POS1064

SERUM BIOMARKERS BEFORE AND AFTER A SIX MONTHS STRUCTURED WEIGHT LOSS INTERVENTION IN PATIENTS WITH PSORIATIC ARTHRITIS AND OBESITY COMPARED WITH CONTROLS

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Background: Obesity is highly overrepresented in psoriatic arthritis (PsA) and associated with increased disease activity. We have previously shown in 41 patients with PsA (Caspas criteria) and obesity (here body mass index BMI $\geq 33\text{ kg/m}^2$) that weight loss treatment including Very Low Energy Liquid Diet (VLED) resulted in a median weight loss of 18.6% and concomitantly a significant improvement in CRP and disease activity in joints, entheses and skin at six months (M6) follow up.

Objectives: To analyze serum biomarkers associated with inflammation, cartilage and bone metabolism before and after weight loss treatment in PsA patients compared with controls, without PsA or psoriasis, matched for age, sex and weight.

Methods: The weight loss treatment included VLED (640 kcal/day) during 12 or 16 weeks (depending on baseline (BL) BMI <40 or $\geq 40\text{ kg/m}^2$), followed by a structured reintroduction of an energy restricted diet. cs/bDMARDs were held unchanged from 3 months before BL until M6. The patients were assessed with 66/68 joints counts.

Serum levels of vascular endothelial growth factor (VEGF), S100A8, S100A9, matrix metalloproteinases (MMP-3, 8 and 13), hepatocyte growth factor (HGF), B-cell activating factor (BAFF), Dickkopf (DKK)-1, sclerostin (SOST), soluble receptor activator of nuclear factor- κ B ligand (RANKL), osteoprotegerin (OPG) and aggrecan were measured at BL and M6 in PsA patients and controls with Magnetic Luminescence Assays (R&D-systems) following the manufacturer's instructions using a Bio-Plex 200 system (BioRad). Serum cartilage oligomeric matrix protein (COMP) (R&D-systems), carboxyterminal telopeptide of type-1 collagen (CTX-1) (Immunodiagnosics systems: IDS) and osteocalcin (IDS) were measured with enzyme-linked immunosorbent assay (ELISA).

Results: Totally 41 PsA patients [age median 54 (IQR 48-62) yrs; 63 % women] and 39 controls [age 55 (46-60) yrs, 72 % women] were included. At M6 the weight-loss since BL was 18.7 (14.6-26.5) kg in the PsA patients and 22.6 (14.7-28.4) kg in the controls ($p=0.546$). Significant reductions in DAS28CRP [2.9 (2.1-3.7) vs. 2.4 (1.7-3.0)] and DAPSA [15.3 (6.6-29.1) vs. 11.0 (2.8-17.6)] ($p<0.001$) were seen in the PsA patients.

At BL serum levels of the biomarkers were not significantly different in patients vs. controls.

After weight-loss significant reductions were seen in serum VEGF, S100A8, MMP-8, HGF, BAFF, COMP and DKK-1, whereas serum SOST and CTX-1 were significantly increased in both patients and controls (Table 1). The other biomarkers were not significantly changed.

Conclusion: Weight loss in patients with PsA and controls was associated with lowered serum levels of several biomarkers related to inflammation and cartilage degradation, along with increased levels of biomarkers for bone turnover.

Disclosure of Interests: None declared.

DOI: 10.1136/annrheumdis-2021-eular.999

Table 1.

	PsA (N=41)	PsA (N=41)	PsA	Ctrl (N=39)	Ctrl (N=39)	Ctrl
	BL median (IQR)	M6 median (IQR)	p-value	BL median (IQR)	M6 median (IQR)	p-value
BMI (kg/m ²)	35.2 (34.1-38.1)	29.8 (26.6-31.5)	<0.001	37.7 (36.7-41.5)	30.4 (27.9-33.2)	<0.001
CRP (mg/L)	4 (2-8.5)	2 (1-6.5)	0.041	4 (2-6)	2 (1-4)	<0.001
VEGF (pg/mL)	79.6 (55.9-113.5)	69.6 (53.1-105.3)	0.010	82.3 (48.0-125.9)	65.0 (42.2-85.5)	<0.001
S100A8 (pg/mL)	75.5 (48.0-99.5)	63.3 (42.8-93.6)	0.021	71.8 (40.5-101.0)	63.3 (40.3-85.7)	0.006
MMP-8 (pg/mL)	9975.4 (6811.8-14154.8)	9202.6 (5767.1-12049.6)	0.017	7494.7 (4805.2-12616.9)	7218.3 (3466.0-9785.3)	0.112
HGF (pg/mL)	327.9 (250.3-413.6)	271.3 (206.9-331.0)	<0.001	307.9 (239.1-348.3)	239.8 (200.3-276.0)	<0.001
BAFF (pg/mL)	794.4 (716.4-868.2)	674.6 (613.2-790.5)	<0.001	760.8 (664.1-827.3)	678.1 (603.7-719.8)	<0.001
COMP (pg/mL)	266.1 (209.8-366.0)	217.0 (156.0-272.0)	0.008	293.6 (185.2-340.5)	221.6 (163.5-300.0)	0.018
Dkk-1 (pg/mL)	3608.4 (3055.0-4401.3)	3382.6 (2802.5-4218.2)	0.002	3635.8 (3212.8-4380.6)	3480.4 (2948.9-4087.3)	0.007
SOST (pg/mL)	52.9 (32.5-65.4)	60.3 (37.2-85.6)	0.014	50.0 (30.8-79.3)	61.3 (35.7-81.4)	0.019
CTX-1 (ng/mL)	0.27 (0.20-0.39)	0.51 (0.35-0.64)	<0.001	0.23 (0.16-0.34)	0.50 (0.30-0.61)	<0.001

POS1065

CIRCULATING ENDOTHELIAL CELLS AS A MARKER OF CARDIOVASCULAR DISEASES IN PATIENTS WITH PSORIATIC ARTHRITIS

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Background: Psoriatic arthritis (PsA) is a chronic inflammatory joint disease which develops in patients with psoriasis. Mortality among patients with PsA is 1.28 times higher than population levels and in most cases it is caused by cardio-vascular diseases (CVD). Those patients have increased risk of clinical and subclinical CVD, mostly due to endothelial dysfunction (ED) and accelerated atherosclerosis. Elevated levels of circulating endothelial cells (CEC) have been described in different cardiovascular pathologies, suggesting their potential use as diagnostic biomarkers for dysfunction of endothelium.

Objectives: To identify the potential role of circulating endothelial cells as a marker of cardiovascular diseases in patients with psoriatic arthritis.

Methods: In total, ninety-four patients with PsA, who fulfilled the disease criteria (CASPAR) were examined using standard diagnostic methods (including C-reactive protein (CRP), lipid profile) and evaluation endothelium-dependent vasodilation in response to reactive hyperemia (EDVD). Circulating endothelial cells were determined in the peripheral venous blood samples by flow cytometry and counted according to a standardized protocol using a fluorescence microscope after acridine orange labeling. The control group, which were consisted from thirty healthy adults were also examined.

Results: CEC were quantified in patients with PsA (7.15 ± 0.19 cells mL^{-1}) and in the control group (4.05 ± 0.11 cells mL^{-1}). Comparing two groups of patients, endothelial circulating cell level was significantly different ($p = 0.0001$). Finally, we analyzed the relationship between CEC count, comorbidities, cardiovascular risk factors and EDVD in patients with PsA. Increased CEC levels were associated with obesity ($r=0.62$), duration of disease ($r=0.65$), age ($r=0.67$), increased CRP ($r=0.76$), high blood pressure ($r=0.87$) and decreased EDVD ($r=-0.91$).

Conclusion: CEC counts were significantly higher in patients with PsA, positively correlated with the main factors of CVD, and another specific marker of ED - EDVD. Elevated CEC levels were also associated with high concentrations of CRP, which plays a direct role in promoting vascular inflammation, vessel damage and clinical CVD events. In conclusion, increased CEC counts provide a direct proof of endothelial damage in patient with PsA and a clinically informative diagnostic tool for endothelial damage in pre-symptomatic CVD. As CEC are one of the most sensitive biomarker for ED, further efforts should concentrate on improving the sensitivity of its detection in order to increase diagnostic sensitivity.

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Disclosure of Interests: None declared.

DOI: 10.1136/annrheumdis-2021-eular.1000

POS1066

IS ENTESITIS A SONOGRAPHIC BIOMARKER OF DISEASE SEVERITY IN PSORIATIC ARTHRITIS? THE LINK BETWEEN ULTRASOUND ENTHESEAL ABNORMALITIES AND PERIPHERAL JOINT EROSION DAMAGE

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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 enthesitis] (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.