

Thickened formula is only moderately effective in the treatment of gastroesophageal reflux in healthy infants

Horvath A, Dziechciarz P, Szajewska H. The effect of thickened-feed interventions on gastroesophageal reflux in infants: Systematic review and meta-analysis of randomized, controlled trials. *Pediatrics* 2008;122:e1268-77.

Question Among otherwise healthy infants with gastroesophageal reflux, do thickened feeds safely and effectively decrease episodes of reflux and vomiting compared with standard formula?

Design Systematic review and meta-analysis.

Data Sources Computerized databases, proceedings of the European and North American pediatric gastroenterology conferences (since 2000), additional references from reviewed articles.

Study Selection Fourteen randomized, controlled trials that evaluated thickened feeds used in infants for at least several days for the treatment of gastroesophageal reflux.

Intervention Administration of thickened feeds.

Outcomes Percentage of infants with regurgitation, number of vomiting episodes per day.

Main Results Use of thickened formulas compared with standard formula significantly increased the percentage of infants with no regurgitation, slightly reduced the number of episodes of regurgitation and vomiting per day (assessed jointly or separately), and increased weight gain per day. Thickened formula had no effect on the reflux index, number of acid gastroesophageal reflux episodes per hour, or number of reflux episodes lasting >5 minutes but significantly reduced the duration of the longest reflux episode of pH < 4. No definitive data showed that one particular thickening agent is more effective than another. No serious adverse effects were noted.

Conclusions Thickened food is only moderately effective in treating gastroesophageal reflux in healthy infants.

Commentary The age-old recommendation of thickening formula to treat infantile gastroesophageal reflux (GER) in otherwise healthy infants has not undergone rigorous scientific scrutiny. This is a meta-analysis that has limitations common to many meta-analyses: the inclusion criteria and definitions of GER were often vague and not consistent between studies. Nevertheless, the authors noted that though there were improvements in multiple measurements of reflux in the formula-thickened group, the clinical usefulness of these measurements is questionable. For example, there were a greater percentage of infants in the treatment group who had no regurgitation. But the specific measurement, such as a decrease of "0.6 episodes per day" of regurgitation is not likely to have clinical significance. This review also found an increased weight gain of 3.6 gm/d. However, the causal rela-

tionship for weight gain remains unclear. Increased weight gain may be due to increased formula retention (ie, improved GER) or to increased caloric content of thickened formula. This study largely supports the findings of previous reviews, which have found minimal to modest benefits to thickening of formulas for the treatment of GER in infants who are otherwise healthy.

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Serious bacterial infections is uncommon in infants with bronchiolitis

Luginbuhl LM, Newman TB, Pantell RH, Finch SA, Wasserman RC. Office-based treatment and outcomes for febrile infants with clinically diagnosed bronchiolitis. *Pediatrics* 2008;122:947-54.

Questions Among infants with fever seen in the outpatient office setting, how common is serious bacterial illness? How are these patients managed?

Design Prospective cohort study.

Setting Pediatric Research in Office Settings network.

Participants A total of 3066 infants with fever (<3 months of age with temperatures $\geq 38^{\circ}$ C).

Outcomes Frequency of sepsis evaluation, parenteral antibiotic treatment, and serious bacterial illness in infants with and without clinically diagnosed bronchiolitis. Predictors of sepsis evaluation and parenteral antibiotic treatment in infants with bronchiolitis were identified with logistic regression models.

Main Results Practitioners were less likely to perform a complete sepsis evaluation, urine testing, and cerebrospinal fluid culture and to administer parenteral antibiotic treatment for infants with bronchiolitis, compared with those without bronchiolitis. Significant predictors of sepsis evaluation in infants with bronchiolitis included younger age, higher maximal temperature, and respiratory syncytial virus testing. Predictors of parenteral antibiotic use included initial ill appearance, age of <30 days, higher maximal temperature, and general signs of infant distress. Among infants with bronchiolitis (n = 218), none had serious bacterial illness, and those with respiratory distress signs were less likely to receive parenteral antibiotic treatment. Diagnoses among 2848 infants with fever without bronchiolitis included bacterial meningitis (n = 14), bacteremia (n = 49), and urinary tract infection (n = 167).

Conclusions In office settings, serious bacterial illness in young infants with fever and clinically diagnosed bronchiolitis is uncommon. Limited testing for bacterial infections seems to be an appropriate management strategy.