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[Intervention Review]

Avoidance of bottles during the establishment of breast feeds in preterm infants

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ABSTRACT

Background

Preterm infants start milk feeds by gavage tube. As they mature, sucking feeds are gradually introduced. Women who choose to breast feed their preterm infant are not always able to be in hospital with their baby and need an alternative approach to feeding. Most commonly, milk (expressed breast milk or formula) is given by bottle. Whether using bottles during establishment of breast feeds is detrimental to breast feeding success is a topic of ongoing debate.

Objectives

To identify the effects of avoidance of bottle feeds during establishment of breast feeding on the likelihood of successful breast feeding, and to assess the safety of alternatives to bottle feeds.

Search methods

We used the standard search strategy of the Cochrane Neonatal Review Group to search the Cochrane Central Register of Controlled Trials (CENTRAL; 2016, Issue 2), MEDLINE via PubMed (1966 to July 2016), Embase (1980 to July 2016) and CINAHL (1982 to July 2016). We also searched databases of clinical trials and the reference lists of retrieved articles for randomised controlled trials and quasi-randomised trials.

Selection criteria

Randomised and quasi-randomised controlled trials comparing avoidance of bottles with use of bottles in women who have chosen to breast feed their preterm infant.

Data collection and analysis

Two review authors independently assessed trial quality and extracted data. When appropriate, we contacted study authors for additional information. Review authors used standard methods of The Cochrane Collaboration and the Cochrane Neonatal Review Group.

Main results

We included seven trials with 1152 preterm infants. Five studies used a cup feeding strategy, one used a tube feeding strategy and one used a novel teat when supplements to breast feeds were needed. We included the novel teat study in this review, as the teat was designed to more closely mimic the sucking action of breast feeding. The trials were of small to moderate size, and two had high risk of attrition

bias. Adherence with cup feeding was poor in one of the studies, indicating dissatisfaction with this method by staff and/or parents; the remaining four cup feeding studies provided no such reports of dissatisfaction or low adherence. Meta-analyses provided evidence of low to moderate quality indicating that avoiding bottles increases the extent of breast feeding on discharge home (full breast feeding typical risk ratio (RR) 1.47, 95% confidence interval (CI) 1.19 to 1.80; any breast feeding RR 1.11, 95% CI 1.06 to 1.16). Limited available evidence for three months and six months post discharge shows that avoiding bottles increases the occurrence of full breast feeding and any breast feeding at discharge and at six months post discharge, and of full (but not any) breast feeding at three months post discharge. This effect was evident at all time points for the tube alone strategy and for all except any breast feeding at three months post discharge for cup feeding. Investigators reported no clear benefit when the novel teat was used. No other benefits or harms were evident, including, in contrast to the previous (2008) review, length of hospital stay.

Authors' conclusions

Evidence of low to moderate quality suggests that supplementing breast feeds by cup increases the extent and duration of breast feeding. Current insufficient evidence provides no basis for recommendations for a tube alone approach to supplementing breast feeds.

PLAIN LANGUAGE SUMMARY

Avoidance of bottles during the establishment of breast feeds in preterm infants

Review question: In preterm infants whose mothers want to breast feed, does using bottles interfere with breast feeding success?

Background: Preterm infants start milk feeds by tube, and as they mature they are able to manage sucking feeds. The number of sucking feeds each day is gradually increased as the baby matures. Women who choose to breast feed their preterm infant may find that it is not always possible to be there every time the baby needs a sucking feed. Conventionally, bottles with mother's milk or formula have been used. It has been suggested that using bottles may interfere with breast feeding success.

Study characteristics: In searches updated to July 2016, we found seven eligible studies (involving 1152 preterm babies). These studies were of small to moderate size, and most had some problems with study design or conduct.

Key results: Five of the studies (which included two of the largest studies) used cup feeds, and one used tube feeds. One study used a specially designed teat with feeding action suggested to be more like breast feeding than conventional bottle feeding. Most studies were conducted in high-income countries, only two in middle-income countries and none in low-income countries. Overall if bottle feeds (with a conventional teat) were not given, babies were more likely to be fully breast fed or to have at least some breast feeds on discharge home and at three and six months after discharge home. The study with the specially designed teat showed no difference in breast feeding outcomes, so it was the cup alone or the tube alone that improved breast feeding rates. However, because of the poor quality of the tube alone study, we cannot recommend a tube feeding strategy until further studies of high quality are undertaken. We found no evidence of benefit or harm for any of the reported outcomes, including length of hospital stay or weight gain.

Conclusions: Using a cup instead of a bottle increases the extent and duration of breast feeding in preterm infants. Additional studies are needed before a tube alone approach can be recommended.