rating Scale (NRS), and the Dermatology Life Quality Index (DLQI). Itch NRS, DLQI, and Psoriasis Area Severity Index (PASI) responses were assessed in patients with baseline psoriatic lesion involving ≥3% body surface area (BSA; N=203). Treatment comparisons were made by a mixed model for repeated measures for continuous data and by a logistic regression model for categorical data with missing values imputed by nonresponder imputation.

Results: Mean baseline (Wk 0) scores for HRQoL measures indicated impaired physical and mental function, quality of life, and work productivity (Table). At Wk 24, clinical efficacy was shown by 50.6% and 58.1% of IXE-treated patients achieving ACR20 and PASI75 responses, respectively. Patients receiving IXE (Q4W or Q2W) reported significantly greater improvements in SF-36 PCS and MCS, EQ-5D VAS, and WPAI-SHP (presenteeism, work productivity, and activity impairment) than patients treated with PBO (Table; p<.05). For PsA patients with co-morbid psoriasis (≥3% BSA), IXE treatment (Q4W or Q2W) resulted in significantly greater improvements in itch NRS and DLQI than PBO treatment (Table; p<.001). Finally, 51.5% of IXEQ4W patients and 50.0% of IXEQ2W patients reached a DLQI total score of 0 or 1 at Wk 24, which is significantly greater than patients treated with PBO (9.0%, p<.001).

Table: Summary of Patient-Reported Outcomes at Baseline and Week 24

		PBO N=118	IXEQ4W N=122	IXEQ2W N=123
SF-36 PCS ^a	Baseline	33.9 (9.0)	34.8 (8.8)	34.3 (9.1)
	Change from Baseline	3.3 (1.4)	8.9 (1.3)***	8.2 (1.2)***
SF-36 MCS ^a	Baseline	48.0 (13.1)	49.6 (11.3)	49.1 (11.5)
	Change from Baseline	0.9 (1.3)	3.6 (1.2)*	4.0 (1.2)**
EQ-5D VAS ^a	Baseline	53.6 (20.0)	53.9 (22.4)	53.9 (19.7)
	Change from Baseline	1.8 (3.4)	15.3 (3.2)***	12.8 (3.0)***
WPAI-SHP: Absenteeism ^b	Baseline	11.9 (28.1)	11.6 (26.6)	8.8 (23.2)
	Change from Baseline	4.5 (5.0)	3.7 (4.6)	9.4 (4.4)
WPAI-SHP: Presenteeism ^b	Baseline	40.4 (28.8)	45.0 (25.7)	36.9 (25.0)
	Change from Baseline	-7.2 (4.9)	-26.6 (4.3)***	-24.0 (4.1)***
WPAI-SHP: Work Productivity ^b	Baseline	41.5 (29.6)	46.9 (26.7)	38.8 (26.6)
	Change from Baseline	-4.5 (5.4)	-23.2 (4.7)***	-17.6 (4.6)*
WPAI-SHP: Activity Impairment ^b	Baseline	54.0 (25.8)	53.9 (24.9)	49.3 (26.5)
	Change from Baseline	-14.8 (4.1)	-30.2 (3.9)***	-26.2 (3.7)**
Itch NRS ^{b,c}	Baseline	5.7 (2.8)	5.5 (2.5)	5.6 (3.0)
	Change from Baseline	-1.2 (0.5)	-3.4 (0.4)***	-3.5 (0.4)***
DLQI ^{b,c}	Baseline	9.6 (8.1)	9.1 (7.4)	9.2 (7.8)
	Change from Baseline	-3.1 (0.9)	-7.7 (0.3)***	-7.3 (0.8)***

Baseline values are mean (SD); Change from baseline values are least squares mean (SE).

^aIncrease in score represents improvement.

^bDecrease in score represents improvement.

^cPatients were from the intent-to-treat population with ≥3% BSA at baseline.

*p<.05, **p<.01, ***p<.001, with respect to placebo control; p-values are from a repeated measures mixed model.

Conclusions: In patients with active PsA and previous inadequate response to TNF-i, IXE provided significant improvement through 24 wks in all joint and skin associated HRQoL outcomes, including physical and mental function, quality of life, work productivity, DLQI, and itch.

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