Background: Obesity is highly overrepresented in psoriatic arthritis (PsA) and associated with increased disease activity. We have previously shown in 41 patients with PsA (Caspar criteria) and obesity (here body mass index BMI ≥33 kg/m2) 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 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 ≥40 kg/m2), followed by a structured reintroduction of an energy restricted diet. cs/bDMARDs were held or 16 weeks (depending on baseline (BL) BMI <40 or ≥40 kg/m2), followed by a structured reintroduction of an energy restricted diet. cs/bDMARDs were held.

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 patients were assessed with 66/68 joints counts.

<table>
<thead>
<tr>
<th>Biomarker</th>
<th>PsA (N=41)</th>
<th>PsA (N=41)</th>
<th>PsA</th>
<th>Ctrl (N=39)</th>
<th>Ctrl (N=39)</th>
<th>Ctrl</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI (kg/m²)</td>
<td>33.2 (31.3-35.1)</td>
<td>29.8 (26.9-31.5)</td>
<td>&lt;0.001</td>
<td>37.7 (36.7-41.5)</td>
<td>30.4 (27.9-33.2)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>CRP (mg/L)</td>
<td>4 (2-8.5)</td>
<td>2 (1-6.5)</td>
<td>0.041</td>
<td>4 (2-6)</td>
<td>2 (1-4)</td>
<td>0.001</td>
</tr>
<tr>
<td>VEGF (pg/mL)</td>
<td>75.6 (58.9-113.5)</td>
<td>69.6 (53.1-105.3)</td>
<td>0.010</td>
<td>83.2 (48.0-125.9)</td>
<td>65.0 (42.8-85.5)</td>
<td>0.006</td>
</tr>
<tr>
<td>MMP8 (pg/mL)</td>
<td>75.5 (48.0-99.5)</td>
<td>63.3 (42.9-93.6)</td>
<td>0.027</td>
<td>71.8 (45.0-101.0)</td>
<td>63.3 (43.5-85.7)</td>
<td>0.006</td>
</tr>
<tr>
<td>CRP (mg/L)</td>
<td>9975.4</td>
<td>9202.6</td>
<td>0.007</td>
<td>7494.7</td>
<td>7218.3</td>
<td>0.112</td>
</tr>
<tr>
<td>VEGF (pg/mL)</td>
<td>3273 (2930–3,413.6)</td>
<td>2713 (208.6-331.0)</td>
<td>0.001</td>
<td>3073 (2391.1-348.3)</td>
<td>239.8 (2003.2-276.0)</td>
<td>0.001</td>
</tr>
<tr>
<td>BAFF (pg/mL)</td>
<td>794.4 (716–868.2)</td>
<td>674.6 (613.2-790.5)</td>
<td>0.008</td>
<td>760.8 (646.1-927.3)</td>
<td>678.1 (603.7-719.8)</td>
<td>0.001</td>
</tr>
<tr>
<td>COMP (pg/mL)</td>
<td>266.1 (209.8–366.0)</td>
<td>2170 (156.0-272.0)</td>
<td>0.002</td>
<td>293.6 (185.2-340.5)</td>
<td>221.6 (163.5-300.0)</td>
<td>0.018</td>
</tr>
<tr>
<td>Dkk-1 (pg/mL)</td>
<td>3608.4</td>
<td>3382.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOST (pg/mL)</td>
<td>52.9 (32.5–65.4)</td>
<td>60.3 (37.2-85.6)</td>
<td>0.014</td>
<td>50.0 (30.8-79.3)</td>
<td>63.3 (35.7-81.4)</td>
<td>0.019</td>
</tr>
<tr>
<td>CTX-1 (ng/mL)</td>
<td>0.27 (0.20–0.36)</td>
<td>0.31 (0.25–0.46)</td>
<td>&lt;0.001</td>
<td>0.23 (0.15–0.43)</td>
<td>0.50 (0.32–0.61)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Disclosure of Interests: None declared.

DOI: 10.1136/ann rheum dis-2021-ecru.2000

References:

Disclosure of Interests: None declared.

DOI: 10.1136/annrheumdis-2021-eular.1000

Table 1
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 (hypoechogenicity, thickening, 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. hypoechogenicity, thickening, Doppler signal, calcification/enthesophyte and bone erosion at entheses) (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 73.9±60.0 years, and joint erosions were found in 36/75 patients (48.0%), and in 71/75 joints (91.6%), 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.

<table>
<thead>
<tr>
<th>OR (95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypoechogenicity</td>
<td>0.5 (0.1-3.4)</td>
</tr>
<tr>
<td>Thickening</td>
<td>2.2 (0.6-8.3)</td>
</tr>
<tr>
<td>Doppler signal</td>
<td>3.2 (0.9-10.8)</td>
</tr>
<tr>
<td>Calcification/enthesophyte</td>
<td>1.1 (0.1-11.2)</td>
</tr>
<tr>
<td>Enthesal bone erosion</td>
<td>24.2 (2.87-162)</td>
</tr>
</tbody>
</table>

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.

REFERENCES:

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