Comparison of ORS Product Compositions

<table>
<thead>
<tr>
<th></th>
<th>Carbohydrate (gm/L)</th>
<th>Sodium mEq/L</th>
<th>Potassium mEq/L</th>
<th>Base mEq/L</th>
<th>Osmolarity mOsm/L</th>
<th>Calories</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHO Standard ORS</td>
<td>glucose</td>
<td>20</td>
<td>90</td>
<td>20</td>
<td>30</td>
<td>310</td>
</tr>
<tr>
<td>WHO Reduced Osmolar ORS</td>
<td>glucose</td>
<td>13.5</td>
<td>75</td>
<td>20</td>
<td>30</td>
<td>245</td>
</tr>
<tr>
<td>CeraLyte® 50</td>
<td>rice starch/maltodextrin</td>
<td>40</td>
<td>50</td>
<td>20</td>
<td>30</td>
<td>200</td>
</tr>
<tr>
<td>CeraLyte® 70</td>
<td>rice starch/maltodextrin</td>
<td>40</td>
<td>70</td>
<td>20</td>
<td>30</td>
<td>220-235</td>
</tr>
<tr>
<td>CeraLyte® 90</td>
<td>rice starch/maltodextrin</td>
<td>40</td>
<td>90</td>
<td>20</td>
<td>30</td>
<td>260</td>
</tr>
<tr>
<td>Pedialyte®</td>
<td>glucose, fructose</td>
<td>25</td>
<td>45</td>
<td>20</td>
<td>30</td>
<td>250</td>
</tr>
<tr>
<td>Gatorade®*</td>
<td>sucrose, glucose-fructose</td>
<td>60</td>
<td>20</td>
<td>3</td>
<td>3</td>
<td>330-380</td>
</tr>
</tbody>
</table>

*Not appropriate for use as an ORS for diarrheal disease.

Administration of ORS

- ORS is recommended for minimal or no dehydration, mild dehydration and moderate dehydration.
- ORS with 70mEq/L sodium can be used for both rehydration and maintenance in nearly all patients, even those who present with hypo- or hypernatremia.\(^{14}\)
- ORS with 90mEq/L of sodium is recommended for patients with severe watery diarrhea.
- Vomiting does not rule out using ORS; very small amounts of liquid can be given frequently (5-10ml every 1-2 minutes).
- Oral rehydration is contraindicated when there is impaired consciousness, intestinal obstruction, or shock.
- Recommended foods with the administration of ORS include; cereal, potatoes, crackers, yogurt, and bananas.
- AVOID foods high in sugar and fat with the administration of ORS.
Current Guidelines and Recommendations for Patients with Acute Gastroenteritis

<table>
<thead>
<tr>
<th>Phase I Fluid Replacement</th>
<th>Minimal to No Dehydration</th>
<th>Mild Dehydration (3-5% fluid loss)</th>
<th>Moderate Dehydration (6-9% fluid loss)</th>
<th>Severe Dehydration (6-9% fluid loss)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial rehydration</td>
<td>ORS should be initiated</td>
<td>ORS should be initiated</td>
<td>ORS should be initiated</td>
<td>Ringers Lactate IV</td>
</tr>
<tr>
<td>is unnecessary</td>
<td>with 50ml/kg and 100mg/kg</td>
<td>with 50ml/kg and 100mg/kg</td>
<td>with 50ml/kg and 100mg/kg</td>
<td>(20ml/kg)**</td>
</tr>
<tr>
<td></td>
<td>respectively, over a 3-4</td>
<td>respectively, over a 3-4</td>
<td>respectively, over a 3-4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>hour period</td>
<td>hour period</td>
<td>hour period</td>
<td></td>
</tr>
</tbody>
</table>

**Phase II Maintenance**

- <10 kg BW
  - ORS should be initiated with 50ml/kg and 100mg/kg, respectively, over a 3-4 hour period
- >10 kg BW
  - ORS should be initiated with 50ml/kg and 100mg/kg, respectively, over a 3-4 hour period

**Initial Rehydration**

- Ringers Lactate IV

**Benefits of Rice-Based Oral Rehydration Therapy**

- Cost Effective (IV vs Oral)
- Lower osmolarity also means better absorption
- Lack of Complications
- Always works as well as glucose-based ORS and is even more effective in severe cases of dehydration
- Lack of Pain
- Sustained hydration (larger molecule, more substrate)
- Provides calories from complex carbohydrates
- Tastes better
- Less worry when mixing because rice-based ORS has a lower osmolarity than glucose-based ORS

In summary, dehydration remains a significant problem in the United States. Oral Rehydration Therapy is an effective, inexpensive and simple-to-use treatment for patients suffering from dehydration. The administration of ORS can improve the health and well-being of individuals suffering from diarrheal illness, vomiting and other conditions that lead to dehydration, such as Crohn’s, ulcerative colitis, short-gut, or medications for cancer or HIV/AIDS treatments or other medications, including antibiotics, that may lead to diarrhea.

When choosing an ORS product, Ceralyte® is superior to others. While glucose-based ORS preparations appear to be at least as effective as IV rehydration, Ceralyte® rice-based ORS has the advantage of low osmolarity with more carbohydrates for more efficient hydration without sacrificing electrolyte content. Ceralyte’s patented rice-based ORS does not contain added sugars for sustained, effective hydration.

ORS Treatment—Proven Safe, Cost-Effective

In a 1986 study, infants with acute gastroenteritis were randomly assigned to receive ORS or intravenous rehydration. This study, according to the author, demonstrated that oral rehydration is a safe and cost-effective means of treating dehydrated infants in an emergency department holding room.

A randomized trial was conducted in 52 Australian children given rehydration fluids by mouth or via nasogastric administration and another 52 children were given rehydration intravenously. It was concluded that rehydration by mouth or nasogastric tube is safe and effective for the treatment of moderately dehydrated children with gastroenteritis.

In a randomized controlled trial in an urban emergency department, investigators compared ORS with IV therapy for the treatment of moderate dehydration in children with acute gastroenteritis. From this study perceived barriers for the use of ORS were not supported by the evidence, as oral rehydration performed better than IV therapy on all measured outcomes.

In another meta-analysis of 16 trials involving 1545 children and conducted in 11 countries, those treated with oral rehydration had significantly fewer major adverse events, including seizures or death (relative risk 0.36), and a significant reduction in length of hospital stay (mean 21 hours).

References

15. Rabbanh GR. The search for a better oral rehydration solution for cholera. NEJM 2000;342:345-47