Effects of EPA+DHA on CRP Levels in Patients with Chronic Venous Leg Ulcers - A Pilot Study

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**Introduction/Background**
- Chronic venous leg ulcers (CVLUs) affect about 1% of the US population and about 4% of individuals over the age of 65 years.  
- High healthcare costs (about $3 billion/year) associated with CVLUs and their increasing prevalence support the testing of novel interventions to expedite healing.  
- CVLU pathogenesis involves unremitting inflammation.

**Theoretical Framework**

**Methods/Measurements**

**Study Purpose**
To compare inflammation status, determined by plasma CRP levels, between participants with CVLUs receiving EPA+DHA supplements x 8 weeks and participants receiving a placebo x 8 weeks.

**Primary aim:** To compare CRP levels at baseline and after 8 weeks between CVLU participants in an Active group receiving oral EPA (1.6 g/d) + DHA (1.2 g/d) supplements and those in a Placebo group (5 cc/d mineral oil).

**Setting:** Clinical Research Center at The Ohio State University

**Sample:** 17 CVLU patients from Central Ohio, 28-81 years of age

**Measures:**
- Plasma levels of CRP - Cayman's CRP (human) enzyme immunoassay kit
- Anthropometric data - Harpenden Stadiometer and ProPlus Scale (Body Mass Index- BMI)
- Sociodemographic data - Electronic questionnaire (self-report)

**Results**

**Patient Characteristics (N=17)**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, mean ± SD</td>
<td>62±12.51</td>
</tr>
<tr>
<td>BMI, kg/m²</td>
<td>41.94±12.78</td>
</tr>
<tr>
<td>Race: Caucasian, n</td>
<td>14</td>
</tr>
<tr>
<td>African American, n</td>
<td>3</td>
</tr>
<tr>
<td>Male, n</td>
<td>10</td>
</tr>
<tr>
<td>Female, n</td>
<td>7</td>
</tr>
<tr>
<td>Education: Graduate, n</td>
<td>6</td>
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<tr>
<td>High School Graduate, n</td>
<td>6</td>
</tr>
<tr>
<td>Household Income: &lt; $10,000, n</td>
<td>3</td>
</tr>
<tr>
<td>$10,000-$24,999, n</td>
<td>7</td>
</tr>
<tr>
<td>$25,000-$44,999, n</td>
<td>5</td>
</tr>
<tr>
<td>&gt; $45,000, n</td>
<td>4</td>
</tr>
<tr>
<td>BMI, kg/m², mean ± SD</td>
<td>41.94±12.78</td>
</tr>
<tr>
<td>EPA+DHA index of &gt; 8%</td>
<td>-</td>
</tr>
</tbody>
</table>

CRP Change Scores 0-8 weeks

**Discussion**

- We report no statistically significant difference in inflammation, as determined by CRP change scores (0-8 weeks), between an Active and Placebo Group of CVLU patients, however a moderate effect (.42) on inflammation (CRP levels) was observed in the Active Group who consumed EPA+DHA supplements. This level of effect suggests a need to repeat the experiment with a larger sample. Thus these data may be used to guide future study designs.
- Although previous studies have reported positive links between BMIs and inflammation, we report no significant correlation between BMIs and CRP.
- Ten of 17 participants self-reported an income of <$19,999/year ($15,930 is poverty line for 2-person household). Limited financial resources could deter purchase of nutrient dense foods important for efficient wound healing & general health in this population.

**Implications for Nursing**

- An interdisciplinary (including nurses & registered dieticians) treatment approach that addresses potential nutritional needs of CVLU patients may improve healing outcomes.
- Interventions that encourage healthy food choices (e.g. fish containing high levels of EPA+DHA, fruits and vegetables) and exercise as tolerated to reach healthy weights may improve healing outcomes and overall health of CVLU patients.

**Future Research**

- EPA+DHA supplements, when indicated, could potentially reduce inflammation that may facilitate CVLU healing, but additional research using larger samples of more diverse populations is needed.

**References**


**The Ohio State University**

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