Demonstration of the effectiveness of zinc in diarrhoea of children aged 2 months to 5 years in Lausanne childhood hospital

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Background
The effectiveness of zinc in childhood diarrhoea has been demonstrated in developing countries. It helps to decrease the duration and severity of diarrhoea. There is currently no sufficient data to justify its use in developed countries, where there is a priori no zinc deficiency.

Objective, settings, design

Objective: to evaluate the efficacy of zinc in the treatment of children diarrhoea in a developed country

Population: children 2 months-5 yo consulting in the emergency department with diarrhoea (>3/day for less than 72 hours)

Intervention: zinc sulfate 10 (<6 months) or 20 mg (> 6 months) 1x / d for 10d in dispersible tablets

Controls: placebo in the same dispersible tablets

Outcome: Duration of diarrhoea
Severity of diarrhoea (frequency)

Method

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Results

Perprotocol analysis

Duration and frequency of diarrhoea related to treatment

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>All subjects</th>
<th>Zinc</th>
<th>Placebo</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence of diarrhoea at 72h, n/total (%)</td>
<td>36/79 (46)</td>
<td>17/39 (44)</td>
<td>19/40 (47)</td>
<td>0.5</td>
</tr>
<tr>
<td>Persistence of diarrhoea at 120h, n/total (%)</td>
<td>10/76 (13)</td>
<td>2/37 (5)</td>
<td>8/39 (20)</td>
<td>0.05</td>
</tr>
<tr>
<td>Duration of diarrhoea, median hours (IQR)</td>
<td>67 (27-94)</td>
<td>65 (27-89.3)</td>
<td>25 (15-101.2)</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Number of diarrhoea between day 2 and 4 of treatment, median (IQR)

<table>
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</tr>
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<tbody>
<tr>
<td>N=65</td>
<td>5.5 (2.5-9.5)</td>
<td>8 (3-9)</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td>N=12</td>
<td>N=33</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conclusion

- Zinc treatment is associated with a decrease in diarrhoea frequency and severity in children aged 2 months to 5 years old in a developed country
- However, poor compliance results in a questionable clinical significance (intention-to-treat analysis)
- A different dosage form should be considered (oral rehydration solution?)