Original Research Article

DOI: http://dx.doi.org/10.18203/2349-3291.ijcp20181544

The effect of Kangaroo Mother Care (KMC) on breast feeding at the time of NICU discharge

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Received: 28 February 2018 Accepted: 28 March 2018

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ABSTRACT

Background: The WHO has defined KMC as early, continuous, and prolonged skin-to-skin contact between the mother and preterm babies. Exclusive breastfeeding is one of the most important essential components of Kangaroo Mother Care in preterm babies

Methods: This a cross sectional study, 265 consecutive premature newborns admitted to neonatal intensive care unit (NICU) between May 2015 and May 2016 in KIMS NICU Hospital in Bengaluru were evaluated. All of candidate mothers were educated for KMC and compared with a CMC group.

Results: In this study 159 mothers performed kangaroo mother care (KMC group) versus 106 in conventional method care (CMC group). In KMC group exclusive breast feeding was 99 (65.2%) versus 40 (37.7%), and P = .00 in CMC group, at the time of hospital discharge. Receiving KMC, and gestational age were the only effective factors predicting exclusive breastfeeding. Present result indicated that there was a 2.7 time increase in exclusive breastfeeding by KMC, and also weekly increase in gestational age increased it 0.9 times, but maternal age, birth weight, mode of delivery, and 5-minute Apgar score had no influence.

Conclusions: KMC is more effective, and increases exclusive breast feeding successfully. It can be a good substitution for CMC (conventional methods of care). It is a safe, effective, and feasible method of care for LBWI even in the NICU settings.

Keywords: Kangaroo mother care, Conventional method care, Low birth weight infant, Neonatal intensive care unit, Kempegowda Institute of Medical sciences, World Health Organisation

INTRODUCTION

The WHO has defined KMC as early, continuous, and prolonged skin-to-skin contact between the mother and preterm babies; exclusive breastfeeding or breast milk feeding; early discharge after hospital-initiated KMC with continuation at home; and adequate support and follow-up for mothers at home. 1

Kangaroo care, named for the similarity to how certain marsupials carry their young, was initially developed in the 1970s to care for preterm infants in countries where incubators were either unavailable or unreliable. There is evidence that it is effective in reducing both infant mortality and the risk of hospital-acquired infection, and increasing rates of breastfeeding and weight gain.

Kangaroo care is a form of developmental care that has benefits for all new-borns, especially those who are in the neonatal intensive care unit. Also known as skin-to-skin contact or kangaroo mother care, kangaroo care involves direct contact when a new born is placed skin-to-skin on mom or dad's bare chest. Mom or dad may gently hold their baby where they can be rocked, cuddled and hear comforting sounds of their parent's heartbeat and voice. Even in the stressful environment of the NICU, parent

and child can quietly bond and get to know one another. Kangaroo care is easy to do, inexpensive and highly rated by parents.

Peter de Chateau in Sweden first described studies of "early contact" with mother and baby at birth in 1976, articles do not describe specifically that this was skin-to-skin contact.² Klaus and Kennell did very similar work in the USA, more well known in the context of early maternal-infant bonding. The first reported use of the term "skin-to-skin contact" is by Thomson in 1979 and quotes the work of de Chateau in its rationale.³ This is contemporary or even precedes the origins of Kangaroo mother care in Bogota, Colombia.^{4,5} This latter did however make the concept more widely known.

In 1978, due to increasing morbidity and mortality rates in the Instituto Materno Infantil NICU in Bogotá, Colombia, Dr. Edgar Rey Sanabria, Professor of Neonatology at Department of Paediatry - Universidad Nacional de Colombia, introduced a method to alleviate the shortage of caregivers and lack of resources. He suggested that mothers have continuous skin-to-skin contact with their low birth weight babies to keep them warm and to give exclusive breastfeeding as needed. This freed up overcrowded incubator space and care givers.

Many of the benefits of kangaroo care to a new-born revolve around their feelings of safety, warmth and comfort. Research shows greater bonding with parents and as a result more calm and less stress, which positively impacts their brain and emotional development

Three components of Kangaroo Mother Care are:

- Skin-to-skin contact
- Exclusive breastfeeding
- Support to the mother infant.⁶

Kangaroo care can help NICU babies

- Facilitate better sleep patterns⁷
- Regulate their heart rate, breathing and temperature⁸
- Stabilize their organ function and self-regulation abilities⁹
- Improve growth and weight gain^{10,11}
- Experience less pain and less crying
- Take advantage of improved nutrition from mothers' increase in breastmilk production
- Be more willing to breastfeeding
- Enjoy a shorter hospital stay.

In addition to benefits that are observable in the NICU, research points to long-term advantages as well. Newborns who experienced kangaroo care in the NICU were more attached and bonded to their mothers over time. Babies were more alert after six months and their mothers were more attuned to their infant's cues and experienced less depression. In early childhood, children receiving

kangaroo care also show increased social competence, a positive sense of self and improved cognitive and motor development. These benefits are all signs of healthy brain development. In 2016 a study was released that revealed kangaroo care held significant, long-lasting social and behavioral protective effects even 20 years later.

METHODS

This a cross sectional study, 265 consecutive premature new-borns admitted to neonatal intensive care unit (NICU) between May 2015 and May 2016 in KIMS NICU Hospital in Bengaluru were evaluated.

Every mother that was healthy, and she and her baby had good condition, and had inclusion criteria were under evaluation. There was not any obligation to accept KMC performance. Mothers who performed KMC were included in KMC group, and those who did not were allocated for CMC group (conventional method care). Training team included two 1st year residents and NICU nursing staff.

KMC group mothers should have been informed, trained, and supported every day. Educational topics were about kangaroo mother care method, and breast feeding. Mothers filled a chart to record number, and duration of care provided. If the mother was unable to fill that intensive care unit (NICU) staff (nurse) were responsible to record information.

Position

mothers had to seat in a comfortable chair placed close to the baby's cradle. After the baby full feeds, she provided kangaroo care between her breasts in a vertical or semi vertical position, when the baby was not in KMC, the baby was placed in the cradle under heat lamp with adequately clothed and covered. During kangaroo mother care, newborns were not completely bare. Suitable clothing, and a soft hat were used to keep the newborns head warm. CMC group mothers are not educated regarding the KMC and babies were managed in a cradle under heat lamps in NICU.

Duration of KMC was at least 2-3 hours which was repeated at least 4 to 5 times a day. If mother is unable to do KMC, then minimum she should do at least 30 minutes. Mother should not have any contagious infectious diseases such as a common cold. And she should take bath every day before giving KMC. Newborns were classified into three groups based on their birth weight.

- Weight under 1000 g,
- Weight between 1000-1500g
- More than 1500g.

And each group in KMC group was compared with the same group in CMC group. Maternal characteristics and

performing KMC, and type of feeding. Quantitative variables were analyzed with t test, chi-square test, and logistic regression. We considered KMC, and gestational age as independent variables, and exclusive breastfeeding, maternal age, birth weight, mode of delivery, and 5-minute Apgar score as dependent variables in logistic regression analysis. The statistical significance level was set at 0.05.

Inclusion criteria

- Gestational age of newborn was at least 28 weeks
- Newborn that breastfed or had parenteral nutrition,
- Newborn that used mechanical ventilation system with stable situation
- Hemodynamically stable
- Not on any ionotropic support.

Exclusion criteria

- Newborn with arterial catheter or chest tube
- Newborn receiving ionotropic drugs
- Newborn with more than grade 2 intra ventricular hemorrhage
- Term babies.

RESULTS

In this study 159 mothers performed kangaroo mother care (KMC group) versus 106 in conventional method care (CMC group). In KMC group exclusive breast feeding was 99 (65.2%) vs. 40 (37.7%), and P = .00 in CMC group, at the time of hospital discharge. Receiving KMC, and gestational age were the only effective factors predicting exclusive breastfeeding. Our result indicated that there was a 2.7 time increase in exclusive breastfeeding by KMC, and also weekly increase in gestational age increased it 0.9 times, but maternal age, birth weight, mode of delivery, and 5-minute Apgar score had no influence on it. Spontaneous vaginal delivery more in KMC group (44.04%) compare to CMC group mothers (25.4%) may be due to pain and discomfort of section shown in Table 1.

Table 1: Demographic clinical characteristics in mothers and infants.

	KMC (159)	CMC (106)	P value
Gestational age	27.75±5.45	28.1±6.03	
Spontaneous VD	70 (44.02)	27 (25.4)	0.003
APGAR	7.2±1.7	7.1±1.7	
BW	1.75±0.8 kg	1.81±0.7 kg	
<1000 g	91 (57.2)	43 (40.5)	
1000-1500 g	54 (33.9)	53 (50)	0.02
>1500 g	14(8.8)	10(6.4)	

Table 2: Comparison of exclusive breastfed babies birth weight between KMC and CMC group

	KMC	CMC	P value
<1000	60 (65.9)	15 (34.8)	0.001
1000-01500	30 (55.5)	19 (35.8)	0.04
>1500	9 (64.2)	6 (60)	1.00

Exclusive breast feeding was compared in newborns who were divided into 3 different weight groups. In the weight group less than 1000g exclusive breastfeeding in KMC group was (65.9% vs 34.8%) in CMC group with a significant difference (P=0.01).

In the weight group between 1000-1500 g exclusive breastfeeding in KMC group was (55.5% vs 35.8%) in CMC group with a significant difference (P=0.04). In the weight group more than 1500g it was (64.2% vs. 60%) with no significant difference (P=1) respectively (Table 2).

Table 3: Types of feeding between KMC and CMC group.

	KMC	CMC	
EBF	99 (65.2)	40 (37.7)	
artificial	4 (2.5)	57 (53.7)	0.000
mixed	56 (35.2)	9 (8.4)	

Exclusive breast feeding, and mixed feeding were more in KMC group mother compare to CMC group mothers as shown in Table 3.

DISCUSSION

The present study evaluated the effect of KMC performance on exclusive breast feeding in preterm infants at the time of hospital discharge. Present findings indicated that the mothers who performed KMC in NICU for their preterm infants had more exclusive breastfeeding at the time of hospital discharge (62.5% vs 37.5%) than those who did not perform KMC.

Bicalho reported that the kangaroo units exhibited superior performance in relation to exclusive breastfeeding at discharge (69.2 vs 23.8%). Brooks found that a group of newborns, who underwent KMC in (NICU), had 100% exclusive breastfeeding at the time of hospital discharge. The result of Boo study showed higher breastfeeding rate at discharge (29.7% vs 14.5%). Honorina reported that exclusive breastfeeding rates were higher in the kangaroo group at hospital discharge (82.6 vs 0%).

In the present study the mean age at commencement of KMC in NICU was 8 to 10 days. Babies with severe illness, and those requiring special treatment, could use KMC practice after recovery from illness.

The present study indicated that there was a time increase in exclusive breast feeding by KMC at the time of hospital discharge. Honorina reported that infants who underwent KMC had a 2.34 times greater chance of being exclusively breastfed at discharge from hospital

CONCLUSION

It seems that kangaroo mother care (KMC) is an effective way to increase the exclusive breast feeding. KMC can be a good substitution for CMC (conventional methods of care). It is a safe, effective, and feasible method of care for LBWI even in the NICU settings.

Funding: No funding sources Conflict of interest: None declared

Ethical approval: The study was approved by the

Institutional Ethics Committee

REFERENCES

- World Health Organization. Kangaroo mother care: a practical guide. WHO Library. Geneva: World Health Organization. 2003. Available at http://apps.who.int/iris/bitstream/handle/10665/4258 7/9241590351.pdf;jsessionid=E6131BD707054896 9BF28BB84FC2C7A3?sequence=1
- 2. Chateau DP. The influence of early contact on maternal and infant behaviour in primiparae. Birth Family J. 1976;3:149-55.
- 3. Thomson ME, Hartsock TG, Larson C. The importance of immediate postnatal contact: its effect on breastfeeding. Can Fam Physician. 1979;25:1374-8.
- Kangaroo Mother Care. Kangaroo Mother caresupport for parents and staff of premature babies. Available at http://www.kangaroomothercare.com/ Accessed 10th March 2017.
- 5. Charpak N, Ruiz J, Zupan J, Cattaneo A, Figueroa Z, Tessier R, et al. Kangaroo mother care: 25 years after. Acta Paediatr. 2005;94(5):514-22.

- Charpak N, Ruiz-Pelaez JG, Figueroa de Calume Z.
 Current knowledge of Kangaroo Mother Intervention. Curr Opin Pediatr. 1996;8(2):108-12.
- 7. Neu M, Robinson J. Maternal holding of preterm infants during the early weeks after birth and dyad interaction at six months. J Obstet Gynecol Neonatal Nurs. 2010;39:401-14.
- 8. Helth, TD, Jarden, M. Fathers' experiences with the skin-to-skin method in the NICU: Competent parenthood and redefined gender roles. J Neonatal Nur. 2013;19:114-21.
- 9. Helth TD, Jarden M. Fathers' experiences with the skin-to-skin method in the NICU: Competent parenthood and redefined gender roles. J Neonatal Nursing. 2013;19:114-21.
- 10. Blacke J, Gregson S. Kangaroo care in pre-term or low birth weight babies in a postnatal ward. Br J Midwifery. 2011;19(9):568-77.
- 11. Protocol AB. ABM clinical protocol# 23: Non-pharmacologic management of procedure-related pain in the breastfeeding infant. Breastfeeding Med. 2010;5(6).
- 12. Zadeh HM, Habibolahi A, Khazaei S, Vakilian R, Jafari H, Nazari M, et al. Kangaroo mother care. Tehran: Eideh pardazan fan va honar. 2009.
- 13. Hake-Brooks SJ, Anderson GC. Kangaroo care and breastfeeding of mother-preterm infant dyads 0-18 months: a randomized, controlled trial. Neonatal Netw. 2008;27(3):151-9.
- 14. Boo NY, Jamli FM. Short duration of skin-to-skin contact: effects on growth and breastfeeding. J Paediatr Child Health. 2007;43(12):831-6.

Cite this article as: Tharashree CD, Shravani MR, Srinivasa S. The effect of Kangaroo Mother Care (KMC) on breast feeding at the time of NICU discharge. Int J Contemp Pediatr 2018;5:1068-71.