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KANGAROO MOTHER CARE FOR PRETERM AND LOW BIRTH WEIGHT INFANTS: NARRATIVE REVIEW

Nursing/Pediatrics

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ABSTRACT

The World Health Organization (WHO) has defined low birth weight as less than 2500 grams irrespective of gestational age. Prematurity and low birth weight are major contributors to neonatal and infant mortality. Kangaroo Mother Care (KMC) is a cornerstone intervention in neonatal care, widely recognized for its capacity to reduce morbidity and mortality in vulnerable newborns. Its simplicity, low cost, and adaptability make it especially valuable in resource-limited settings, where conventional neonatal intensive care may not be feasible. It promotes optimal thermal regulation, breastfeeding, infection prevention, and mother–infant bonding, thereby improving the health outcomes and overall well-being of newborns.

KEYWORDS

Kangaroo Mother Care, Neonatal Care, Low Birth Weight Infants

INTRODUCTION

The World Health Organization (WHO) has defined low birth weight as less than 2500 grams irrespective of gestational age.[5] Prematurity and low birth weight are major contributors to neonatal and infant mortality. These conditions are also associated with an increased risk of long-term neurodevelopmental disabilities and adverse health outcomes.[2]

Kangaroo Mother Care (KMC) is a cornerstone intervention in neonatal care, widely recognized for its capacity to reduce morbidity and mortality in vulnerable newborns. Its simplicity, low cost, and adaptability make it especially valuable in resource-limited settings, where conventional neonatal intensive care may not be feasible.[6] It promotes optimal thermal regulation, breastfeeding, infection prevention, and mother–infant bonding, thereby improving the health outcomes and overall well-being of newborns. KMC involves placing premature infants in direct skin-to-skin contact with their mothers, providing a simple, effective, and developmentally supportive method that enhances the growth and development of both preterm and full-term infants.[1]

Kangaroo Mother Care (KMC) was first implemented by Edgar Rey Sanabria and Hector Martinez in 1978 at the Maternal and Child Institute, Bogotá, Colombia. It was initially introduced as a strategy for early hospital discharge of Low Birth Weight Infants (LBWI) .There are two main modalities of KMC practice: intermittent KMC, which is provided for a few hours during the day, and continuous KMC, where skin-to-skin contact is maintained for nearly 24 hours per day. Continuous KMC is recommended as the preferred method whenever feasible because of its greater benefits for neonatal health and development.[8]

Fig. 1 Main components of KMC [4]

DEFINITION:

Kangaroo mother care (KMC) is defined as continuous skin-to-skin contact between the infant and the mother's chest, exclusively breastfeeding, and timely discharge with close follow-up.[7]

EPIDEMIOLOGY:

Every year, more than 20 million infants are born with a birth weight of less than 2.5 kg, with over 96% of these births occurring in developing countries. Low Birth Weight (LBW) infants are at increased risk of early growth retardation, infectious diseases, developmental delays, and mortality during infancy and childhood.[11]

TYPES OF KANGAROO MOTHER CARE

Kangaroo Mother Care (KMC) can be provided to small infants in two different ways:

1. Intermittent Kangaroo Mother Care:

In this method, KMC is not provided continuously but is given for limited periods when the mother visits her infant, especially when the baby is still receiving care in an incubator or neonatal care unit.

2. Continuous Kangaroo Mother Care:

In continuous KMC, the mother provides skin-to-skin contact with her infant continuously, both during the day and night, whenever possible. This method is preferred as it provides maximum benefits for thermal regulation, breastfeeding, bonding, and overall growth and development of the infant.[11]

KMC AND ACCREDITED SOCIAL HEALTH ACTIVISTS (ASHAS)

The initiation of Kangaroo Mother Care (KMC) requires the involvement of trained healthcare personnel rather than relying only on community-level health workers such as Accredited Social Health Activists (ASHAs). ASHAs can play an important role in providing follow-up care, counselling, and support to mothers after discharge. Auxiliary Nurse Midwives (ANMs) and other trained community health workers can assist in implementing KMC and addressing problems that arise during home-based care.

Healthcare workers should be introduced to the concept and practice of KMC, as it is an effective intervention for preterm and Low Birth Weight (LBW) infants in community settings. Each KMC session should ideally continue for at least one hour, as frequent handling may cause stress to the newborn. The mother's milk smell helps stimulate neonatal reflexes and supports feeding, growth, and development.

ASHAs can identify maternal concerns, assess the mother's confidence in handling the infant, provide guidance on correct KMC positioning, and encourage continuation of KMC sessions. The duration of each session should be gradually increased according to the mother's comfort and the infant's tolerance.

Evidence suggests that KMC can reduce stress, anxiety, and depressive symptoms among mothers of preterm infants. ASHAs can provide additional counselling and emotional support whenever required. KMC is a well-established evidence-based intervention for preterm and LBW newborns, mainly based on skin-to-skin contact between mother and infant. The World Health Organization (WHO) recommends KMC as a standard care practice for newborns weighing ≤2500 g at birth and advises initiating KMC in healthcare facilities as

soon as the infant is clinically stable to improve outcomes among preterm and LBW infants.[9]

BENEFITS OF KMC TO LOW BIRTH WEIGHT INFANTS (LBWI)

Kangaroo Mother Care provides multiple physiological, developmental, and emotional benefits for Low Birth Weight Infants (LBWI).

Cardiorespiratory Benefits

- Promotes cardiorespiratory stability.
- Improves oxygenation and maintains physiological stability.
- Supports better adaptation to extra-uterine life.
- Reduces episodes of apnea and hypoxia.
- Helps in reducing the duration of ventilator support.

Central Nervous System Benefits

- Promotes brain maturation and neural complexity.
- Improves cerebral oxygenation.
- Enhances sleep quality.
- Reduces the risk of intraventricular hemorrhage.
- Decreases the risk of developmental delay.
- Supports better neurodevelopment during the first 24 months of life, with benefits extending into later childhood.

Growth Benefits

- Promotes improved weight gain.
- Supports increased length gain.
- Enhances head circumference growth.

Endocrine Benefits

- Reduces circulating cortisol levels and stress responses.
- Increases cholecystokinin levels, which supports digestion of fats and proteins.
- Stimulates oxytocin release, promoting bonding and maternal-infant attachment.

Respiratory Benefits

- Improves respiratory adaptation.
- Reduces frequency and severity of apnea episodes.
- Decreases hypoxic episodes.

Metabolic Benefits

- Maintains body temperature through effective thermoregulation.
- Reduces the risk of hypoglycemia.
- Helps decrease the incidence of hyperbilirubinemia.

Pain Reduction and Stress Relief

- Reduces pain responses during procedures such as heel pricks and injections.
- Provides comfort and decreases stress in newborns.

Infection Prevention Benefits

- Decreases the incidence and severity of infections, including hospital-acquired (nosocomial) infections.
- Reduces morbidity and may decrease hospitalization costs.

Parent–Infant Interaction Benefits

- Enhances bonding and parent–infant interaction.
- Reduces the severity of neonatal abstinence syndrome.
- Strengthens family attachment and may reduce the risk of neglect or abuse.
- Promotes a calmer and more supportive environment for infant development.[10]

PROCEDURE OF KMC

A nurse usually assists the mother in initiating Kangaroo Mother Care (KMC) in the hospital setting. The following steps are recommended for effective KMC practice:

1. Preparation of the mother
- The mother should remove her bra and wear a front-opening shirt or hospital gown to facilitate skin-to-skin contact.
- Privacy should be ensured by using screens or curtains whenever required.
- The mother should wash hands and ensure clean skin before starting KMC.

2. Positioning of the infant
- The baby should be dressed only in a diaper and cap.
- The infant is placed upright against the mother's bare chest in a "frog-like" position.
- The baby's head should be turned to one side and slightly extended to maintain a clear airway.

3. Covering and maintaining warmth
- The baby's back should be covered with a blanket, gown, or cloth to maintain warmth and comfort.
- Proper positioning should be maintained throughout the session.

4. During KMC session
- The mother should relax, breathe normally, and focus on the baby.
- KMC sessions should ideally last at least one hour, and the frequency should be increased according to the mother's and baby's comfort.
- During KMC, the infant should be allowed to rest and sleep; it is not a time for active play or stimulation.

5. Family involvement
- Although mothers are the primary providers of KMC, fathers and other family members can also provide skin-to-skin contact when appropriate, as it offers additional bonding and stimulation for the infant.

6. Situations where KMC may be delayed
- KMC may need to be postponed if the infant requires certain intensive treatments, such as arterial monitoring lines, oscillator ventilation, or other procedures that make skin-to-skin contact unsafe.

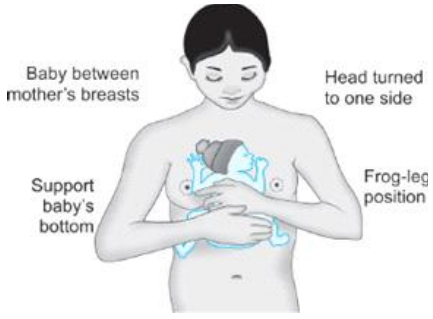

Fig. 2: KMC position

PRECAUTIONS DURING KMC

- Keep mobile phones away during KMC to avoid distraction and maintain infant safety.
- KMC should be avoided if the mother is unwell or has an active infection.
- The mother should be able to provide uninterrupted skin-to-skin contact for at least 60 minutes.
- The mother should have clean skin without perfumes, rashes, open wounds, or cold sores.
- Mothers should avoid smoking before providing KMC.
- Continuous observation of the baby's breathing, temperature, and comfort is essential during KMC.[11]

CONCLUSION

KMC provides stable LBW infants with the best conditions for growth. It is a scientifically sound, effective, it raises both mother's and baby's satisfaction. It reduces the mortality and morbidity rate of LBW infants. Hospital stays are also get decreased by the application of KMC. Providing KMC can build an emotional bond between the LBW infants and their parents. It is a cost-effective method. Community health workers such as ASHAs provide training and health education related to KMC. It increases the confidence of parents in caring for LBW babies.

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