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[Intervention Review]

Kangaroo mother care to reduce morbidity and mortality in low birthweight infants

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ABSTRACT

Background

Kangaroo mother care (KMC), originally defined as skin-to-skin contact between a mother and her newborn, frequent and exclusive or nearly exclusive breastfeeding, and early discharge from hospital, has been proposed as an alternative to conventional neonatal care for low birthweight (LBW) infants.

Objectives

To determine whether evidence is available to support the use of KMC in LBW infants as an alternative to conventional neonatal care before or after the initial period of stabilization with conventional care, and to assess beneficial and adverse effects.

Search methods

We used the standard search strategy of the Cochrane Neonatal Review Group. This included searches in CENTRAL (Cochrane Central Register of Controlled Trials; 2016, Issue 6), MEDLINE, Embase, CINAHL (Cumulative Index to Nursing and Allied Health Literature), LILACS (Latin American and Caribbean Health Science Information database), and POPLINE (Population Information Online) databases (all from inception to June 30, 2016), as well as the WHO (World Health Organization) Trial Registration Data Set (up to June 30, 2016). In addition, we searched the web page of the Kangaroo Foundation, conference and symposia proceedings on KMC, and Google Scholar.

Selection criteria

Randomized controlled trials comparing KMC versus conventional neonatal care, or early-onset KMC versus late-onset KMC, in LBW infants.

Data collection and analysis

Data collection and analysis were performed according to the methods of the Cochrane Neonatal Review Group.

Main results

Twenty-one studies, including 3042 infants, fulfilled inclusion criteria. Nineteen studies evaluated KMC in LBW infants after stabilization, one evaluated KMC in LBW infants before stabilization, and one compared early-onset KMC with late-onset KMC in relatively stable LBW infants. Sixteen studies evaluated intermittent KMC, and five evaluated continuous KMC.



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KMC versus conventional neonatal care: At discharge or 40 to 41 weeks' postmenstrual age, KMC was associated with a statistically significant reduction in the risk of mortality (risk ratio [RR] 0.60, 95% confidence interval [CI] 0.39 to 0.92; eight trials, 1736 infants), nosocomial infection/sepsis (RR 0.35, 95% CI 0.22 to 0.54; five trials, 1239 infants), and hypothermia (RR 0.28, 95% CI 0.16 to 0.49; nine trials, 989 infants; moderate-quality evidence). At latest follow-up, KMC was associated with a significantly decreased risk of mortality (RR 0.67, 95% CI 0.48 to 0.95; 12 trials, 2293 infants; moderate-quality evidence) and severe infection/sepsis (RR 0.50, 95% CI 0.36 to 0.69; eight trials, 1463 infants; moderate-quality evidence). Moreover, KMC was found to increase weight gain (mean difference [MD] 4.1 g/d, 95% CI 2.3 to 5.9; 11 trials, 1198 infants; moderate-quality evidence), length gain (MD 0.21 cm/week, 95% CI 0.03 to 0.38; three trials, 377 infants) and head circumference gain (MD 0.14 cm/week, 95% CI 0.06 to 0.22; four trials, 495 infants) at latest follow-up, exclusive breastfeeding at discharge or 40 to 41 weeks' postmenstrual age (RR 1.16, 95% CI 1.07 to 1.25; six studies, 1453 mothers) and at one to three months' follow-up (RR 1.20, 95% CI 1.07 to 1.34; 10 studies, 1696 mothers; moderate-quality evidence) and at one to three months' follow-up (RR 1.17, 95% CI 1.05 to 1.31; nine studies, 1394 mothers; low-quality evidence), and some measures of mother-infant attachment and home environment. No statistically significant differences were found between KMC infants and controls in Griffith quotients for psychomotor development at 12 months' corrected age (low-quality evidence). Sensitivity analysis suggested that inclusion of studies with high risk of bias did not affect the general direction of findings nor the size of the treatment effect for main outcomes.

Early-onset KMC versus late-onset KMC in relatively stable infants: One trial compared early-onset continuous KMC (within 24 hours post birth) versus late-onset continuous KMC (after 24 hours post birth) in 73 relatively stable LBW infants. Investigators reported no significant differences between the two study groups in mortality, morbidity, severe infection, hypothermia, breastfeeding, and nutritional indicators. Early-onset KMC was associated with a statistically significant reduction in length of hospital stay (MD 0.9 days, 95% CI 0.6 to 1.2).

Authors' conclusions

Evidence from this updated review supports the use of KMC in LBW infants as an alternative to conventional neonatal care, mainly in resource-limited settings. Further information is required concerning the effectiveness and safety of early-onset continuous KMC in unstabilized or relatively stabilized LBW infants, as well as long-term neurodevelopmental outcomes and costs of care.

PLAIN LANGUAGE SUMMARY

Kangaroo mother care to reduce morbidity and mortality in low birthweight infants

Review question: Does kangaroo mother care (KMC) reduce morbidity and mortality in low birthweight (LBW) infants?

Background: Conventional neonatal care of LBW infants (< 2500 g) is expensive and requires both highly skilled personnel and permanent logistical support. KMC has been proposed as an alternative to conventional neonatal care of LBW infants. The major component of KMC is skin-to-skin contact between mother and newborn. The other two components of KMC are frequent and exclusive or nearly exclusive breastfeeding and attempted early discharge from hospital.

Study characteristics: We identified 21 randomized controlled trials (3042 infants) for inclusion in this review by searching medical databases in June 2016.

Key results: Compared with conventional neonatal care, KMC was found to reduce mortality at discharge or at 40 to 41 weeks' postmenstrual age and at latest follow-up, severe infection/sepsis, nosocomial infection/sepsis, hypothermia, severe illness, and lower respiratory tract disease. Moreover, KMC increased weight, length, and head circumference gain, breastfeeding at discharge or at 40 to 41 weeks' postmenstrual age and at one to three months' follow-up, mother satisfaction with method of infant care, some measures of maternal-infant attachment, and home environment. Researchers noted no differences in neurodevelopmental and neurosensory outcomes at 12 months' corrected age.

Quality of evidence: Most critical and important outcomes had moderate-quality evidence.

Conclusions: KMC is an effective and safe alternative to conventional neonatal care for LBW infants, mainly in resource-limited countries.