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Kangaroo Mother Care: Mother & Baby Friendly Care

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"A Hug can save a life"

Neonates born before 37 completed weeks of pregnancy are called premature infants. The birth of premature infants is associated with several problems, such as frequent hospital admissions, infections, apnea and others [1]. Despite the comprehensive efforts to prevent premature delivery and birth of premature infants, the birth rates of such infants are high due to some medical problems, social status and infertility treatment [2,3].

Therefore, care for such infants is a burden on community health systems. Caring low birth weight baby is a great challenge for the neonatal care unit and the family. Numbers of low birth weight babies are still for beyond the expected target in our country. The cost of the quality management of these babies is increasing day by day. Most common method for care of premature infants is incubator method. In this way, the infant undergoes a special care in a glass device, apart from a mother.

Meanwhile, in alternative method as known as Kangaroo Mother Care (KMC), it is low cost approach for the care of low birth weight baby. Kangaroo mother care is care of preterm infants carried skin-to-skin with the mother. It is a powerful, easy-to-use method to promote the health and well-being of infants born preterm as well as full-term [4]. KMC has now become the standard of care either as an alternative to or an adjunct to technology based care.

It was first presented by Rey and Martinez, in Bogota, Colombia in 1978, where it was developed as an alternative to inadequate and insufficient incubator care for those preterm newborn infants who had overcome initial problems and required only to feed and grow. Almost two decades of implementation and research have made it clear that KMC is more than an alternative to incubator care. It has been shown to be effective for thermal control, breastfeeding and bonding in all newborn infants, irrespective of setting, weight, gestational age, and clinical conditions [5].

Kangaroo mother care (KMC) is defined as early, prolonged and continuous skin to skin contact between a mother and her newborn low birth weight infant, both in hospital and after early discharge, until at least the 40th week of postnatal gestational age [6-8]. KMC has the double advantage of reducing cost and increasing the likelihood of survival as a result of better thermal control, promotion of breastfeeding, and protection from cross- and hospital infections [9].

In addition it can result in a lower risk of apnea episodes due to continuous skin to skin stimulation, improved well-being of the baby and improved bonding, with a more appropriate use of human and material resources [10–13]. In KMC, the baby is continuously kept in skin-to-skin contact by the mother and breastfed exclusively to the utmost extent, KMC is initiated in the hospital and continued at home.

Its key features are:

- Early, continuous and prolonged skin-to-skin contact between the mother and the baby;
- Exclusive breastfeeding (ideally);
- It is initiated in hospital and can be continued at home;
- Small babies can be discharged early;
- Mothers at home require adequate support and follow-up;
- It is a gentle, effective method that avoids the agitation routinely experienced in a busy ward
- With preterm infants.

Major component of the KMC is the ‘kangaroo’ position. That induces combinations of sensory modalities: auditory stimulations through the mother’s Voice, olfactive stimulations by the mother’s body proximity, vestibular-kinesthetic stimulations With the infant’s location on the adult’s chest and carried during 24 hr a day for days or Weeks, tactile stimulations by permanent skin-to-skin contacts, and visual stimulation as the Infant is placed in an upright position which allows him to see the mother’s face and Body and the contextual elements as the mother moves in her routine activities [14]. As multimodal Sensory stimulations programs have been reported as having short term impact on physical and mental maturation (Field, 1986).

Benefits of KMC

Breastfeeding: Studies have revealed that KMC results in increased breastfeeding rates as well as increased duration of breastfeeding. Even when initiated late and for a limited time during day and night, KMC has been shown to exert a beneficial effect on breastfeeding. It appears that KMC and skin-to-skin contact are beneficial for breastfeeding in settings where it is less commonly used for preterm/LBW infants, especially if these are cared for in incubators and the prevailing feeding method is the bottle. Other studies have shown a positive effect of skin-to-skin contact on breastfeeding. It could therefore be expected that the earlier KMC is begun and the earlier skin-to-skin contact is initiated, the greater the effect on breastfeeding will be.

Thermal control: Prolonged skin-to-skin contact between the mother and her preterm/ LBW infant provides effective thermal control with a reduced risk of hypothermia. For stable babies, KMC is at least equivalent to conventional care with incubators in terms of safety and thermal protection.

Studies carried out in low-income countries show that prolonged skin-to-skin contact between the mother and her preterm/LBW infant, as in KMC, provides effective thermal control and may be associated with a reduced risk of hypothermia. Fathers too can effectively conserve heat in newborn infants despite an initial report of worse performance of males in thermal control.

Early discharge: Studies have shown that KMC cared LBW infants could be discharged from the hospital earlier than the conventionally managed babies. The babies gained more weight on KMC than on conventional care. Bogota's KMC program reduces length of exposure to typical NICU environment that is well recognized as stressful, and programs aimed at reducing the stress in this environment have been successful in favoring weight gain and mental development (Symington & Pinelli, 2001) [15]. As infants leave hospital earlier, carried on the mother's womb, proximal noise might be reduced and mostly absorbed by the mother's skin and dress etc. From the time of the early hospital discharge, parents become totally in charge of their infant and responsible of his health and survive. This high parent involvement procedure is viewed as an effective part of the intervention and appears to change their attitude and developmental expectations and their interactive behaviors with their infant.

Less morbidity: Babies receiving KMC have more regular breathing and fewer predispositions to apnea. KMC protects against nosocomial infections. Even after discharge from the hospital, the morbidity amongst babies managed by KMC is less. KMC is associated with reduced incidence of severe illness including pneumonia during infancy.

Other effects: KMC helps both infants and parents. Mothers are less stressed during kangaroo care as compared with a baby kept in incubator. Mothers prefer skin-to-skin contact to conventional care. They report a stronger bonding with the baby, increased confidence, and a deep satisfaction that they were able to do something special for their babies. Fathers felt more relaxed, comfortable and better bonded while providing kangaroo care.

Kangaroo care helps both infants and parents. Mothers report being significantly less stressed
during kangaroo care than when the baby is receiving conventional care. Mothers prefer skin-to-skin contact to conventional care and report an increased confidence, self-esteem, and feeling of fulfilment, also in high-income countries. They describe a sense of empowerment, confidence and a feeling that they can do something positive for their preterm infants in different settings and cultures. Fathers too said that they felt relaxed, comfortable and contented while providing kangaroo care. KMC thus empowers mothers and increases their confidence in handling and feeding their LBW and preterm infants. Tessier and collaborators, using data from the RCT conducted in Colombia, concluded that KMC should be encouraged as soon as possible after birth because it improves bonding and makes mothers feel more competent.

This literature reviews the evidences on KMC, from both developing and developed countries, with regard to the following outcomes: mortality and morbidity; breastfeeding and growth; thermal protection and metabolism, and other effects. The experience with KMC has been reviewed by several authors [16-20] and in a systematic review [21]. While reviewing the evidence, regardless of the outcome, it became clear that it was important to highlight two essential variables: time of initiation of KMC, and daily and overall duration of skin-to-skin contact.

Time of initiation of KMC in the studies under consideration varied from just after birth to several days after birth. Late initiation means that the preterm/LBW infants have already overcome the period of maximum risk for their health.

Length of daily and overall duration of skin-to-skin contact also varied from minutes (e.g. 30 minutes per day on average) to virtually 24 hours per day; from a few days to several weeks. The longer the care, the stronger the possible direct and causal association between KMC and the outcome. Furthermore, when KMC was

carried out over a long period of time, care was predominantly provided by the mother rather than the nursing staff or the conventional incubator.

Some other variables that might have affected the outcome of KMC are:

- *The position in which the baby was kept.*
- *The changes in the type and mode of feeding*
- *The timing of discharge from the institution and the transition to home care.*
- *Condition at discharge.*
- *The intensity of support and follow-up offered to mothers and families after discharge from the institution.*

Many other factors (e.g. social conditions, environment and health care, especially services offered for KMC) may be associated with the positive effects observed in KMC studies. It is very important to separate the effects of these factors from those deriving from KMC.

Various studies have shown that KMC has had favorable results for neonates and mothers, which includes: favorable effects on heart rate, oxygen saturation and respiratory rate [22], maintaining body temperature and sleeping of the infant [23], positive effect on mental and cognitive development, better performance in physical tests during early childhood [24], helping to increase mother's emotional feelings toward the newborn [25,26], positive effect on family attachment [27,28], and confidence in mother-child care [29]. It may also affect the subsequent outcomes and long-term welfare of the mothers and their babies for reducing risky behaviors later in her life [30].

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