Breastfeeding for Procedural Pain in Infants Beyond the Neonatal Period

Maria José Góis Paixão, MSc, SPQ(Pediatrics), RN

Procedural pain affects every infant given that most initial immunizations are performed through injections within the first years of a child's life. Moreover, infants who become ill are sometimes submitted to medical diagnostic and treatment procedures known to be painful and can cause distress.

For an infant, breastfeeding can have analgesic effects on painful and acute procedures. It does this by reducing the distress caused through the infant's distraction with either sucking, skin contact with mother, a general feeling of comfort, and the overall value of breast milk consumption that is thought to block neural pathways in the infant's spinal cord.

Recently conducted systematic reviews of pain management strategies in neonates showed that breastfeeding and sweet solutions of sucrose and glucose reduced behavioral responses and composite pain scores during painful procedures. Sweet-tasting solutions also showed to be effective in infants beyond the neonatal period, whereas breastfeeding needs to be systematically reviewed to evaluate its effectiveness in infants up to 1 year old.

OBJECTIVE

The aim of this study was to determine the effect of breastfeeding on procedural pain in infants beyond the neonatal period (first 28 days of life) up to 1 year old compared with no intervention, placebo, parental holding, skin-to-skin contact, expressed breast milk, formula milk, bottle feeding, sweet-tasting solution (eg, sucrose or glucose), distraction, or other interventions.

Author Affiliation: Member of the Cochrane Nursing Care Field (CNCF), Escola Superior de Enfermagem de Lisboa, Portugal.

The author reports no conflicts of interest.

Correspondence: Susan B. Fowler, PhD, RN, CNRN, FAHA, Interim Leader, B. E. Smith, 165 Essex Ave, Unit 106, Metuchen, NJ 08840 (njfowlers761@msn.com).

DOI: 10.1097/NUR.0000000000000369

INTERVENTIONS/METHODS

This review included randomized controlled trials (RCTs) and quasi-RCTs that evaluated breastfeeding during episodes of vaccinations of children aged 1 to 12 months.[1] All studies involved an intervention group with the mother initiating breastfeeding before and continuing during the procedure. In 1 study, the infant also received 1 g of topical anesthetic (EMLA cream) applied topically on the injection site 60 minutes before the procedure.

All studies included a comparison group with no intervention or placebo, and 4 studies included a second comparator group with a different intervention, namely, 2 mL of 25% dextrose administered orally 2 minutes before, 1 g of topical EMLA cream 60 minutes before the procedure plus 2 mL of oral distilled water, massage therapy, or topical vapocoolant spray.

The primary outcome was pain measured by the following:

- Cry duration
- Pain score: Neonatal Infant Pain Scale (NIPS), Neonatal Facial Coding System, Modified Behavioral Pain Scale, and Wong-Baker FACES Pain Rating Scale
- Physiological responses measured before and after the injection: heart rate, oxygen saturation, facial flushing, and salivary cortisol level

RESULTS

A total of 62 potentially eligible studies were selected for full-text reviewing. Ten studies met the inclusion criteria and were eligible for the review. The designs of the included studies were 8 RCTs and 2 quasi-RCTs. The included studies were from Canada (1), India (2), Iran (4), Jordan (1), and Turkey (2) and were developed in community health clinics during vaccination injections.

Although outcome measures differed across studies, data from crying duration, standardized mean pain scores, NIPS, and heart rate were pooled for meta-analysis comparing breastfeeding versus control. Results showed a statistically significant reduction of −38.09 (−49.84, −26.35) in crying, a statistically significant reduction in pain scores of −1.73

(−2.20, −1.25) for standardized mean pain scores and −1.89 (−2.55, −1.24) for NIPS, and a nonsignificant reduction in heart rate of −3.56 (−23.17, 16.05).

CONCLUSIONS

The evidence available about the effectiveness of breastfeeding in reducing needle pain during vaccinations, based on reduced crying and pain scores, is consistent across studies and highlights the applicability and generalizability of the findings. Breastfeeding effectively reduces needle pain during vaccinations in children aged 1 to 12 months and was more effective in reducing pain than other interventions, including massage combined with maternal hugging, maternal hugging alone, topical vapocoolant, topical anaesthetic cream (EMLA), and 25% dextrose given orally.

There is no evidence about the effectiveness of breastfeeding for other types of procedural pain or for hospitalized infants.

IMPLICATIONS FOR PRACTICE

The management of procedure-related pain in infants implies the prevention of distress and the control of pain. Nurses are at the forefront to implement all available strategies to help children and families to cope with distressing and painful procedures that are present in healthcare situations. Not addressing pain at the time of a health procedure may have a negative impact on health attitudes and behaviours and may lead to avoidance of future healthcare situations.

Breastfeeding is an intervention known to be effective in the neonatal period, and this review showed that the same is true for infants up to 12 months old. If the mother is breastfeeding, then breastfeeding should be promoted and supported during infants' vaccinations and other painful and distressing procedures whenever it is feasible and culturally acceptable.

Reference

1. Harrison D, Reszel J, Bueno M, et al. Breastfeeding for procedural pain in infants beyond the neonatal period (review). *Cochrane Database Syst Rev*. 2016;10:CD011248.