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Background: Enthesitis is one of the hallmark of psoriatic arthritis (PsA). Ultrasound (US) accurately detects morphostructural abnormalities indicative of enthesal inflammation and structural damage. Interestingly, in a recent study, US-detected enthesal pathology appeared to be a potential marker of disease severity, being associated with higher radiographic score of structural damage at peripheral joint level. (1) However, a sub-analysis of the impact of each elementary finding of US enthesitis was not performed. Moreover, some US enthesal abnormalities (hypoechoogenicity, thickening and calcification/enthesophyte) have been described as frequent findings in healthy subjects and patients with dysmetabolic conditions, undermining their specificity. (2) Thus, we hypothesized that their role as a sonographic biomarker of joint disease severity could be questioned.

Objectives: The main aim of the present study was to explore the association between the US elementary findings of enthesitis defined by OMERACT [i.e. hypoechoogenicity, thickening, Doppler signal, calcification/enthesophyte and bone erosion at enthesis] (3) and the presence of US-detected joint bone erosions in patients with PsA.

Methods: Consecutive patients with PsA (CASPAR criteria) were included in this cross-sectional single-centre study. The scanning protocol included bilateral assessment of the main entheses of the lower limbs [plantar fascia, quadriceps, patellar (proximal and distal) and Achilles tendons]. The presence of US joint bone erosions was investigated in the following areas: 2nd and 5th metacarpophalangeal (MCP) joints, ulnar head and 5th metatarsophalangeal (MTP) joint, bilaterally, as well as the most inflamed joint at the physical examination. The US examination was carried out with a 6-18 MHz probe. Univariate and multivariate logistic analysis were performed to identify predictors of US joint bone erosions.

Results: A total of 74 PsA patients were enrolled. The mean disease duration was 7.9±8.0 years. Joint bone erosions were found in 36/75 patients (48.0%), and in 71/600 joints (11.8%), most frequently in the 5th MTP joint (in 26/75 patients, 34.7%). The univariate analysis showed that enthesal bone erosions [odds ratio (OR) 27.1, 95% confidence interval (CI) 3.3-220.2, p value <0.01] and Doppler signal (OR 3.5, 95% CI 1.3 - 9.4, p value 0.01) were associated with joint bone erosions. Only enthesal bone erosions remained significantly associated with joint bone erosions in the multivariate analysis (Table 1).

Table 1. Multivariate regression analysis: predictive value of the enthesal US findings for the presence of joint bone erosions.

	OR (95% CI)	P value
Hypoechoogenicity	0.5 (0.1-3.4)	0.45
Thickening	2.2 (0.6-8.3)	0.27
Doppler signal	3.2 (0.9-10.8)	0.06
Calcification/enthesophyte	1.1 (0.1-11.2)	0.99
Enthesal bone erosion	24.2 (2.7-216.2)	<0.01

Conclusion: Enthesal bone erosion and, to a lesser extent, Doppler signal, were the only enthesal abnormalities correlated with the presence of US-detected joint bone erosions, representing potential sonographic biomarkers of disease severity in PsA.

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Disclosure of Interests: Gianluca Smerilli: None declared, Edoardo Cipolletta: None declared, Giulia Maria Destro Castaniti: None declared, Andrea Di Matteo: None declared, Marco Di Carlo: None declared, Erica Mosconi: None declared, Francesca Francioso: None declared, Walter Grassi Speakers bureau: W.G. has received speaking fees from AbbVie, Celgene, Grünenthal, Pfizer and UCB Pharma., Emilio Filippucci Speakers bureau: E.F. has received speaking fees from AbbVie, BMS, Janssen, Lilly, MSD, Novartis, Roche, Pfizer, UCB Pharma.
DOI: 10.1136/annrheumdis-2021-eular.1159

POS1067

BASAL VITAMIN D LEVELS AND DISEASE ACTIVITY AND RESPONSE IN PORTUGUESE PATIENTS WITH PSORIATIC ARTHRITIS UNDER bDMARD: DOES IT MAKE A DIFFERENCE?

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Background: There is growing evidence that vitamin D [25(OH)D] plays an important role in maintaining skeletal health and modulating the immune system. Epidemiological data indicate that vitamin D deficiency is common in immune-mediated rheumatic diseases, especially in rheumatoid arthritis, but there is little data regarding its association with disease activity and response to therapy in patients with psoriatic arthritis (PsA) under bDMARD therapy.

Objectives: We aimed to assess whether 25(OH)D basal levels correlate with disease activity and clinical response to the first bDMARD, at 6 and 12 months of therapy, in a monocentric cohort of patients with PsA.

Methods: This retrospective study was carried out on PsA patients from a Rheumatology department of a tertiary hospital, fulfilling CASPAR criteria and registered in our national database (Reuma.pt), who started the first bDMARD since 2008. Demographic, clinical and laboratory criteria were evaluated at 0, 6 and 12 months of biologic therapy. Disease activity was assessed using CDAI, SDAI, DAS28(4V), BASDAI, ASDAS, DAPSA and the response was measured using the EULAR, BASDAI50, ASDAS, ASAS, ACR and PsARC responses. Correlations were made between absolute serum levels of 25(OH)D and continuous variables, as well as associations between different vitamin D cutoffs and disease activity measures and response criteria. Multiple linear and logistic regression analyses were performed to determine whether vitamin D is a predictor of disease activity and therapeutic response.

Results: We included 81 patients, 41 (50.6%) females; with a mean age of 48.0±11.7 years, a mean disease duration of 9.5±7.4 years and a mean body mass index of 28.4±5.2kg/m². Thirteen (16.0%) were smokers. The mean 25(OH)D basal level was 25.5±13.2ng/mL, 21 (25.9%) had 25(OH)D basal levels ≥30ng/mL and 31 (38.3%) ≤20ng/mL. Sixty-two patients (76.5%) were under csDMARD therapy. Golimumab (29, 35.8%), etanercept (28, 34.6%) and adalimumab (10, 12.3%) were the most frequently prescribed bDMARDs. There were only very weak, albeit positive, correlations between 25(OH)D levels and measures of disease activity. The BASDAI50 response at 6 months was associated with higher basal 25(OH)D levels (29.5±14.5 vs 21.5±10.2ng/mL, p = 0.013); the ASAS20 (33.9±15.9 vs 24.2±12.8ng/mL; p = 0.023), ASAS40 (31.9±14.6 vs 25.0±13.8ng/mL; p = 0.023) and ASAS70 (47.0±4.2 vs 26.6±14.2; p = 0.027) responses at 12 months were associated with higher basal levels of 25(OH)D; basal 25(OH)D levels were ≥ 30ng/mL in a significantly higher proportion of patients who achieved CDAI (38.9% vs 10.5%; p = 0.027) and SDAI (38.9% vs 7.7%; p = 0.008) remission and ASDAS disease inactive (29.4% vs 7.3%; p = 0.040) at 1 year. In the regression models, basal levels of 25(OH)D were found to be predictors of good EULAR responders (OR 1.315, 1.017-1.213 95% CI; p = 0.037) at 6 months. Basal levels of 25(OH)D were not significantly different in patients who discontinued bDMARD or no significant correlations or associations were identified regarding more specific PsA activity measures, such as DAPSA and PsARC, nor were they predictive of these responses.

Conclusion: We can conclude that there is a global trend for an association between higher levels of vitamin D and lower measures of disease activity and better therapeutic responses to the first biologic. It was possible to find statistically significant associations with some disease activity measures and response criteria that, although primarily designed for other rheumatic diseases, are often used in PsA.

Disclosure of Interests: None declared.

DOI: 10.1136/annrheumdis-2021-eular.1255

POS1068

CARDIAC BIOMARKERS ARE ASSOCIATED WITH THE DEVELOPMENT OF CARDIOVASCULAR EVENTS IN PATIENTS WITH PSORIATIC ARTHRITIS AND PSORIASIS

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Background: N-terminal pro-brain-type natriuretic peptide (NT-proBNP) and troponin I (TnI) are established cardiac biomarkers that predict cardiovascular events (CVEs) in the general population. While patients with psoriatic arthritis and psoriasis, collectively termed psoriatic disease (PsD), have an increased risk of developing CVEs, the use of these cardiac biomarkers to predict CV risk has not been investigated in this population.

Objectives: We aimed to evaluate the association between these cardiac biomarkers and incident CVEs, and assess their predictive value beyond the Framingham Risk Score (FRS).

Methods: A longitudinal cohort study was conducted in patients with PsD without prior history of CVEs. NT-proBNP and TnI concentrations were measured using automated clinical assays in the first available serum sample. The study outcome included any of the following CVEs occurring within the first 10 years of biomarker assessment: angina, myocardial infarction, transient ischemic attack, stroke, revascularization and CV death. Associations with incident CVEs were analyzed separately for each biomarker using Cox proportional hazards regression models first adjusted for age and sex, and subsequently for the FRS. The added value of cardiac biomarkers to improve predictive performance beyond the FRS was assessed using the area under the receiver operator characteristic curve (AUC), net reclassification index (NRI) and integrated discrimination index (IDI).

Results: A total of 1000 patients with PsD were assessed between 2002 and 2019 (mean age 49 ± 12.8 years, 44.6% female) (Table 1). During a mean follow-up of 7.1 years, 64 patients developed incident CVEs. Both TnI (Hazard Ratio (HR) 3.02, 95% Confidence Interval (CI) 1.12, 8.16) and NT-proBNP (HR 2.02; 95% CI 1.28, 3.18) predicted CVEs independently of the FRS (Figure 1). The association was stronger in males than females. Including all cardiac biomarkers and the FRS in a single model, NT-proBNP retained statistical significance (HR 1.91, 95% CI 1.23, 2.97), while TnI did not (HR 2.60, 95% CI 0.98, 6.87). When comparing the predictive performance of the base model (FRS alone, AUC 75.4) to the expanded models, there was no significant improvement in any of the predictive indices with the addition of TnI (AUC 73.5, $p = 0.21$; NRI 0.08, $p = 0.67$; IDI 0.005, $p = 0.37$), NT-proBNP (AUC 71.0, $p = 0.35$; NRI 0.20, $p = 0.06$; IDI 0.017, $p = 0.10$), or both TnI and NT-proBNP (AUC 70.0, $p = 0.23$; NRI 0.27, $p = 0.05$; IDI 0.021, $p = 0.05$).

Conclusion: In patients with PsD, elevated NT-proBNP and TnI predict incident CVEs independent of the FRS. We did not observe a significant improvement in the performance of the predictive model when combining these cardiac biomarkers with the FRS.

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Table 1. Baseline characteristics of the study population (n=1000)

Variable	Mean $\pm$ SD / Frequency (%)
PsA, no. (%)	648 (64.8)
PsC, no. (%)	352 (35.2)
Age (years)	49 ± 12.8
Male sex, no. (%)	554 (55.4)
Disease duration (years)	20.2 ± 14.1
Ethnicity, Caucasian (%)	834 (83.4)
Current smoker (%)	164 (16.4)
FRS (%)	8.2 ± 8.6
Diabetes	77 (7.7)
Hypertension	274 (27.4)
BMI (kg/m^2)	28.7 ± 5.9
PASI	4.1 ± 6.3
Use of lipid-lowering medications (%)	100 (10)
Current use of DMARDs	362 (36.2)
Current use of Biologics	214 (21.4)
Current use of NSAIDs (daily use)	265 (26.5)

¹ Applicable only to patients with PsACVE, cardiovascular events; DMARD, disease-modifying antirheumatic drug; FRS, Framingham Risk Score; NSAID, non-steroidal anti-inflammatory drug; PASI, Psoriasis Area Severity Index; PsA, psoriatic arthritis; PsC, psoriasis without arthritis

Figure 1. Hazard ratios of cardiac biomarker measures for incident cardiovascular events (n = 1000, 64 events). Error bars denote 95% confidence intervals. CI indicates confidence interval; CVEs, cardiovascular events; FRS, Framingham Risk Score; NT-proBNP, N-terminal pro-brain-type natriuretic peptide; TnI, troponin I.

Acknowledgements: Keith Colaco is supported by the Enid Walker Estate, Women's College Research Institute, Arthritis Society (TGP-19-0446), National

Psoriasis Foundation (Early Career Grant) and the Edward Dunlop Foundation. Lihi Eder is supported by a Young Investigator Award from the Arthritis Society and an Early Researcher Award from the Ontario Ministry of Science and Innovation. The study was supported in part by a discovery grant from the National Psoriasis Foundation and an operating grant from the Arthritis Society (YIO-16-394).

Disclosure of Interests: None declared.

DOI: 10.1136/annrheumdis-2021-eular.1297

POS1069

VALIDATION OF THE DISEASE ACTIVITY INDEX FOR PSORIATIC ARTHRITIS (DAPSA) WITH A QUICK QUANTITATIVE C-REACTIVE PROTEIN ASSAY (Q-DAPSA) IN PATIENTS WITH PSORIATIC ARTHRITIS (PSA): A PROSPECTIVE, NATIONAL, MULTICENTER STUDY

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Background: Psoriatic arthritis (PsA) is a heterogeneous disease with multiple musculoskeletal and dermatological manifestations. Due to this multifaceted clinical appearance, international guidelines do not provide a clear recommendation for one specific score to assess disease activity in PsA [1]. The Disease Activity Index for Psoriatic Arthritis (DAPSA), a validated, unidimensional score focusing on joint involvement, is one of the recommended options [1]. However, routine determination of C-reactive protein (CRP) to calculate DAPSA values takes hours to days. In contrast, quick quantitative CRP (qCRP) tests require only a few minutes and might facilitate regular assessment of the DAPSA (as Q-DAPSA) in clinical routine.

Objectives: To validate the Q-DAPSA in a prospective, multicenter study of PsA patients. Since the Disease Activity Score 28 (DAS28) is not only used in rheumatoid arthritis, but also in PsA patients, the study also investigated the performance of a qCRP based DAS28 (DAS28-qCRP) in a PsA cohort.

Methods: The study was conducted in five centers in Berlin, Germany. Consecutive adult (≥ 18 years) PsA patients were included. In addition to a rheumatological assessment, including patient reported outcomes (PROs), routine CRP and erythrocyte sedimentation rate (ESR) were measured in the local labs. Additionally, a qCRP testing with the „QuikRead go instrument“ (Aidian Oy, Finland) was performed locally at the study center (measurement range 0.5 - 200 mg/l for hematocrit concentrations of 40 - 45%). Statistical analysis included descriptive statistics, cross tabulation and weighted Cohen's kappa comparing disease activity categories, Bland-Altman plots and intraclass correlation coefficient (ICC) for DAPSA, Q-DAPSA, DAS28-CRP and DAS28-qCRP.

Results: In this study 104 patients were included between January and October 2020 (mean age: 51.2 years, mean disease duration: 7.1 years, 49 patients (47.1%) were male). 53 patients (51.0%) were treated with a bDMARD and 37 patients (35.6%) with csDMARDs. CRP and qCRP showed mean values of 5.20 and 6.17 mg/l, respectively. With the Q-DAPSA, 103 patients (99.0%) were assigned to the same disease activity category when compared to DAPSA (Table 1). Weighted Cohen's kappa was 0.990 (95%CI 0.970; 1.000). ICC for numerical values of DAPSA and Q-DAPSA was 1.000 (95%CI 0.999; 1.000). The agreement of Q-DAPSA and DAPSA is shown in a Bland-Altman plot (Figure 1). DAS28-CRP and -qCRP were available for 103 patients; 101 patients (98.1%)

Table 1. Disease activity categories by Q-DAPSA vs. DAPSA

		Q-DAPSA (n = 104)			
		Remission (≤ 4)	Low Disease Activity (> 4 and ≤ 14)	High Disease Activity (> 14 and ≤ 28)	Very high Disease Activity (> 28)
DAPSA	Remission (≤ 4)	36 (34.6%)	1 (1.0%)		
	Low Disease Activity (> 4 and ≤ 14)		39 (37.5%)		
	High Disease Activity (> 14 and ≤ 28)			22 (21.2%)	
	Very high Disease Activity (> 28)				6 (5.8%)

The fields highlighted in red indicate that disease activity categories do not match. DAPSA = Disease activity index for Psoriatic Arthritis, Q-DAPSA = DAPSA calculated based on a quick quantitative CRP