Keywords: Vasculitis, Imaging, Ultrasound

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Background: The OMERACT ultrasonography large vessel vasculitis working group has recently developed an ultrasonography (US) composite score, the OMERACT giant cell arteritis (GCA) Ultrasonography Score (OGUS), to assess the extent of vascular inflammation by US and to monitor disease activity in patients with GCA[1].

Objectives: Our objective was to assess the sensitivity to change of this score and to determine whether OGUS variations after treatment are associated with the risk of relapse during follow-up.

Methods: Retrospective observational study of patients referred to a US GCA fast track clinic of an academic center over a 2-year period with GCA clinical confirmation. All patients underwent baseline US evaluation at the time of diagnosis and at 3- and 6-month visits per protocol. OGUS was calculated as the sum of intima media thickness (IMT) in every segment divided by the rounded cut-off values of IMTs in each segment (0.4 mm for the common trunk of superficial temporal arteries, 0.3 mm for the parietal and frontal branches and 1 mm for the axillary arteries). The total sum was divided by the number of segments available. OGUS score >1 indicates abnormal exam. EULAR definitions for remission and major and minor relapse were checked for every patient at 3 and 6 months. Patients were treated according to clinical response with standard therapy. Sensitivity to change of OGUS was calculated as negative values of standardized mean difference (SMD) for each visit separately. The t-student test for paired samples was used for comparing baseline and follow-up OGUS assessments. 0-3 and 0-6-months OGUS variations were compared between patients with and without relapse during follow-up and with and without achievement of remission at 6 months.

Results: A total of 35 GCA patients were included for analysis (mean age 77.4 years, 62.9 % females). Ten (28.6%) patients relapsed at 3 or 6 months during follow-up, of whom 8 (22.9%) showed a minor relapse. EULAR definition of remission at 6 months was achieved by 18 (51.4%) patients. Mean (SD) baseline OGUS was 1.34 (0.34). OGUS improved significantly at 3 (1.34 vs 1.14, p<0.013) and 6 months (1.34 vs 1.1, p<0.01). The SMD of OGUS between baseline and 3 and 6 months was -0.49 and -0.61, respectively. 0-3- and 0-6-month OGUS variations in patients with and without relapse during follow-up and patients with and without achievement of remission at 6 months are shown in detail in Table 1. Mean 0-6-month OGUS improvement was significantly lower in patients with relapse during follow-up (-0.08 vs 0.35, p=0.049). On the other hand, mean 0-6-month OGUS improvement was greater in patients achieving remission at 6 months (0.35 vs 0.04, p=0.042).

Conclusion: OGUS shows moderate sensitivity to change in patients with GCA after standard therapy at 3 and 6 months. The absence of OGUS improvement during follow-up is associated with the risk of relapse and the probability of not achieving remission. These findings highlight the usefulness of this tool in clinical practice and may support personalized medical decisions during treatment tapering.

REFERENCE:

Table 1. 0-3- and 0-6-months OGUS variations in patients with and without relapse during follow-up and with and without achievement of remission at 6-months.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>All patients n = 35</th>
<th>Relapse during follow-up n = 10</th>
<th>No relapse during follow-up n = 25</th>
<th>p</th>
<th>Remission at 6-months n=18</th>
<th>No remission at 6-months n=17</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3-months</td>
<td>OGUS variations, mean (SD)</td>
<td>0.20 (0.39)</td>
<td>0.04 (0.57)</td>
<td>0.26 (0.29)</td>
<td>0.311 (0.23)</td>
<td>0.25 (0.57)</td>
<td>0.821</td>
</tr>
<tr>
<td>0-6-months</td>
<td>OGUS variations, mean (SD)</td>
<td>0.24 (0.36)</td>
<td>-0.08 (0.45)</td>
<td>0.35 (0.45)</td>
<td>0.049 (0.35)</td>
<td>0.26 (0.45)</td>
<td>0.042</td>
</tr>
<tr>
<td>3-6-months</td>
<td>OGUS variations, mean (SD)</td>
<td>0.04 (0.37)</td>
<td>-0.04 (0.62)</td>
<td>0.11 (0.45)</td>
<td>0.391 (0.24)</td>
<td>0.13 (0.57)</td>
<td>0.345</td>
</tr>
</tbody>
</table>

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