ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 15, Issue, 06, pp.25154-25156, June, 2023
DOI: https://doi.org/10.24941/ijcr.45517.06.2023

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

A STUDY TO ASSESS THE EFFECTIVENESS OF KANGAROO MOTHER CARE ON GROWTH, MORTALITY AND MORBIDITY PATTERN IN PRETERM AND LOW BIRTH WEIGHT BABIES

[1]Dr. Pankaj Narnolia, [2]Dr. Vivek Arora, [3,*]Dr. Pooja Yadav and [4]Dr. Bhupendra K. Damor

[1]Resident Doctor, Dept of Pediatrics, RNT Medical College, Udaipur
[2]Senior Professor, Dept of Pediatrics, RNT Medical College, Udaipur
[3,4]Resident Doctor, Dept of Pediatrics, RNT Medical College, Udaipur

ARTICLE INFO

Article History:
Received 24th March, 2023
Received in revised form
14th April, 2023
Accepted 20th May, 2023
Published online 30th June, 2023

Key words:

Kmc Kangaroo Mother Care),
Low Birth Weight,
Preterm.

**Corresponding Author:*
Dr. Pooja Yadav

ABSTRACT

Introduction:The Kangaroo Mother Care (KMC) method is a humane, low cost, standardized, protocol-predicated care system for preterm and ⁄ or Low Birth Weight (LBW) infants and is predicated on skin-to-skin contact between the preterm baby and the mother and exclusive breastfeeding.[1]Compared with conventional neonatal care, KMC was found to reduce mortality at discharge, Severe infection/sepsis, nosocomialinfections, lower respiratory tract disease, Hypothermia and length of hospital stay, Improved weight, length and head circumference, increased breastfeeding rates, Better mother-infant bonding and maternal satisfaction with the method of care, as compared with conventional methods. ***Material and Methods:*** This was a hospital based randomized controlled trail study. We studied inborn and out born babies admitted in NICU of Bal Chikitsalaya, R.N.T. Medical College, Udaipur with sample size of 100 in control group (who received conventional care in a radiant warmer) and 100 in KMC group after approval of Institutional Ethics committee. ***Result:*** Babies who were provided KMC achieved significantly better growth at the end of the study when their increase in the weight, length and head circumference was compared at the end of the study. The time to start breast feeding was significantly higher in KMC group. Most babies in KMC group were exclusively breast fed at 40weeks. A significantly higher number of babies in the CMC group suffered from hypothermia, hypoglycemia and apnea (<1500g).KMC significantly reduced the incidence of apnea in VLBW babies. Babies who were given KMC discharged earlier with significantly reduced duration of hospital stay by ≈5days. ***Conclusion****:* The low birth weight infants offered KMC demonstrated higher growth rates and were discharged earlier. KMC prevented or reduced almost all morbidities of low birth weight infant. It also promotes exclusive breastfeeding practice and increases mother's confidence in handling small babies and builds good mother-baby bonding. KMC should be promoted and mothers should be encouraged to start it as soon as their LBW babies are stable.

Citation: ***Dr. Pankaj Narnolia, Dr. Vivek Arora, Dr. Pooja Yadav and Dr. Bhupendra K. Damor.*** **2023.** "A study to assess the effectiveness of kangaroo mother care on growth, mortality and morbidity pattern in preterm and low birth weight babies*". International Journal of Current Research*, 15, (06), .25154-25156.

INTRODUCTION

Kangaroo mother care, defined as both continousskin to skin contact of the infant with the chest of the mother (or another caregiver when not possible with the mother) and feeding exclusively with the breast milk, is among the most effective interventions for preventing death in infants with low birth weight. Kangaroo Mother Care (KMC) method is a humane, low cost, standardized, protocol-predicated care system for preterm and ⁄ or Low Birth Weight (LBW) infants and is predicated on skin-to-skin contact between the preterm baby and the mother and exclusive breastfeeding. Skin-to-skin contact and exclusive breastfeeding are the cornerstones of the Kangaroo Mother Care.World Health Organization (WHO) guidelines currently recommend initiation of short, intermittent sessions of kangaroo mother care when the infant's condition begins to stabilize and continuous kangaroo mother care when the infant's condition has stabilized.[2]

The idea is tothe point is to engage the mother by continuously exchanging the aptitudes and responsibility regarding turning into the child's essential parental figure and meeting each physical and emotional needs.[1]

Components of KMC:[3]

1.Kangaroo position: The kangaroo position consists of skin -to-skin contact (SSC) between the mother and the neonate in a vertical position, between the mother's breast and under her clothes.

2. Kangaroo nutrition: Kangaroo nutrition is the delivery of nutrition to "kangarooed" neonates as soon as oral feeding is possible. Goal is to provide exclusively or nearly exclusive breastfeeding with fortification, if needed.

3. Kangaroo discharge and follow up: Early home discharge in the Kangaroo position from the neonatal unit is one of the key

components of KMC. Mothers at home require adequate support and follow-up programme and access to emergency services must be ensured. When Compared with conventional neonatal care, KMC was found to reduce mortality at discharge, Severe infection/sepsis, nosocomial infections, lower respiratory tract disease, Hypothermia and length of hospital stay with improved weight, length and head circumference, increased breastfeeding rates and better mother-infant bonding and maternal satisfaction.

MATERIAL AND METHODS

STUDY TYPE: Hospital Based Randomized Controlled trail study.

STUDY AREA: This study was conducted in NICU of Bal Chikitsalaya, R.N.T.Medical College, Udaipur.

STUDY PERIOD: The study was carried out over a period of 12 months from July2021 to July 2022 after approval of Institutional Ethics committee.

STUDY POPULATION: This study was conducted with a sample size of 100 babies in control group (who received conventional care in a radiant warmer) and 100 babies in KMC group (who received Kangaroo Mother Care).

INCLUSION CRITERIA: All preterm, neonates with birth weight 1200-1800 gms, gestational age 30 weeks to 35 weeks (Gestational age determined by LMP), haemodynamically stable, (criteria of stable baby- normal heart rate 100- 160 per minutes, respiratory rate 30-59 per minute with breaths comfortably, no sign of respiratory distress, pink in room air or with 40% oxygen, no prolonged or frequent apnea) wereincluded in this study.

EXCLUSION CRITERIA: Babies having major life-threatening congenital malformation, perinatal asphyxia and required ventilator or ionotropic support and babies with critically ill mother were excluded.

Study procedure: All mothers providing KMC was provide with a KMC kit with continuous hypothermia monitor (BEMPU) available in our institute for KMC practice. BEMPU is a simple & highly accurate bracelet which detects in the event of hypothermia. Its flashes a blue light when the baby has a normal temperature, flashes orange light & alarm when the baby is hypothermic. KMC was given at least 2 hours at a time and up to 12 hours in a day. We monitored daily, Random blood sugar& axillary temperature and apneic episode. Babies was weighted naked on an electronic weighing scale immediately, after birth and subsequently daily one hour after feeds till discharge.

The length and Head circumference was measured at birth, weekly and on discharge and on each follow-up visit by using standard methods. Babies were also monitored for hypothermia, hypoglycemia, apnea, sepsis, feeding problem and other morbidities and were temporarily withdrawn from the KMC group in case of any life-threatening events. Babies were discharged when they show a weight gain of 10-15 g/kg/d for three consecutive days, and feeding well, maintaining temperature without assistance and when the mother felt confident of caring for her baby. They were followed up weekly for anthropometry & compliance with KMC and any morbidities in the high risk OPD till post-menstrual age of 40 weeks in preterm babies or till a weight of 2500 g is reached in term SGA babies.

Statistical Analysis: Data was analyzed statistically by SPSS statistical software (version 17.1). A p-value of<0.05 was considered significant.

Observations And Result: A total of 200 neonates were included in the study divided intotwo groups with 100 neonates in the two groups divided alternatively. There was no statistically significant difference Inboth groups in the baseline characteristics (Table1).

Table 1. Baseline Characteristics of the neonates in the two groups

Characteristic	KMC (N=100)	CMC (N=100)	P-value
Weight at birth (g;mean± SD)	1.51±10.24	1.52±12.13	>0.05
Weight at enrollment (g;mean±SD)	1.32±6.45	1.36±5.67	>0.05
Gestational age (wks;mean± SD)	33.27±2.49	33.10±2.48	>0.05
Male: Female ratio	52:48	60:40	>0.05
Normal vaginal Delivery (n)	38	15	<0.001
Caesarean section(n)	62	85	<0.001

The time to start breast feeding was significantly higher in KMC group. Most babies in KMC group were exclusively breast fed at 40weeks as shown in table 2.

Table 2. Type of Feeding in Both the Groups

Type of Feeding	KMC (N=100)	CMC (N=100)	P-value
Breast Feed	95	87	<0.05
Katori Spoon	5	13	

Babies who were provided KMC achieved significantly better growth at the end of the study when their increase in the weight, length and head circumference was compared at the end of the study (Table 3)

Table 3. Effect of KMC on Growth (at 40 weeks Postmenstrual Age in Preterm Babies and After attainment of 2500g in term SGA Babies)

Outcome	KMC	CMC	P-value
Weight gain(g/day)	19.84	13.78	<0.05
Length gain(cm/week)	0.89	0.74	<0.001
Head circumference gain(cm/week)	0.71	0.47	<0.001

A significantly higher number of babies in the CMC group suffered from hypothermia, hypoglycemia and apnea (<1500g).KMC significantly reduced the incidence of apnea in VLBW babies.(Table 4)

Table 4. Effect of KMC on Co-Morbidities

Co- Morbidities	KMC(N=100)	CMC (N=100)	P-value
Hypothermia	5	13	<0.05
Hypoglycemia	2	11	<0.01
Apnea	2	8	<0.05
Sepsis	5	12	>0.05
Other minor illness	7	2	>0.05

Babies who were given KMC discharged earlier with significantly reduced duration of hospital stay by ≈5days as shown in Table 5.

Table 5. Effect of KMC on Duration of Hospital Stay

Outcome	KMC	CMC	P-value
Duration of Hospital stay	12.99	17.28	<0.001

Discussion: In our study there was no statistically significant difference of birth weight, gestational age and maturity in both the group. The data revealed that infants who received the intervention (KMC) gained weight more quickly than those in the control groups, who received conventional newborn care. Similarly in study by Rao et al[4] length gain cm/week was more in KMC group (0.99±0.56 cm/week vs 0.70±0.13 cm/week, p value<0.001), which supported by other studies. Weight, length and head circumference gain were significantly higher in the KMC group (weight 19.84 g/day, length 0.89 cm/week and head circumference 0.71 cm/week) than in the CMC group (weight 13.78 g/day, length 0.74cm/week and head circumference 0.47 cm/week).This beneficial effect was reflected in other growth parameters and is comparable with other studies like

Charpak et al[5] and Chan et al[6].In study by Rao et al[4] the mean head circumference gain was significantly greater in the KMC group compared with the control group (0.72±0.07cm/week vs 0.46.05cm/week, p value (<0.001), which compares well with other reports. In our study as evident that time to start breast feeding was significantly higher in KMC group. Ramanathan et al[7], found similar results in a study with 28 preterm babies, in which the frequency of breastfeeding at six weeks of life amounted to 85.7% for babies submitted to KMC versus 42.8% for control individuals. Charpak et al[5], in two studies revealed higher prevalence of breastfeeding at 1, 6 and 12 months of life in babies submitted to KMC compared with control individuals.In our study a significantly higher number of babies in CMC group suffered from hypothermia than KMC group. In study by Rao et al[4] a significantly higher number of babies in CMC suffered from hypoglycemia (p=0.00005) as compared with KMC babies. In our study there was reduced duration of hospital stay in KMC group by~ 5 days. KMC decreased length of hospital stay by 2.4 days in a meta-analysis of nine studies that used intermittent KMC. Similar findings were observed by Rao et al[4]. Swarnkar et al[1] observed a mean difference in hospital stay of3.6 days.

CONCLUSION

The low birth weight infants offered KMC demonstrated higher growth rates and were discharged earlier. KMC prevented or reduced almost all morbidities of low birth weight infant. It also promotes exclusive breastfeeding practice and increases mother's confidence in handling small babies and builds good mother-baby bonding. KMC should be promoted and mothers should be encouraged to start it as soon as their LBW babies are stable.

****

REFERENCES

1. Swarnkar K, Vagha J. 2016. Effect of kangaroo mother care on growth and morbidity pattern in low birth weight infants. *J. Krishna Inst. Medical Sci. Univ.,* 5(1):91-99.
2. Arya S, Naburi H, Kawaza K. Immediate 2021. "Kangaroo Mother care" and survival of infants with Low Birth Weight. *N Engl J Med.*384(21):2028-38.
3. Agarwal R, Deorari A, Paul V, Shankar JM, Sachdeva A. 2019. Kangaroo Mother care chapter, AIIMS Protocol in Neonatology, 2nd edition, Noble Vision, 617-626.
4. Suman Rao PN, Udani R, Nanavati. 2008. Kangaroo Mother Care for Low Birth Weight Infants: A Randomized Controlled Trial. Indian Pediatrics. 45(1):17-30.
5. Charpak N, Tessier R, Ruiz JG. 2017. Twenty-year follow-up of kangaroo mother care versus traditional care. Pediatrics., 139(1).2016- 2063.
6. Chan G, Bergelson I, Smith ER, Skotnes T, Wall S. 2017. Barriers and enablers of kangaroo mother care implementation from a health systems perspective: a systematic review. Health Policy Plan. Dec 1;32(10):1466-1475.
7. Ramanathan K, Paul V, Deorari A, Taneja U, George G. 2001. Kangaroo Mother Care in very low birth weight infants. The Indian Journal of Pediatrics.68(11):1019-23.