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[Intervention Review]

Optimal duration of exclusive breastfeeding

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ABSTRACT

Background

Although the health benefits of breastfeeding are widely acknowledged, opinions and recommendations are strongly divided on the optimal duration of exclusive breastfeeding. Since 2001, the World Health Organization has recommended exclusive breastfeeding for six months. Much of the recent debate in developed countries has centred on the micronutrient adequacy, as well as the existence and magnitude of health benefits, of this practice.

Objectives

To assess the effects on child health, growth, and development, and on maternal health, of exclusive breastfeeding for six months versus exclusive breastfeeding for three to four months with mixed breastfeeding (introduction of complementary liquid or solid foods with continued breastfeeding) thereafter through six months.

Search methods

We searched *The Cochrane Library* (2011, Issue 6), MEDLINE (1 January 2007 to 14 June 2011), EMBASE (1 January 2007 to 14 June 2011), CINAHL (1 January 2007 to 14 June 2011), BIOSIS (1 January 2007 to 14 June 2011), African Index Medicus (searched 15 June 2011), Index Medicus for the WHO Eastern Mediterranean Region (IMEMR) (searched 15 June 2011), LILACS (Latin American and Caribbean Health Sciences) (searched 15 June 2011). We also contacted experts in the field.

The search for the first version of the review in 2000 yielded a total of 2668 unique citations. Contacts with experts in the field yielded additional published and unpublished studies. The updated literature review in December 2006 yielded 835 additional unique citations.

Selection criteria

We selected all internally-controlled clinical trials and observational studies comparing child or maternal health outcomes with exclusive breastfeeding for six or more months versus exclusive breastfeeding for at least three to four months with continued mixed breastfeeding until at least six months. Studies were stratified according to study design (controlled trials versus observational studies), provenance (developing versus developed countries), and timing of compared feeding groups (three to seven months versus later).

Data collection and analysis

We independently assessed study quality and extracted data.

Main results

We identified 23 independent studies meeting the selection criteria: 11 from developing countries (two of which were controlled trials in Honduras) and 12 from developed countries (all observational studies). Definitions of exclusive breastfeeding varied considerably across

studies. Neither the trials nor the observational studies suggest that infants who continue to be exclusively breastfed for six months show deficits in weight or length gain, although larger sample sizes would be required to rule out modest differences in risk of undernutrition. In developing-country settings where newborn iron stores may be suboptimal, the evidence suggests that exclusive breastfeeding without iron supplementation through six months may compromise hematologic status. Based on the Belarusian study, six months of exclusive breastfeeding confers no benefit (versus three months of exclusive breastfeeding followed by continued partial breastfeeding through six months) on height, weight, body mass index, dental caries, cognitive ability, or behaviour at 6.5 years of age. Based on studies from Belarus, Iran, and Nigeria, however, infants who continue exclusive breastfeeding for six months or more appear to have a significantly reduced risk of gastrointestinal and (in the Iranian and Nigerian studies) respiratory infection. No significant reduction in risk of atopic eczema, asthma, or other atopic outcomes has been demonstrated in studies from Finland, Australia, and Belarus. Data from the two Honduran trials and from observational studies from Bangladesh and Senegal suggest that exclusive breastfeeding through six months is associated with delayed resumption of menses and, in the Honduran trials, more rapid postpartum weight loss in the mother.

Authors' conclusions

Infants who are exclusively breastfed for six months experience less morbidity from gastrointestinal infection than those who are partially breastfed as of three or four months, and no deficits have been demonstrated in growth among infants from either developing or developed countries who are exclusively breastfed for six months or longer. Moreover, the mothers of such infants have more prolonged lactational amenorrhea. Although infants should still be managed individually so that insufficient growth or other adverse outcomes are not ignored and appropriate interventions are provided, the available evidence demonstrates no apparent risks in recommending, as a general policy, exclusive breastfeeding for the first six months of life in both developing and developed-country settings.

PLAIN LANGUAGE SUMMARY

Optimal duration of exclusive breastfeeding

Exclusive breastfeeding for six months (versus three to four months, with continued mixed breastfeeding thereafter) reduces gastrointestinal infection and helps the mother lose weight and prevent pregnancy but has no long-term impact on allergic disease, growth, obesity, cognitive ability, or behaviour.

The results of two controlled trials and 21 other studies suggest that exclusive breastfeeding (no solids or liquids besides human milk, other than vitamins and medications) for six months has several advantages over exclusive breastfeeding for three to four months followed by mixed breastfeeding. These advantages include a lower risk of gastrointestinal infection, more rapid maternal weight loss after birth, and delayed return of menstrual periods. No reduced risks of other infections, allergic diseases, obesity, dental caries, or cognitive or behaviour problems have been demonstrated. A reduced level of iron has been observed in developing-country settings.