

Evidence Update

Child Health Series

August 2003

Is reduced osmolarity oral rehydration solution better than the standard solution for children with diarrhoea and dehydration?

In children admitted to hospital with diarrhoea, reduced osmolarity ORS is associated with fewer unscheduled intravenous fluid infusions, lower stool volume, and less vomiting when compared to WHO standard ORS.

Inclusion criteria

Types of studies:

Randomized controlled trials, defined as a trial in which the subjects followed were assigned prospectively to one of two or more interventions by random allocation. This excludes quasi-randomized designs..

Types of participants:

Children with acute diarrhoea (history of less than 5 days).

Types of intervention:

Experimental: Reduced osmolarity oral rehydration solution (total osmolarity 250 mmol/L or less with reduced sodium).

Control: World Health Organization standard oral rehydration solution (90 mmol/L sodium, 111mmol/L glucose, total osmolarity 311 mmol/L).

Types of outcome measures:

Primary: need for unscheduled intravenous fluid infusion during the course of treatment.

Secondary: stool output; children vomiting during rehydration; and asymptomatic hyponatremia (defined as serum sodium less than 130mmol/L) during follow up.

Results

- Unscheduled intravenous fluid infusion was reported in 11 trials. Nine were adequately concealed.
- In a meta-analysis of 8 trials, reduced osmolarity ORS was associated with fewer unscheduled intravenous fluid infusions compared with WHO standard ORS (Mantel Haenzel odds ratio 0.59, 95% confidence interval 0.45 to 0.79) with no evidence for heterogeneity between trials.
- No unscheduled intravenous fluid infusion therapy was required in any participant in three trials.
- Eleven trials reported stool output, and data suggested less stool output in the reduced osmolarity ORS group.
- Vomiting was less frequent in the reduced osmolarity group in the six trials reporting this.
- Six trials sought hyponatraemia, with events in three studies, but no obvious difference between the two arms.

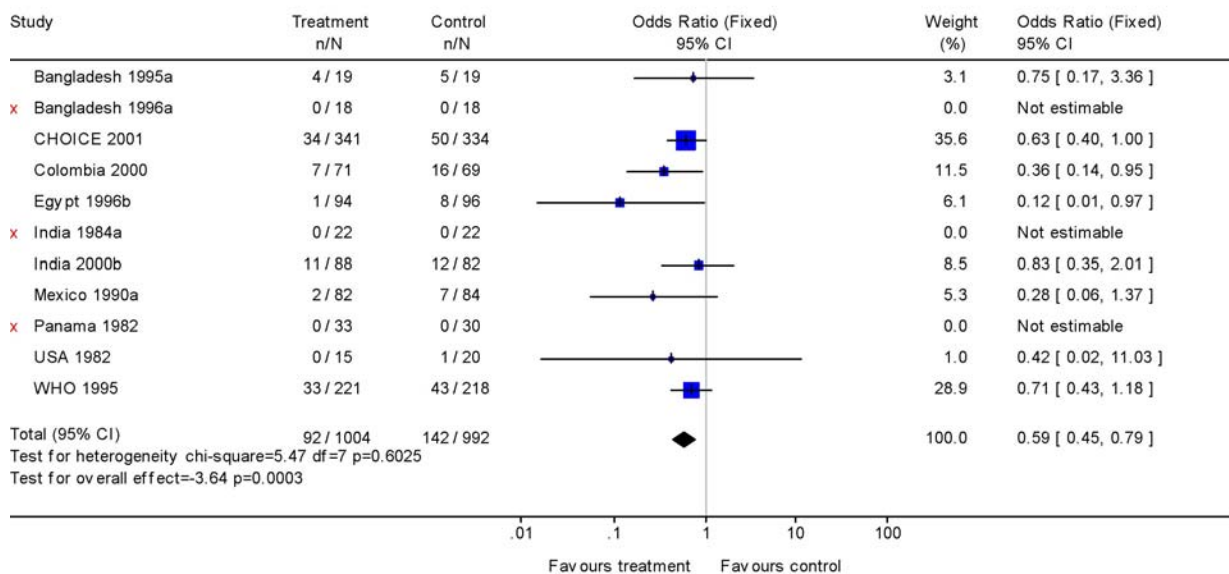


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Adapted from Hahn S, Kim S, Garner P. Reduced osmolarity oral rehydration solution for treating dehydration caused by acute diarrhoea in children (Cochrane Review). In: *The Cochrane Library*, Issue 3, 2003. Oxford: Update Software.

Produced by the Effective Health Care Alliance Programme, Liverpool School of Tropical Medicine, supported by the Department of International Development UK, (<http://www.liv.ac.uk/evidence>).

Review: Reduced osmolarity oral rehydration solution for treating dehydration caused by acute diarrhoea in children
 Comparison: 01 Reduced osmolarity ORS compared to WHO standard ORS
 Outcome: 01 Need for unscheduled intravenous fluid infusion



Reviewer's conclusions

Implications for practice:

Based on this review WHO and UNICEF now recommend reduced osmolarity ORS (total osmolarity 250 mmol/L or less with reduced sodium) be adopted as standard in primary care.

Implications for research:

We found insufficient data on cholera in children to make recommendations for this condition.