AMYOTROPHIC LATERAL SCLEROSIS AND OXIDATIVE STRESS: A DOUBLE BLIND TRIAL AFTER DIETARY SUPPLEMENT BY A CURCUMIN DONOR

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Curcumin is a yellow-orange pigment, originally isolated from the plant Curcuma longa. It is capable of crossing the blood-brain barrier. Biological effects:
- anti-inflammatory
- immunomodulatory
- anti-viral
- anti-fungal
- anti-bacterial
- anti-angiogenic
- anti-mutagenic
- mitochondrial protection
- antioxidant

Clinical and laboratory assessment of the effect of dietary supplementation with Brainoil on a sample of 42 ALS patients.

Inclusion criteria:
- ALS definite, probable, possible/laboratory support diagnosis (El Escorial criteria1998)
- Age: 18 - 85 years
- capacity of discernment
- informed consent

Exclusion criteria:
- Tracheotomy;
- Patients with serious psychiatric disorders (Axis 1 or 2 of the DSM IV)
- pregnancy or breastfeeding

Exit criteria:
- Serious adverse events
- Consent withdrawal
- deviations from the scheme of protocol

Exercise test: squeeze the handgrip 1/s

Handgrip force

0%
100%

70%
50%
30%
10%

Time (minutes)

0 1 2 3 4 6 7 22

T-1 T0 placebo (3 months)
T1 T2 Brainoil (5 months)

Clinical evaluation:
- MRC scale (Medical Research Council)
- ALS-FRS (ALS Functional Rating Scale)
- BMI (Body Mass Index)
- MHF (Maximum Handgrip Force)

Biochemical markers:
- AOPP (Advanced Oxidation Protein Products)
- FRAP (Ferric Reducing Ability of Plasma)
- Thiols
- Lactate

RESULTS:

<table>
<thead>
<tr>
<th>n.</th>
<th>M</th>
<th>F</th>
<th>average age</th>
<th>onset clinical form</th>
<th>average disease duration</th>
<th>average age at diagnosis</th>
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<tr>
<td>T0</td>
<td>42</td>
<td>20</td>
<td>22</td>
<td>62.41</td>
<td>7</td>
<td>9</td>
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<tr>
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<td>18</td>
<td>18</td>
<td>62.06</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>T2</td>
<td>14</td>
<td>6</td>
<td>8</td>
<td>64.75</td>
<td>3</td>
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</tbody>
</table>

The results show no significant changes after Brainoil assumption, except for an unexpected trend (increase in both groups A and B).

CONCLUSIONS:

Curcumin reduces the production of lactate during muscular exercise (Curcumin action on mitochondrial function?)

seems to decelerate weakly the decline of muscular strenght, body mass and daily activities in ALS patients.

Proposals:
- search for more reliable markers of oxidative stress
- increase curcumin’s dosage
- increase trial’s duration

(No significant differences between A and B for each time)

(No significant differences among different times of study in each group)