A systematic review of kangaroo mother care to promote low birth weight care and reduce morbidity and mortality in preterm.

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ABSTRACT-

Kangaroo mother care is low cost method of care for low birth weight baby or premature infants in areas with inadequate warmer or NICU care. Preterm birth is one of the leading causes of under-five child deaths worldwide and in India also. Kangaroo mother care is powerful and easy to use method to promote health and well-being and reduce morbidity and mortality in preterm/low birth weight babies.

KEY WORDS-

Kangaroo mother care, low birth weight, newborn, preterm, premature, new born mortality.

INTRODUCTION-

Kangaroo mother care is suggestive care of low birth weight infants or preterm by placing infant in skin to skin contact with the mother or any other caretaker. KMC results in neonates warm and cozy. Babies get protected against hypothermia and cold stress. Kangaroo mother care significantly increases milk production in mother. KMC improves weight gain in infants and improves thermal protection. It reduces incidence of respiratory tract and nosocomial infections, improves emotional bonding between the infant and mothers and results in earlier discharge from the hospital.

KMC COMPONENTS-

1. POSITION OF MOTHER AND BABY-

KMC consists of skin to skin contact between the mother
and the infant in a vertical erect position, between the mother’s breasts and her clothes. The mother (provider) must keep herself in a semi reclining position to avoid the gastric reflux in the infant. The KMC position is maintained until the infant no longer tolerates it, as indicated like sweating in the baby or baby refusing to stay in kangaroo position.  

2. Nutrition –  
   KMC provides unlimited breastfeeding to baby which helps to improves weight gain and supply all essential nutrition to infant.  

3. EARLY DISCHARGE AND FOLLOW UP –  
   Early home discharge in the kangaroo position from the NICU is one of the original components of the KMC intervention. At home mothers require adequate support and follow up hence a follow up program and ancestor emergency services must be ensured.  

BENEFITS-  

A. PHYSIOLOGICAL BENEFITS- it helps to keep neonates warm and cozy. Babies get protected against cold stress and hypothermia. Vitals such as heart rate, respiratory rate, oxygenation, temperature and sleep patterns also get stabilized.  

B. CLINICAL BENEFITS- KMC very helpful to significant increase milk production in mothers and exclusive breastfeeding rates. KMC improves weight gain in the infants. And improves thermal protection. It reduces incidence of respiratory tract and nasocomial infection, improves emotional bonding between the baby and mothers and results earlier discharge from the hospital.  

CRITERIA OF KMC-  

BABY- KMC is indicated in all stable low birth weight babies. Sick babies should be cared under NICU. Initially KMC should be started once the baby is hemodynamically stable. Short KMC sessions can be initiated during recovery with ongoing medical treatment. KMC can be provided in such babies who are being fed via orogastric tube or on oxygen therapy.  

MOTHER-  

All mothers can provide KMC, no age limit, parity, education, culture and religion. The mother must be willing to provide KMC. The mother should be free from serious illness to be able to provide KMC. She should receive adequate diet and supplements recommended by her physician. She should maintain good hygiene. Mother would need family’s cooperation to deal with her conventional responsibilities of household chores till the baby requires KMC.
**KMC PROTOCOL**

| BIRTH WEIGHT | BIRTH WEIGHT | BIRTH WEIGHT |
|--------------|--------------|--------------|
| LESS THAN 1200gm | 1200 to 1800gm | GREATER THAN 1800gm |
| May be take days to weeks before KMC can be initiated | May take few days before KMC can be initiated | KMC can be initiated immediately after birth |

**KMC INITIATION**

Counselling- when baby is ready for KMC, time arrange that will convenient to the mother and her baby. The first few sessions are important and require extended interaction. Demonstrate to her the KMC procedure in a caring, gentle manner and with patience. Answer her queries allay her anxieties. Encourage her to bring her mother / mother in law, husband or any other member in family. It helps in building positive attitude of the family. Which helps particularly crucial for post discharge home based KMC.

Mother’s clothing- KMC can be provided using any front open gown, light dress as per local culture. KMC works well with blouse and sari, gown, shawl. Suitable apparel that can retain the baby for extended period of time can be adapted locally.

Baby’s clothing- baby is dressed with cap, socks, nappy and front sleeveless shirt.

**PROCEDURE**

i. Positioning- the baby should be placed between the mothers breast in an upright position. The head should be turned to one side and a slightly extended position. This slightly extended head position keeps the airway open and allows eye to eye contact between the mother and her baby. The hips should be flexed and abducted in a frog position. The arm should be also flexed. Baby abdomen should be at the level of the mother’s epigastrium. Mothers’ breathing stimulates the baby, thus reducing occurrence of apnea support the baby’s bottom with a sling or binder.

ii. Monitoring- baby should be monitored carefully, especially during the initial stages. Nursing staff should make sure make sure that baby’s neck position is neither too flexed nor too extended, airway is clear, breathing is regular, color is pink and baby is maintaining temperature. Mother should be involved in observing the baby during KMC so that she herself can be continue monitoring at home.

iii. Feeding- The mother should be explained how to breastfeed while the baby is in KMC position. Holding the baby near the breast stimulate the milk production. She may express milk while the baby is still in KMC position. The baby could
be fed with *paladai*, spoon or tube, depending on the condition of the baby\(^{11}\).

iv. Privacy- the staff must respect mother’s sensitivities in this regard and ensure culturally acceptable privacy standards in nursery and the wards where KMC is practised.

v. Duration- skin to skin contact should start gradually in the nursery, with a smooth transition from conventional care to continuous KMC. Sessions that last less than one hour should be avoided because frequent handling maybe stressful for the baby. The length of skin to skin contact should be gradually increase up to 24 hour a day, interrupted only for changing diapers. When the baby does not require intensive care.

**When to stop KMC**- KMC is continued till the baby finds it comfortable and cosy. KMC is unnecessary once the baby attains a weight of 2500gm and gestation of 37week. A baby who, upon being put in the kangaroo position, tends to wriggle out, pulls limbs out, or cries or fusses is no longer in need of KMC\(^{12}\).

**CONCLUSION**-

Mother can understand implementation Kangaroo mother care with simple and clear oral instructions in local language, without using special equipment, NICU working staff that gave parents unrestricted access were more positive about Kangaroo mother care that staff in NICU that provides baby warm protect from hypothermia, help to increase weight of preterm’s and provides unlimited breast milk. Kangaroo mother care significantly increases milk production in mother.

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