

Evidence Update

Other Infectious Diseases Series

March 2005

Is reduced osmolarity oral rehydration solution (ORS) better than standard solution for treating diarrhoea due to cholera?

In people with cholera, markers of diarrhoea severity with reduced osmolarity ORS were similar to standard solution, apart from asymptomatic hyponatraemia, which was more common.

Inclusion criteria

Studies:

Randomized controlled trials.

Participants:

Adults and children with acute diarrhoea confirmed (by stool microscopy or stool culture) or presumed to be caused by *Vibrio cholerae*.

Intervention:

Intervention: reduced osmolarity ORS (total osmolarity 250 mmol/L with reduced sodium).

Control: standard ORS (total osmolarity 311 mmol/L with 90 mmol/L sodium and 111 mmol/L glucose).

Outcomes:

Primary: need for unscheduled intravenous infusion; symptomatic hyponatraemia, as defined by trialists.

Secondary: biochemical hyponatraemia, as defined by trialists; duration of diarrhoea; stool volume in first 24 hours after admission or randomization; vomiting during rehydration; death.

Results

Seven trials assessed glucose-based reduced osmolarity ORS; two were adequately concealed.

- Five trials (n=616) reported on need for unscheduled intravenous infusion and showed no difference between glucose-based reduced osmolarity and standard ORS (relative risk 0.86, 95% confidence interval 0.66 to 1.12).
- No trials reported symptomatic hyponatraemia. Four trials (n=465) showed biochemical hyponatraemia was more common with glucose-based reduced osmolarity ORS (RR 1.67, 95% CI 1.09 to 2.57), but showed no difference in severe biochemical hyponatraemia between the groups (RR 1.58, 95% CI 0.62 to 4.04).

Two trials (102 participants) also assessed rice-based reduced osmolarity ORS; neither were adequately concealed. The duration of diarrhoea was shorter in the reduced osmolarity ORS group (weighted mean difference 16.85 hours, 95% CI 12.48 to 21.22).

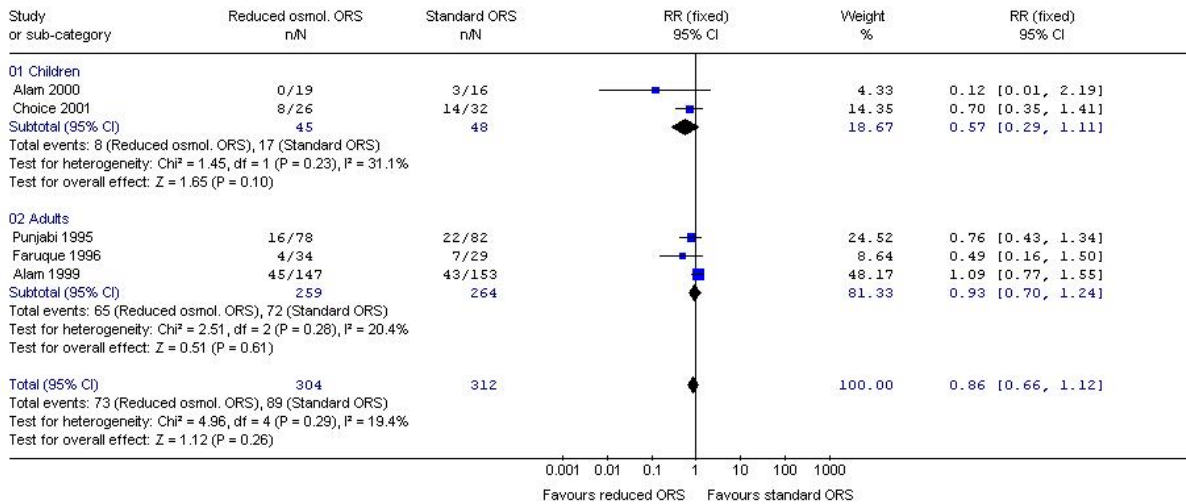


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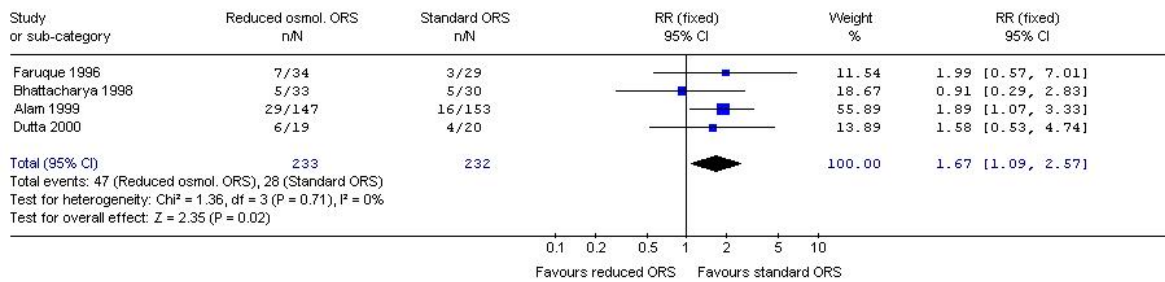
Adapted from Murphy C, Hahn S, Volmink J. Reduced osmolarity oral rehydration solution for treating cholera. *The Cochrane Database of Systematic Reviews* 2004, Issue 4. Art. No.: CD003754.pub2. DOI: 10.1002/14651858.CD003754.pub2.

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Review: Reduced osmolarity oral rehydration solution for treating cholera
 Comparison: 01 Reduced osmolarity (glucose-based) oral rehydration solution (ORS) versus standard ORS
 Outcome: 01 Need for unscheduled intravenous infusion



Review: Reduced osmolarity oral rehydration solution for treating cholera (Version 01)
 Comparison: 01 Reduced osmolarity (glucose-based) oral rehydration solution (ORS) versus standard ORS
 Outcome: 02 Biochemical hyponatremia (serum sodium < 130 mmol/L)



Authors' conclusions

Implications for practice:

Reduced osmolarity ORS increases the risk of biochemical hyponatraemia but the limited evidence to date has not demonstrated a difference in the need for unscheduled intravenous infusion or other markers of diarrhoea severity in people with cholera.

Implications for research:

Further randomized controlled trials are needed to assess the balance between benefit and harm associated with the use of reduced osmolarity ORS in people with cholera. These trials should be large enough to adequately assess important outcomes, such as symptomatic hyponatremia and death.