

Pediatric diarrhea and lactose products

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Clinical question

Are lactose-containing formulas and diets associated with worsened acute pediatric diarrhea?

Bottom line

Breastfed children should continue breastfeeding. In formula-fed children younger than 2 years, temporarily switching to lactose-free infant formula shortens diarrhea duration by about 18 hours and reduces treatment failure (9% vs 17% control) at 24 to 72 hours. The effects of cow's milk have been investigated in only 3 small, older RCTs and their results are likely unreliable.

Evidence

Differences were statistically significant unless stated.

- In 4 systematic reviews (22 to 33 RCTs) with 2215 to 2973 mostly hospitalized (clinically stable) formula-fed children with acute diarrhea receiving oral rehydration¹⁻⁴:
 - In comparisons of lactose-free versus lactose-containing diets, the focus was on the largest systematic review (children aged 1 to 28 months).¹ Duration of diarrhea was 18 hours shorter among those with lactose-free diets, with median diarrhea duration (calculated by authors) 2.8 versus 3.5 days.¹ Treatment failure (continued or worsening diarrhea or vomiting, need for rehydration, weight loss) occurred in 9% versus 17%, respectively, over 24 to 72 hours (number needed to treat [NNT]=14).¹ Duration of hospitalization¹ and changes in weight^{1,2,4} did not differ. Results of other systematic reviews were similar.²⁻⁴
 - A systematic review (9 RCTs, 687 children)¹ found diluted lactose-containing formula (by 25% to 50%) reduced treatment failure compared with full-strength formula: 11% versus 17% over 24 to 72 hours (NNT=17). Duration of diarrhea^{1,3,4} and changes in weight^{1,2} did not differ.
- Two RCTs (about 70 children each, mean ages 7 to 15 months)^{5,6} compared diets with and without cow's milk: no difference in diarrhea duration. An RCT comparing full-strength and diluted cow's milk (62 children, mean age 22 months)⁷ found no difference in treatment failure.
- Limitations: Many RCTs were not blinded,^{1,5-7} baseline illness duration was not reported,¹⁻⁴ and statistics are difficult to interpret clinically.^{2,4} The RCTs on cow's milk are old⁵⁻⁷ (>30 years) and not generalizable (cow's milk was given to infants at 3 to 6 months).⁵ No RCTs have involved older children.

Context

- Infectious gastroenteritis (particularly rotavirus) is associated with transient lactase deficiency⁸; rotavirus was the most common etiology in trials.¹
- Guideline suggestions to change or dilute formula predated current systematic reviews.^{9,10}

Implementation

During acute episodes of diarrhea, children should be monitored for signs of dehydration (eg, decreased urine output, lethargy)⁹; if present, rehydration should be prioritized to replace losses and achieve adequate fluid and electrolyte balance.¹¹ Intravenous hydration should be provided if the oral route is inadequate. Breastfeeding should continue (or increase) during initial rehydration.¹¹ Temporarily switching formula-fed infants to lactose-free formula can reduce diarrhea duration.¹ Once dehydration is corrected, the child's usual diet should be resumed as tolerated.^{9,10} It may be reasonable to limit cow's milk in favour of lactose-free fluids, but there is little evidence for this or the avoidance of other lactose-containing foods. 🌿

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Competing interests

None declared

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Can Fam Physician 2022;68:828. DOI: 10.46747/cfp.6811828

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