Methods of milk expression for lactating women

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An updated version of this systematic review has been published and can be found online at www.cochrane.org. We will soon update the below RHL summary to reflect the updated findings of the systematic review.

RHL Summary

Findings of the review: In various medical or domestic situations, or to allow heat treatment of HIV infected breast-milk, milk may need to be expressed. This review aimed to assess the acceptability, effectiveness, safety, effect on composition, contamination and cost implications of methods of milk expression. Based on an analysis of 10 studies (632 mothers), the review found that simple methods of expression such as manual expression or manual pumps were as effective and safe as electronic pumps. Expression was improved by early initiation of breast expression, education and use of audio recordings designed to relax the mother.

Implementation: In low-income settings, mothers who need to express breast-milk require additional education, encouragement and support in the use of simple, inexpensive methods of breast expression. Successful breast milk expression may contribute to prevention of mother-to-child transmission of HIV using a validated, low-cost heat-treatment method such as ‘Pretoria pasteurisation’.

Cochrane review


Abstract

This is an update of a 2008 Cochrane review. Breastfeeding is important. However, not all infants can feed at the breast and methods of expressing milk need evaluation.

To assess acceptability, effectiveness, safety, effect on composition, contamination and cost implications of methods of milk expression.
We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (20 January 2011), CINAHL (1982 to January 2011), conference proceedings, secondary references and contacted researchers.

Randomised and quasi-randomised trials comparing methods at any time after birth, and crossover trials commencing at least 28 days after birth.

Three authors independently assessed trials, extracted data and assessed risk of bias. Data were checked for accuracy.

We included 23 studies with 10 studies (632 mothers) providing data for analysis.

Mothers provided with a relaxation tape produced more milk than mothers who were not (mean difference (MD) 34.70 ml/single expression, 95% confidence interval (CI) 9.51 to 59.89, P = 0.007). A lower milk volume over six days was reported when comparing hand expression to the electric pump (standardised mean difference (SMD) -1.00 ml, 95% CI -1.64 to -0.36, P = 0.002); other studies of the same pump using different measures did not find a significant difference (12 to 36 hours postpartum SMD -0.38 cc, 95% CI -0.86 to 0.10, P = 0.12); day five postpartum SMD -0.62 ml/day, 95% CI -1.43 to 0.19, P = 0.13). No evidence of difference in volume was found with simultaneous or sequential pumping, or between manual and electric pumps studied. One study reported a higher sodium concentration in hand expressed milk compared to a manual pump (SMD 0.59 mmol/L, 95% CI 0.22 to 0.96, P = 0.002) and to an electric pump (SMD 0.70 mmol/L, 95% CI 0.32 to 1.09, P = 0.0003), and lower potassium concentration compared to a manual pump (MD -0.37 mmol/L, 95% CI 0.00 to 0.73, P = 0.05) or to an electric pump (SMD -0.32 mmol/L, 95% CI -0.69 to 0.06, P = 0.10). No evidence of difference was found for energy content, milk contamination or adverse effects. Reports of maternal views were not comparable. Economic aspects were not reported.

The most suitable method for milk expression may depend on the time since birth, purpose of expression and the individual mother and infant. Low cost interventions including early initiation when not feeding at the breast, relaxation, hand expression and lower cost pumps may be as effective, or more effective, than large electric pumps for some outcomes. Small sample sizes, large standard deviations, small number of studies reviewed, and the diversity of the interventions argue caution in applying these results beyond the specific method tested in the specific settings.

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