Sucrose and commercially available milk reduced crying in newborns during a blood collection procedure


Objective
To determine the effectiveness of milk and its components for reducing crying in newborns during and after a blood collection procedure.

Design
Randomised, double blind, controlled trial.

Setting
A community hospital in New York, USA.

Patients
72 vaginally delivered infants (42% boys, 85% white) with Apgar scores ≥ 8 at 1 minute and ≥ 9 at 5 minutes. 81% of the infants were breast fed.

Intervention
Infants were assigned to 1 of 9 treatment groups (8 infants per group): sucrose 12%; Ross Special Formula (a solution approximating human milk containing 7.5 ml protein, 3.24 g lactose, 1.85 ml fat, and water to make 50 ml); Similac, a commercially available milk; lactose 7%; fat/lactose (3.5 g lactose, 1.85 ml fat, and water to make 50 ml); sucrose, fat, protein, or Ross Special Formula (p < 0.01) had reduced crying. During the procedure, infants who received sucrose or Similac reduced crying among infants during a blood collection procedure, and sucrose, fat concentrations, protein, and Ross Special Formula reduced crying during the 3 minutes after the procedure.

Conclusion
Sucrose and Similac reduced crying among infants during a blood collection procedure, and sucrose, fat concentrations, protein, and Ross Special Formula reduced crying during the 3 minutes after the procedure.

Sources of funding: National Institutes of Mental Health and in part, Ross Products Division of Abbott Laboratories.

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Commentary
Pain management in newborns has been increasingly recognised as an important component of nursing care. This study by Blass evaluates the effectiveness of non-pharmacological nursing interventions in pain relief. The study has several strengths. Data were collected at the same time each day (7–8 am) because endorphin concentrations may vary throughout the day. The nurse who did the heel prick and the person scoring the videotape were unaware of which fluid the infants received. By using one nurse and one video interpreter, inter-observer variation was eliminated. A few study limitations should be considered. The primary outcome was crying. While crying is an outcome measure previously studied in response to pain,1 the clinical importance of reduced crying is uncertain as it is only one index of the behavioural responses to pain.2 Also, the study does not distinguish between procedural pain and hunger cries. While the author states that the infants were “almost always asleep at the time of the experiment”, it is uncertain if the state of alertness was uniform across groups. Levels of alertness could alter pain response.3 The number of infants in each group was small (n = 8); other differences may have reached statistical significance with larger numbers.

Instilling non-pharmacological nursing interventions for pain management in newborns is desirable. The study findings indicate that sucrose effectively reduced crying during treatment and recovery which supports previous research.4 Similac reduced crying during treatment but not during recovery, and fat solutions, protein, and Ross Special Formula reduced crying during recovery. A large proportion of the infants (81%) were breast fed and while the author states that they were “essentially equally distributed among the nine groups”, data regarding the precise distribution were not provided. The ethics of offering fully breast fed infants formula or milk components may be controversial. Further trials investigating the effects of milk and its components on biological mechanisms affecting pain response in newborns with larger numbers in each group are warranted.

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