Original Article

Experience of Kangaroo Mother Care (KMC) at Children Hospital Chandka Medical College (SMBB Medical University Larkana

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ABSTRACT

Objective: To determine the effectiveness of kangaroo mother care in low birth weight infants at Larkana Children's Hospital.

Study Design: Descriptive, cross-sectional study

Place and Duration of Study: This study was conducted at the Kangaroo mother care unit, Children hospital CMC Larkana from 01.08.2021 to 25.02.2022.

Materials and Methods: Total of 490 newborns were included in the study, mostly of infants were registered in first week of life, participation of male 55% is more than female 45%. According to gestational age 56% infants were term and 40 percent were preterm, while 54% were below 1500g and 29% below 2000gms. All infants were on exclusive breast feeding.

Results: Average days required to start weight gain were 3.2 days Average weight gain per day were 33.4 grams per day. Average stay in KMC ward was 7.1 days.

Conclusion: KMC is a low-cost, safe strategy that has been demonstrated to reduce the length of stay in the hospital for preterm and/or low-birth-weight infants.

Key Words: Experience, KMC, Children, College, Larkana

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INTRODUCTION

Kangaroo mother care is a type of preterm / low birth weight newborn care in which the infant is propped up against the parent's chest to allow for early skin-to-skin contact. Kangaroo mother care (KMC) is a compassionate, low-cost method of caring for premature or low-birth-weight infants that may be started as soon as feasible and finished quickly both in the hospital and at home once the baby is discharged.

Because of overpopulation and a lack of resources in his country's hospitals, researcher founded KMC in 1978 in Bogota, Columbia, as a simple and low-cost alternative to the conventional incubator treatment for low birth weight children. It has subsequently been proven that the KMC treatment does not raise the risk of preterm infant death from a physiological standpoint. In many low-income countries, including Pakistan, despite the benefits of KMC, it is still not a frequently used way of care for all LBW newborns.[1-3] The fundamental cause for this is a lack of understanding about how to execute existing cost-effective intervention programmes in low-resource settings.[4-6] Thermal care, exclusive breastfeeding support, and early detection and response to complications are the three main components of KMC. The benefits of KMC go beyond the hospitalization time; it also has a long-term good influence on weight growth by allowing for thermal management and healthy breast feeding.[7-9]

There are 2 types of KMC, continuous KMC, skin-to-skin contact practiced for 24 hours and intermittent KMC, and contact for shorter periods. The birth weight of a newborn is a sensitive indicator and key factor for neonatal death. Low birth weight (less than 2500 grames irrespective of gestational age) is a significant predictor of newborn mortality and morbidity. In respects of safety, thermal management, morbidity, mortality, as well as development, KMC is regarded equal to standard treatment. In extremely low birth

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weight and preterm newborns, it appears to increase the humanization of baby care and facilitate mother-child bonding.[10-12] In Pakistan, the prevalence of LBW babies has been reported as 19-30% in various studies.[13] In Ghana when KMC was started, LBW rate ranged from 9.1% to 16%. KMC resulted in 66% reduction in serious neonatal morbidity and as a result, it was selected as one of the greatest solution of the problems with high infant death rates.[14-15] In low-income countries, like Pakistan where the neonatal mortality rate is very high (49/1000 live births), particularly in rural areas, where most of the births are unattended and neonatal intensive care is virtually unavailable.

Despite being thoroughly proved as a low-cost and efficient solution to the lack of thermal protection, which is still one of the biggest issues encountered by developing nations for newborn survival, kangaroo mother care is still inadequate.[16-20] On KMC, international literature is readily available, but local literature is scarce. As we belong to a genetically and geographically different population and a large number of the population belongs to poor socioeconomic status. So proper implementation of KMC requires a locally conducted study to practice in our community.

MATERIALS AND METHODS

Descriptive sectional study carried out at Kangaroo mother care unit, CMC Children hospital Larkana.

Kangaroo Mother Care: KMC involves skin-to-skin contact in a strictly vertical posture between the mother and the newborn. The baby will be placed between the mother's breasts and hidden behind her garments.

Low-birth-weight infants, regardless of gestational age, have a birth weight of less than 2500g (less than 2499g).

Neonates: A newborn baby aged 0 to 28 days is referred to as a neonate.

Efficacy: A patient's efficacy will be labeled as positive if they gain at least 15 grammes per kilogramme per day for three days after receiving kangaroo mother care.

Sample Size: In study, 345 sample size has been analyzed by taking WHO Sample size calculator, with the efficacy of KMC, is 66%[14], according to the following formula. But sample size were taken. However, the sample size was considered.490 infants in study.

$SS = Z2 \times (p) \times (1-p)$

$SS = 345$

Sampling Method: Consecutive sampling method (Non-probability)

Selection Criteria:

Inclusion Criteria:

- Age from 0 hours to 28 days.
- Newborns of both gender.
- Gestational age (30weeks to 36 weeks).
- All stable LBW newborn (1500 grams to 2499 grams).

Exclusion Criteria: Critically ill babies (Ischemic encephalopathy, CNS impairment, neonatal sepsis, UTI, or one of the twins) that are confirmed via detailed history & relevant investigations.

- Mothers/Caregivers of newborn LBW babies not willing to do KMC.

Data Collection Procedure: Cross sectional study conducted at Kangaroo mother care ward, CMC Children tertiary hospital, Larkana. In current study, total 490 consenting infants were selected regarding inclusion criteria, prior the starting of study, the ethical review approval was taken from ERC Committee of CMC SMBB Medical University Larkana. Data of all study participants was collected on a pre-designed study Proforma. The demographic data was collected including Postnatal age (In days), gestational age (in weeks,) gender and weight on admission. Exclusion criteria will be followed strictly to avoid confounding variables.

The position of Kangaroo mother care was conveyed to the participants in the research. In the Kangaroo mother care position, when they were naked and just wore a diaper and cap, mothers and babies were placed in a straight position between the mother's breasts and supported by a cloth bag or gown.

Weight was measured with an electronic weighing scale daily in the morning and final weight on the day of discharge was also be recorded and weight gain was taken as the effectiveness of kangaroo mother care.

Statistical Analysis: SPSS version 23 was used to enter and analyse all of the data. For categorical factors such child sex, domicile, and effectiveness, percentage and frequency were determined. For quantitative factors like age and weight, the mean and standard deviation were determined. Stratification was used to manage effect modifiers such as the child's age and gender. The ChiSquare test was used after stratification. The significance level was set at $P<0.05$.

RESULTS

Total of 490 newborns were included in the study. Most of infants were registered in first week of life 269(56.93%), and after the 1st week 211(43.07%), among them 45 percent were female and 55 percent were males (Table-1). In study, regarding gestational age, 56 percent infants were term, 40 percent were preterm and post term 00 percent (Table-1) whereas regarding the weight at the time of admission were categorized in four groups, 54 percent were below 1500g and 29 percent below 2000gms and below 2500 and 1000g weighted infants showed 00 % and 00% respectively. (Table-1). In study the frequency of infant feeding during the admission was observed that majority of infants on mother breast feeding 396(80.81%) and 94(19.19%) infants feeding was human donor milk plus mother milk. Average days required to start weight gain were 3.2 days, while

preterm age infants start gain weight minimum on 3rd day and average took 04 days, whereas term and post term infants were started gain weight on 2nd day minimum and 03 days were taken averagely.(Table-2)
Average weight gains per day were 33.4 grams per day, the majority averagely weight gain was observed among post term neonates 34.5 grams, while term and pre term showed and an 34grams and 32.5 grams respectively. In study, infants were stayed average 7.1 days at Kangaroo Mother Care ward, more stayed seemed in preterm infants. (Table-3).

Table No.1: Frequency of demographic and other variables N=490

Variable		NO	%
Age	<7 day	279	56.93%
	>7 day	211	43.07%
Sex	Male	269	54.89%
	Female	221	45.11%
Weight	<1000gm	11	02.25%
	<1500gm	217	44.28%
	<2000gm	203	41.42%
	<2500gm	59	12.05%
Gestational age	Preterm	196	40.00%
	Term	290	59.18%
	Post Term	04	00.82%

Table No.2: Average duration in days when weight gain started N=490

Gestational age	Minimum	Maximum	Average
Preterm (N=290)	03 Days	05 Days	04 Days
Term (N =196)	02 Days	04 Days	03 Days
Post Term (N=4)	02 Days	04 Days	03 Days

Table No.3: Average weight gain per day N (490)

Gestational age	Minimum	Maximum	Average
Preterm (N=290)	10 grams / day	35 grams per day	32.5grams per day
Term (N =196)	13grams per day	38 grams per day	34 grams per day
Post Term (N=4)	14 grams per day	43 grams per day	34.5grams per day

Table No.4: Duration in days stay in KMC Ward N (490)

Gestational age	Min.	Max.	Average
Preterm (N=290)	05 Days	11 Days	7.5 Days
Term (N =196)	05 Days	09 Days	6.5 Days
Post Term (N=4)	04 Days	08 Days	05 Days

DISCUSSION

Skin-to-skin contact between mother and baby, as well as frequent and exclusive or almost exclusive breast-feeding and early departure from the hospital, is referred to as kangaroo care. In study, weight increase of at least 15 grams per day for three consecutive days was our discharge criterion for LBW neonates, and commencement of weight gain in infants was noted on day three or four. In our investigation, we discovered an average weight increase of 33.4 grams per day, which was higher than the previous studies. Other research had found that KMC infants gained more weight every day on average. KMC groups gained an average of 24 grams, according to Indian study.[21]
Correspondingly, Rajasthan study found that mean weight increase in KMC neonates after the 07 days was 15.9 gm/day, whereas another study found that mean weight gain in KMC babies after the 07 days was 21.3 gm/day.[22,23] Exclusive breastfeeding is supported by KMC, which also helps to regulate body temperature and lowers baby morbidity.[25] According to another study, the average length of stay in the hospital was 15.5 days.[22]
KMC also discharged newborns 13.4 days after enrolment in Merida stud.[24] The average hospital stay in Delhi, according to studies, was 27.27% days.[23] In our current study, the average length of stay in the hospital was 7.1 days. With the support of human milk donors, all babies in our study were exclusively nursed by their mothers.

CONCLUSION

In our set up, we conclude that KMC is a helpful strategy of caring for LBW babies in terms of early weight growth. Other benefits of KMC include its low cost, promotion of exclusive breast feeding, increased mothers' confidence in handling young newborns, and the development of healthy mother-infant bonding. As a result, we propose it to the developing world, particularly Pakistan.

Author's Contribution:

Concept & Design of Study:	Saifullah Jamro
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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