THE ROLE OF PARAOXONASE 1 (PON1) AS AN OXIDATION MARKER IN THE IMPROVEMENT OF MUSCLES AFTER AN INCREASE IN BETAHYDROXYBUTYRATE (BHB) IN BLOOD IN PATIENTS WITH MULTIPLE SCLEROSIS

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INTRODUCTION

Multiple sclerosis (MS) is a chronic neurodegenerative disease of an autoimmune nature, which causes high oxidative stress and progressive loss of skeletal muscle.

The increase of beta-hydroxybutyrate (BHB) is outlined as its high levels show improvements in diseases of a neuronal nature. The effect of BHB related to anthropometric changes characterised by an increase in muscle mass has also been associated with the ability to restore mitochondrial activity, predictably by a decrease in ROS and RNS.

PON1 is a marker associated with low levels of oxidative stress and inflammation.

Table 1: Comparison between the values obtained pre-test (before the intervention) and post-test (after the intervention) of the variable Beta-hydroxybutyrate (BHB) and percentage of muscle mass in the intervention group.

<table>
<thead>
<tr>
<th>Intervention Group</th>
<th>Pre (Mean ± SD)</th>
<th>Post (Mean ± SD)</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>BHB (Mmol/L)</td>
<td>0.6 ± 0.4</td>
<td>1.0 ± 0.4</td>
<td>-2.005</td>
<td>.045*</td>
</tr>
<tr>
<td>Muscle Mass (%)</td>
<td>39.39 ± 2.88</td>
<td>40.22 ± 2.86</td>
<td>-2.955</td>
<td>.003*</td>
</tr>
</tbody>
</table>

BHB: Beta-hydroxybutyrate; PON1: Paraoxonase 1; SD: Standard Deviation; Z: Wilcoxon Test; Statistically significant differences p < 0.05

RESULTS

There was a significant increase in the levels of PON1 and BHB in the blood after the intervention, as well as in muscle percentage that also increased significantly.

CONCLUSION

The enzyme PON1 could be related to oxidation status when muscle improvement occurs in MS patients, after an increase of BHB in blood.

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REFERENCES