**Introduction**

The current neonatal mortality rate of India is 44 per 1000 live births, accounting for almost 2/3 of Infant mortality rate and half of < 5 years mortality rate. Thirty percent of all neonates are Low Birth Weight (LBW). LBW is highest in India. If we look at the causes of mortality in neonates, seventy five percent are related directly or indirectly to LBW. It is important that LBW babies are provided with scientifically sound, best, low cost, humane and comprehensive method of care. KMC meets the needs of warmth, nutrition and protection from infection with multimodal stimulation and humanizing high technology to achieve improvement in survival, morbidity and appropriate growth and development of LBW infants who are thermodynamically stable and are weighing between 1800 gms to 2000 gms.

**Key words:** Kangaroo Mother Care, LBW, Neonatal mortality

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**Abstract:**

The current neonatal mortality rate of India is 44 per 1000 live births, accounting for almost 2/3 of Infant mortality rate and half of < 5 years mortality rate. Thirty percent of all neonates are Low Birth Weight (LBW). LBW is highest in India. If we look at the causes of mortality in neonates, seventy five percent are related directly or indirectly to LBW. It is important that LBW babies are provided with scientifically sound, best, low cost, humane and comprehensive method of care. In the recommendation in Asia and North East Region conference for Millennium Goal in September 2007, the only best practice to scale up child survival, identified and suggested was Thermal Care including Kangaroo mother care in newborn at facility and community level by all countries.

A study conducted in Ethiopia had found the survival of preterm LBW infant was remarkably better for early KMC group than the babies in conventional method of care. Many studies revealed that compared with conventional care, KMC was found to reduce severe illness, infection, breastfeeding problems, maternal dissatisfaction and hospital stay with this method of care and improve some outcomes of mother baby bonding.

KMC meets the needs of warmth, nutrition and protection from infection with multimodal stimulation and humanizing high technology to achieve improvement in survival, morbidity and appropriate growth and development of LBW infants who are thermodynamically stable and are weighing between 1800 gms to 2000 gms.

**Kangaroo Mother Care (KMC):**

Kangaroo Mother Care (KMC) has been variously defined, but two essential components are skin-to-skin contact (SSC), and breastfeeding (BF). From the biological perspective, in the immediate newborn period of Homo sapiens, skin-to-skin contact represents the correct "habitat", and breastfeeding represents the "niche" designed for that habitat. In
the uterine habitat, oxygenation is provided through the placenta and the cord, as well as warmth, nutrition and protection. These are the four basic biological needs. Parturition (birth) represents a "habitat transition". In the new habitat, the basic needs remain the same. Research over the last ten years provides strong support for the contention that newborn itself in the skin-to-skin habitat, not the mother or the health services, provides these basic needs. Oxygenation has been shown to be improved on SSC, to the extent that KMC is used successfully to treat respiratory distress. The breathing becomes regular and stable, and is coordinated with heart rate. When removed from incubator and placed SSC, oxygen saturation may rise slightly, or the percentage of oxygen provided to maintain good saturation can be lowered. Heart Rate is increased when placed SSC. Though we can regard this increase as being with the clinically normal range, what is seen is actually a return to the physiologically normal heart rate, the lower rate being due to "protest despair behavior". Infants removed from incubators and placed SSC show a rise in temperature and a dramatic drop in glucocorticoids, as predicted by the "protest-despair response". Mothers are able to control the infants temperature within a very narrow range, far better than an incubator. To accomplish this, her core temperature can rise to two degrees Centigrade if baby is cold, and fall one degree if baby is hot. Skin-to-skin contact is better than incubator for rewarming hypothermic infants. Self-attachment refers to the phenomenon that full term un-drugged infants, left on their mother's chest and undisturbed, will all breastfeed spontaneously within one hour, with no help at all. But this behavior is dependent on SSC. Mother and infant should NOT be separated. The stimulations the newborn gives the mother during SSC elicit caring and protective behavior from the mother. The baby’s legs kicking on the mother’s abdomen cause the mother’s uterus to contract strongly, preventing post-partum bleeding. Nutrition is improved, both with respect to the mother’s ability to breastfeed, and with respect to the newborn’s utilization of the feed. The volume of mother’s milk is greatly increased, and the frequency of feeds provided likewise. Even without the increased milk, with the vagal stimulation the infant receives, the gut is better able to use the milk provided, and grows faster. Immunity is improved, demonstrable even 6 months later. Prematures seem to have poor immune systems, and are susceptible to allergies, infections and feeding problems in the first year of life. Early SSC dramatically reduces these problems. Infections are reduced when SSC and exclusive breastfeeding are firmly introduced. Necrotizing enterocolitis (a potentially lethal and very costly disease to treat) has been dramatically reduced in many units following a KMC programme. In no published paper is a single adverse outcome reported for KMC. Positive effects on the mother are better bonding, healing of emotional problems associated with premature birth, among others. Breastfeeding is a behavior based on hindbrain functions that regulate hormones, autonomic functions and the somatic system. Key to understanding breastfeeding behaviors in the
transitional and newborn periods is "state organization". State Organization refers to the ability to control the level of arousal, or of being awake. A scale of state organization can be described varying from deep sleep to hard crying, each being associated with particular behaviors and conditions. For breastfeeding an infant should be in an awake state, and should thereafter be in quiet sleep for optimal development. KMC has profoundly beneficial effects on the state organization of newborns. "Suckling" is the "chewing movement" an infant makes on the nipple. Quite apart from suckling as a means to ingest food, this behavior has essential effects. Suckling stimulates the back of the palate, and results in intense vagal stimulation, which is vital for the general wellbeing of the baby. Suckling releases hormones similar to morphine in the brain, and gives powerful pain relief to infants. While it was observed that ability to suck on a bottle only started at 34 weeks post-conceptional age, recent research has shown that suckling from the breast is possible at 28 weeks. Suckling is a myographically distinct behavior from sucking, and research on sucking on bottles of premature infants shows it clearly to be stressful. Premature infants are unable to coordinate their breathing and their swallowing.

The primary violation, the worst case scenario, to any newborn is separation from its habitat/mother. This applies to Homo sapiens as fully as to other mammals studied. “Protest-despair” behavior is a stress reaction, and the hormones related to this have been extensively studied. At high levels, these hormones are intrinsically neurotoxin to the brain, particularly areas of the hindbrain, and any area which may be already a little hypoxic. SSC has been shown to markedly reduce this levels. Majority of the babies in our country are home delivered and care of LBW can be done by KMC, which will reduce the load of already overloaded pediatrics wards and nurseries. Thus KMC is an appropriate technology which is applicable everywhere, cost effective and results in healthier and more intelligent babies and adds to the nation’s wealth. Knowledge of KMC should be included in the syllabus of medical and nursing courses and in internship training programme.

References

2. Udani R and Nanavati R. A training manual on Kangaroo Mother Care published by Department of Neonatology, Dr. D.Y.Patil Medical College and Hospital,Nerul,Navi Mumbai, August 2008.

Conflict of interest: None declared