Comparing pain relief effects of breast milk and sucrose in neonates

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Introduction
Sucrose is used for painful procedures in the newborn population since it has similar effects as morphine in newborns. It has been shown that introducing non-milk solutions to infants decreases breastfeeding exclusivity.

PICO Question
Population: Newborn infants undergoing painful procedures
Intervention: Using breast milk to relieve pain for neonates
Comparison: Using breast milk compared to the standard use of sucrose or “toot sweet”
Outcome: Is breast milk an effective alternative to sucrose for pain relief in neonates?

Methods
A literature search was conducted using CINAHL and PubMed databases to reveal 4 articles that were used in this study

<table>
<thead>
<tr>
<th>Article</th>
<th>Methods</th>
<th>Results</th>
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<tbody>
<tr>
<td>Ozdogan, T., Akman, I., Cebeci, D., Bilgen, H., &amp; Ozek, E. (2010). Comparison of two doses of breast milk and sucrose during neonatal heel prick. <em>Pediatrics International</em>, 52(2), 175-179</td>
<td>• Randomized, controlled trial  • 142 healthy newborns requiring a heel prick  • FLACC pain scale  • Infants were randomly selected to receive breast milk, sterile water, or sucrose</td>
<td>There was a significant difference between the single dose sucrose and the single dose water. Two doses of sucrose were not superior to a single dose of sucrose. Neither single or double doses of breast milk were effective in relieving pain in newborns. Further studies are needed.</td>
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<td>Codipietro, L., Ceccarelli, M., &amp; Ponzone, A. (2008). Breastfeeding or oral sucrose solution in term neonates receiving heel lance: A randomized, controlled trial. <em>Pediatrics</em>, 122(3), 716-721</td>
<td>• Open-label, randomized, controlled trial  • 101 term neonates undergoing heel lance  • Premature Infant Pain Profile (PIPP)  • Infants were randomly assigned to breastfeeding during sampling or to receive 1ml oral sucrose</td>
<td>This study suggests that breastfeeding provides better pain relief compared to sucrose in neonates who require a heel lance for routine testing</td>
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<td>Gabriel, M., Mendoza, B., Figeroa, L., Medina, V., Fernandez, B., Rodriguez, M., Huedo, V., &amp; Malagon, L. (2013). Analgesia with breastfeeding in addition to skin-to-skin contact during heel prick. <em>ADC Fetal &amp; Neonatal Ed</em>, 98, 499-503</td>
<td>• Randomized, controlled trial  • 136 healthy term neonates  • NIPS scoring  • Neonates were randomly assigned to one of four groups: breastfed &amp; SSC*, sucrose &amp; SSC, SSC only, sucrose only *SSC – skin-to-skin contact</td>
<td>This study suggests that breastfeeding along with skin-to-skin contact provides the best analgesia for infants undergoing a heel stick</td>
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<td>Simonce, E., Mulder, P., &amp; Beek, R. (2012). Analgesic effect of breast milk versus sucrose for analgesia during heel lance in late preterm infants. <em>Pediatrics</em>, 129(4), 657-663</td>
<td>• Randomized, controlled trial  • 71 late preterm infants (gestational age 32-37 weeks)  • Premature Infant Pain Profile (PIPP)  • Infants were randomly assigned to breast milk administered during the heel lance or oral sucrose administered before the heel lance</td>
<td>There were no significant differences in the PIPP scores between the two groups. From this study it can not be concluded that breast milk is a better analgesic for late preterm infants</td>
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Conclusions
When considering pain relief for neonates the type of procedure needs to be taken into account. For procedures away from the bedside, like circumcisions, studies show that sucrose is more effective than breastmilk at pain relief. For procedures that can be done at the bedside, like heel sticks and immunizations, these studies show that breastfeeding and skin-to-skin contact provide the best analgesia. None of these articles suggest that breast milk alone works better than sucrose for neonatal pain relief. These findings support our unit’s current practices.

References