



## A STUDY OF IMPLEMENTATION OF KANGAROO MOTHER CARE IN LOW BIRTH WEIGHT INFANTS .

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**ABSTRACT** **INTRODUCTION** :-Kangaroo mother care is a evidence based cost effective approach and avert up to 4.5lk preterm death each year .if near universal coverage is achieve <sup>(1,2)</sup> investment in KMC has benefits beyond survival including healthy growth and long term development. Edgar Rey and Hectare Martinez develop kangaroo mother care in Colombia as a substitute for incubator in the low birth weight infant . KMC is define as early prolong and continuous skin to skin contact between the mother and the low birth weight infant both in hospital and after discharge with exclusive breast feeding and proper follow up. <sup>5</sup> Published finding from different countries demonstrated KMC promote stable heart rate R.R and oxygen saturation and thermal regulation in infants 6-13. **OBJECTIVE** :-The present study was conducted to study through a randomized control trial the effect of KMC on breastfeeding, weight gain and length of hospitalizations of very low birth weight neonates and <sup>2</sup> To access the acceptability of KMC by nurses and mother. **METHODS** :- Babies whose birth weight was less than 1500 Grams were included in the study once they were stable. The effect of Kangaroo Mother Care on breast feeding rates, weight gain and length of hospitalization of very low birth weight neonates was studied through a randomized control trial in 56 neonates. The Kangaroo group (n = 28) was subjected to Kangaroo Mother Care of at least 4 hours per day in not more than 3 sittings. The babies received Kangaroo Care after shifting out from NICU and at home. The control group (n = 28) received only standard care (incubator or open care system). Attitude of mothers and nurses towards KMC was assessed on Day 3 +/- 1 and on day 7 +/- 1 after starting Kangaroo Care in a questionnaire using Likert's scale. **RESULTS**:- The results of the clinical trial reveal that the neonates in the KMC group demonstrated better weight gain after the first week of life (15.9 +/- 4.5 gm/day vs. 10.6 +/- 4.5 gm/day in the KMC group and control group respectively p < 0.05) and earlier hospital discharge (27.2 +/- 7 vs. 34.6 +/- 7 days in KMC and control group respectively, p < 0.05). The number of mothers exclusively breastfeeding their babies at 6 week follow-up was double in the KMC group than in the control group (12/14 vs. 6/14) (p < 0.05)

### KEYWORDS : KMC, LBW ELBW VLBW ,EBM

#### INTRODUCTION

KMC is widely recognized as a excellent intervention for improving to health and survival chances of premature and LBW infant KMC consist of early ,continuous and prolonged ,skin to skin contact between and care giver and baby ,exclusive breastfeed or breast milk and context-appropriate discharge and follow up provided to baby and his and her family<sup>1</sup>

the last 20 year were passed generating and presenting evidence for utility of KMC in the scientific literature<sup>2</sup>

globally 15.5% of all birth and LBW babies with higher proportion in low and middle income countries.

#### MATERIAL AND METHODS

This study was conducted in sims Pilkhua Hapur from dec 2019 to February 2021

Babies whose birth weight was less than 1500 were included in the study once the cardiopulmonary status was stable .

They were tolerating external feeds and maintaining temperature in thermoneutral environment .

Babies whose mother were unable to care to nursery because of illness or disability were excluded from the study ,Informed consent was obtain from all mother participating in the study .In our study 28 NEONATES were enrolled in both experimental and control group .

The babies were randomized using a table of random number to receive either KMC along with standard care alone .

Kmc (n=28) was subjected to kangaroo mother care of at least 4hr/day in not more than 3 sitting .during KMC each mother wore a cover gown and sat in a inclined chair. the baby was positioned inside her dress and between the dress and between the breast .the gown covered the infant trunk and extremities but not the head ,which was covered with a cap .

The mother was encouraged to hold her baby in the position .

Whenever she came to visit her baby .the baby was nursed in a warmer

/incubator for rest of the time .the baby received KMC after sitting out from NICU and at home .

The baby in the control group (n=28)received standard care .this consisted of care under warmer or in incubator .

Breast feeding guidelines were follow from both the group and lactational counselling was done once a day on a weight scale with a sensitivity of 1gm.

Babies was provided vitamin and minerals supplement on the same patten as per nursery protocols.

Maternal and neonatal characteristic and complication were prospectively recorded weight gain velocity was calculated as mean weight gain each.

The baby were discharged once the meet the criteria of weight greater than 1400gm, gestation over 34 weeks only on external feeds readiness to go home/readiness to look after the baby gaining weight adequately and essential on EBM.

Acceptability was defined as positive attitude of the mother and nurses took KMC .

Acceptability was assessed by a questionnaires incorporating Likert scale.

Mother attitude toward KMC was assessed on day 3+-1 and 7+-1 after starting KMC using a questionnaires which contain 10 items .

Two sample t test was used to test the significance between two groups.

#### RESULTS

During the courses of study 56 babies fulfilled the criteria for enrollment .a total of 28 babies were assigned to received KMC and remaining 28 babies on standard care .

Table charts show the characteristics of infant at birth.

CHARACTERISTICS	KMC GROUP (N=28)	CONTROL GROUP N=28
MALE	18	18
FEMALE	10	10
BIRTH WEIGHT (G) Mean SD	1219186.4	1270.9170.4
Gestational age (Weeks)		
Median	30.4	30.9
Range	28.8-34.1	29-33.3
AGA	20	24
SGA	8	4

There was no significant difference in the birth weight, gestational age, sex and Apgar score at birth.

There were no difference regarding the following characteristics between the two study groups: mother age, problems during pregnancy, parity, mode of delivery, mother education level and employment. The median age at which was started was 11.8 days.

In 8 infant KMC was started in first weeks of life. Babies in the KMC group demonstrated significantly better weight gain after the first week of life. Also duration of stay hospital stay for KMC group significantly shorter.

Eighteen mother continue KMC at their home. there was a significant difference in the duration exclusive breast feed between two groups.

CHARACTERISTICS	KMC GROUP N=28	CONTROL GROUP N=28	P VALUE
Weight gain velocity (G) 1 <sup>st</sup> week mean SD 95%CI	-17.210.4	-14.210	0.55
Weight gain velocity (G) 2 <sup>nd</sup> + 3 <sup>rd</sup> + 4 <sup>th</sup> weeks mean SD 95%CI	15.94.5	10.64.5	.003
Age at discharge (Days) mean SD (95%CI)	27.27.7	34.67	.038

KMC=KANGAROO MOTHER CARE

CI=CONFIDENCE INTERVAL

Baby of all 18 mother who continued to provide KMC receive exclusive breast feed

## DISCUSSIONS

Through the randomized control trials, the effect of KMC on weight gain and duration of hospitalization was studied in a total of 56 VLBW neonates: 28 in KMC group and 28 in control group.

The neonates in KMC group demonstrated better weight gain after first week of life (15.94.5gm/day vs 10.6gm/day in KMC group and control group respectively,  $p < 0.05$  and these discharged 7.4 days earlier than the babies in the controls group and shorter mean duration of hospital stay were achieved with KMC methods; this is an agreement with other authors who have reported greater weight gain with this methods of care.

### Charpak et al show that KMC infant had a much and 50% shorter hospital stay than babies who were not kangaroo<sup>10</sup>

Achieving a better early growth pattern in these neonates underscores the importance of use of KMC in the routine care of VLBW infants. The observed better weight gain may be due to reduced energy expenditure during KMC. Because the greater weight gain in the kangaroo was discharged from the hospital sooner.

The significance of early discharge underlines the fact it decreases the infant's chance of contracting hospital-acquired infection and also decreases the economic burden imposed on the family.

It is not in our culture to care for naked baby skin to skin with mother because of this reason we were not sure whether the Indian mothers and staff nurses would accept KMC, in spite of KMC positive benefits. So as part of the study we evaluated the acceptability of KMC in both the mother and staff nurses by using a questionnaire incorporating the Likert's scale.

In our study mother did not report any feeling of discomfort about holding the infant in kangaroo position. Mother expressed high level of satisfaction.

Even the sample size of our study was small our clinical trial shows that there were significant benefits in terms of weight gain, earlier hospital discharge and more impressively higher exclusive breastfeeding rates.

## Compliance with Ethical standard

Conflict of interest - None

Source of funding - None

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