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IMPACT OF KANGAROO MOTHER CARE ON LOW BIRTH WEIGHT BABIES AND MOTHERS

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ABSTRACT

Introduction- Low birth weight is an important social health problem. Low birth weight is one of the principal contributors to neonatal morbidity and mortality worldwide , it accounts for upto 70% of neonatal mortality in some countries. Kangaroo Mother Care (KMC) is an alternative approach developed in view of the lack of adequate incubator for low birth weight babies and is proposed as an appropriate technology for the care of low birth weight babies in developing countries. Kangaroo mother care gives the alienated mother to her rightful place in the management of her neonate and has been found to re-establish human milk as the nutrition of choice.It also helps in building up the confidence in mothers for taking care of their preterm and low birth babies.

Aims and Objectives- The study was aimed to compare the effect of KMC with conventional method of care on growth and breast feeding. The study also aimed to determine bonding and confidence of mothers of LBW babies and their knowledge, attitude and practice related to KMC.

Materials and Methods- This study was single centric, observational, prospective, comparative study. The study was conducted in pediatric department of a tertiary care hospital, among 150 low birth weight neonate who weigh <1800 grams and were divided in 1:1 ratio in two group, KMC and CMC. Neonates in both group were monitored for gain in weight, length and head circumference and mode of feeding. Mothers in KMC were given questionnaire regarding their bonding and confidence and knowledge, attitude and practice of KMC. Data was recorded in a predesigned proforma and compiled in Microsoft excel version 2015 and analysed.

Results- The study showed weight gain was more in KMC group . The average weight gain per day in first four days of study was 15gm in KMC group and 10 grams in CMC group. Also significant change in length and head circumference was noted in KMC group . Neonates on exclusively breast feeding was high in KMC group. Also mothers were more confident in handling their babies at the end of KMC as compared to the beginning of the study.

Conclusions- KMC helps in rapid weight gain and also gain in length and head circumference . It also increases milk synthesis in mothers and promotes breast feeding. KMC also helps enhancing bonding between mother and baby and builds up confidence in mothers for rearing low birth weight babies.

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INTRODUCTION

Low birth weight is one of the principal contributors to neonatal morbidity and mortality worldwide, it accounts for upto 70% of neonatal mortality in some countries.[1] Globally around 25 million infants (17%) are born with a low birth weight (LBW) and most of these occur in low-income countries.[2] Approximately 16 to 18 percent neonates born in the developing world are of LBW having a weight of less than 2500g. Appropriate interventions for management of these infants include skilled care at delivery, immediate evaluation of the infant at birth, basic neonatal resuscitation when needed, attention to thermal control, prevention of hypoglycemia through early breastfeeding, exclusive breastfeeding, supplementation with vitamins and minerals; prevention of infection, early detection and treatment of illness; and monitoring of breastfeeding and neonatal growth.[3] Conventional neonatal care of LBW infants is expensive and needs both trained personnel and permanent logistic support. In developing countries, financial and human resources for neonatal care are limited and hospital wards for LBW infants are often overcrowded, leading to high morbidity and mortality. Thus, there is a need for interventions that reduce neonatal morbidity, mortality and costs, which would be an important advance in care. Kangaroo Mother Care (KMC) is an alternative approach that was developed in view to the lack of adequate incubator for low birth weight babies and is proposed as an appropriate technology for the care of low birth weight babies in developing countries. Kangaroo Mother Care adapted from Kangaroos involves placing the new born infant in close skin – to – skin contact with the mother. It is an effective method to meet the baby's needs for warmth following birth and in the immediate postnatal period .[4] It has been studied in depth since 1978 when neonatologists Rey and Martinez first implemented it in Bogota, Colombia .[5] Kangaroo care consists of placing a diaper clad premature baby in an upright position on a mother's bare chest with the baby facing the mother .The baby's head is turned so that the ear is above the mother's heart. Kangaroo mothering is based on the premise that low birth weight premature infants grow best in an environment similar to the intrauterine environment .[6]

MATERIALS AND METHODS

This study entitled, Impact of kangaroo mother care on low birth weight babies and mothers, was conducted in the department of pediatrics in a tertiary care, teaching hospital in metropolitan city, for a period of 18 month from January 2018 to July 2019. This was a single centric, observational, prospective, comparative study. . The study was initiated after obtaining approval from the institutional ethics committee and department of pediatrics. A written informed consent was taken from the mothers after the babies were stable and ready for enrolment into the study. All newborns of weight less than 1.8 kg admitted in NICU , who fulfill the inclusion criteria and does not come under exclusion criteria were enrolled in the study. Half of the babies were given kangaroo mother care and half were given conventional care. In KMC, Babies were

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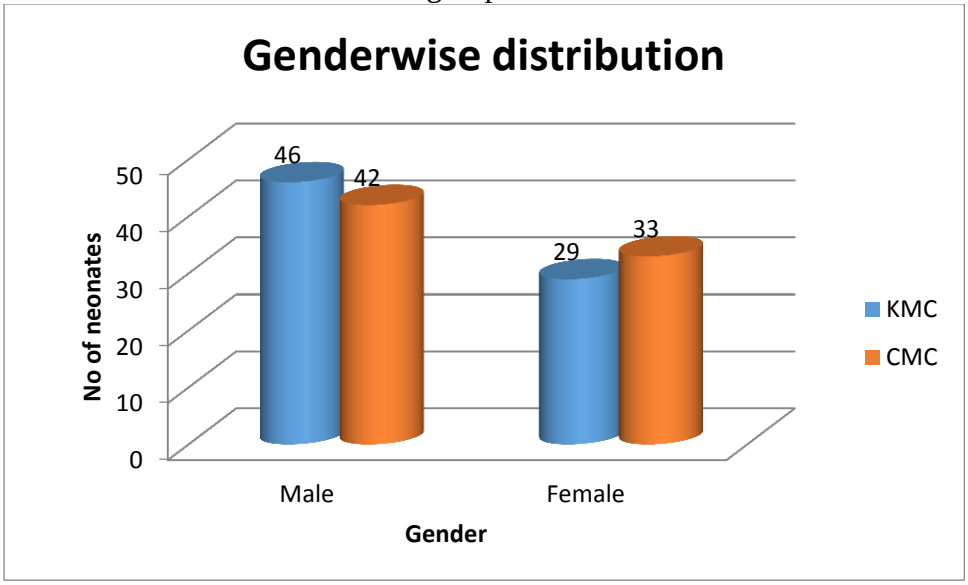
continuously kept in skin to skin contact as long as possible for a minimum of 4 to 6 hours per day. They were removed only for changing diaper and for clinical assessment when needed. In CMC babies were kept in warmers after dressing with a nappy in NICU. These babies were then monitored for weight, height and head circumference every 4thday till they achieved weight of 1.8 kg . Babies were also monitored for feeding pattern . For assessing the bonding and confidence and KAP among mothers , questionnaire were given to mothers in KMC group in the beginning and end of study. The details were entered in a predetermined proforma. The compiled data was statistically analysed and studied .

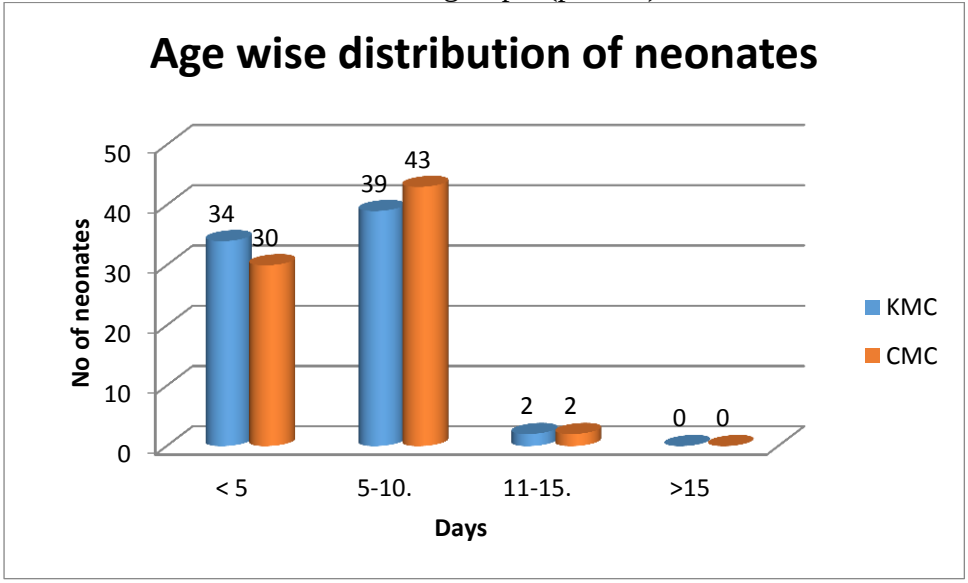
RESULTS AND OBSERVATIONS

There were 150 neonates admitted in NICU of tertiary care centre with birth weight less than 1.8 kg, fulfilling the inclusion criteria during the period of 18 months. They were divided in ratio of 1:1 into KMC and CMC group.



Graph 1- showing gender distribution of neonates in the study

In this study, males were in majority in both the group. i.e. 61.33% in KMC group and 56 % in CMC group. No significant difference was seen in distributions of male and females in both the groups (p=0.61).



Graph 2- showing age of distribution of neonates in study

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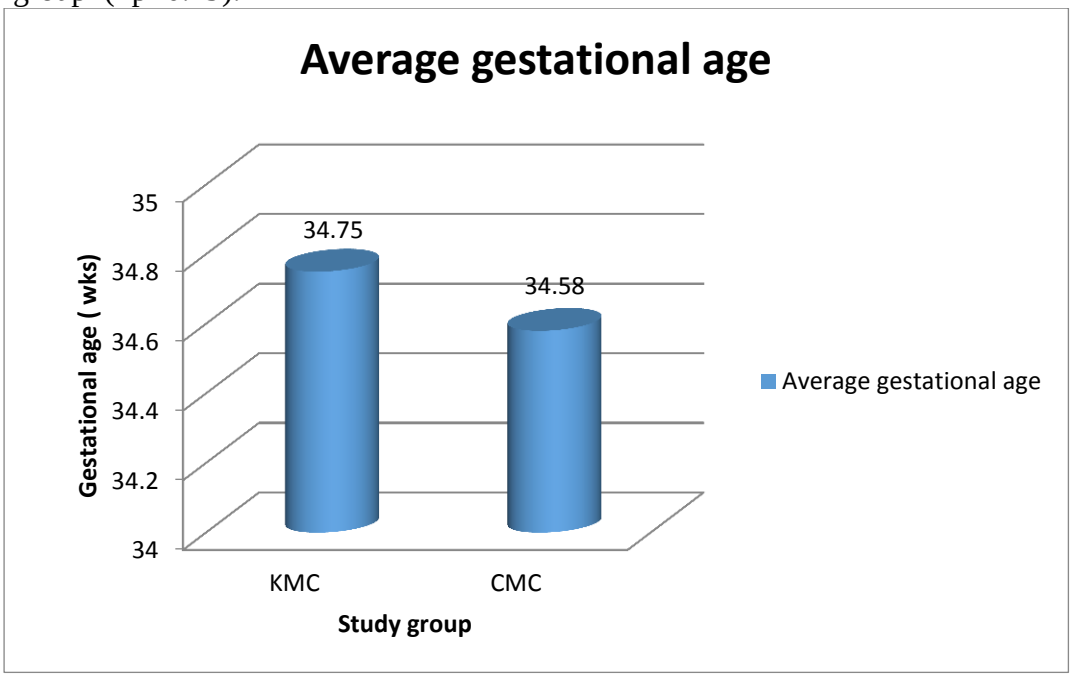
Majorities of the enrolled neonates were in the age group of 5 to 10 days in both the group i.e. 52% and 57.33 % in KMC and CMC group respectively. No significant difference was seen in the average age of neonates in two group (p=0.49).



Graph 3- showing average gestational age of neonates in both groups

The average gestation age of neonates were around 34 weeks in both the group. No significant difference was seen in the gestational age of neonates in both the group (p=0.54). Also, anthropometric measurement at birth showed no significant difference in average weight (p=0.43), head circumference (p=0.51) and length (p=0.70) among neonates in both the group.

Weight gain pattern in KMC and CMC groups

Weight gain after enrollment in study	KMC	**Average weight gain per day (kg)**	CMC	**Average weight gain per day(kg)**	P value (Mann-Whitney Test)
Baseline to 4th day	0.06 ± 0.05	**0.015 ± 0.012**	0.04 ± 0.02	**0.01 ± 0.005**	0.003
4th day to 8th day	0.10 ± 0.02	**0.025 ± 0.005**	0.05 ± 0.02	**0.012 ± 0.005**	<0.0001
8th day to 12th day	0.09 ± 0.02	**0.020 ± 0.005**	0.05 ± 0.02	**0.012 ± 0.005**	<0.0001

Weight gain was significantly high among neonates in KMC group at 4th (p=0.003), 8th (p=<0.0001) and 12th (p=<0.0001) day . The average weight gain per day in first four days of study period was 15gm, from 4th to 8th day was 25 grams and 20grams during 8th to 12th day in KMC group. The average

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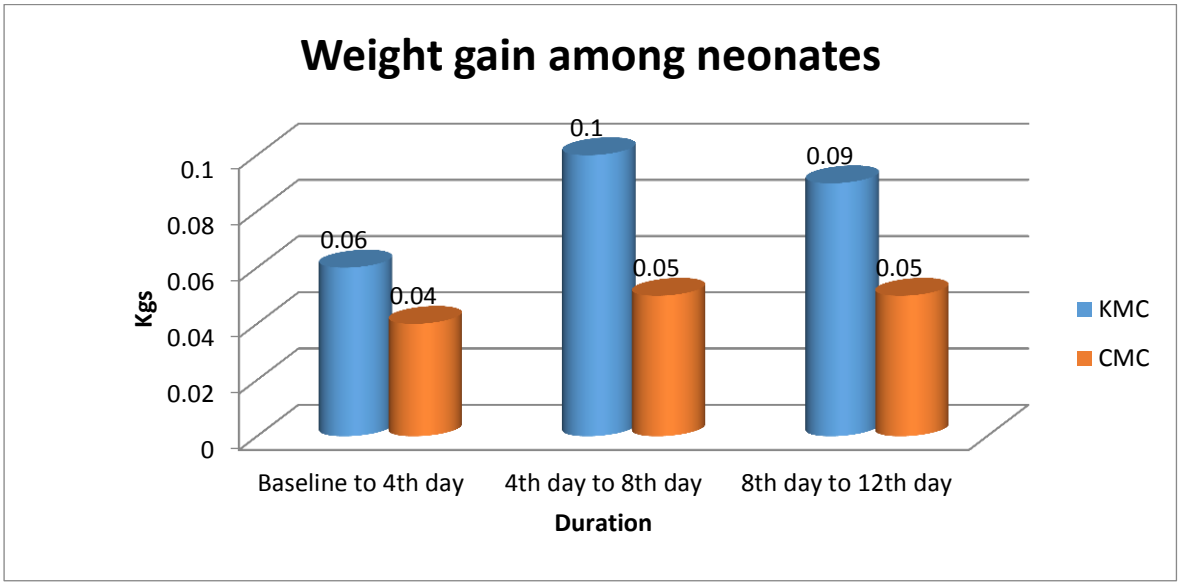
weight gain per day in CMC group was 10gms, 12 gms, 12gms on first 4 days, 4th to 8th day and 8th to 12th day respectively.



Graph 4- comparision of weight gain in both groups

No significant change in the length of neonates was seen in the first 4 days. But, significant growth in length was seen in neonates in KMC group on 8th (p=0.001) and 12th (p=0.001) day of study respectively. No significant change in the head circumference of neonates was seen in the first 4 days in two group. But, significant change in head circumference was seen in neonates in two group from 4th to 8th day (p<0.0001) and 8th to 12th day (p=0.002).

Significant change in the feeding towards breast milk was seen among neonates in KMC group at the end of study as compared to beginning of the study. Breast milk feeding increased significantly (p<0.0001) from 56% neonate at the beginning of study to 86.66% at the end. No significant change in the feeding method was seen among neonates in CMC group (p=0.13) at the beginning and end of study. Breast milk feeding was significantly (p=0.001) high among neonates in KMC group at the end of study. At the end of study breast milk feed was seen in 86.66% in KMC group and 62.66% in CMC group. Significant change in the feeding mode was seen among neonates in KMC group. Breast feeding was seen in 58.66% in KMC group and 16% in CMC group towards the end of the study. 58.66% neonate were exclusively breast feed in KMC group as compared to 28% in CMC group.

KMC Questionnaire

Majority of the females (95.99%) were not aware of the KMC concept before the start of the study, but it showed significant change towards the end and every female (100%) in the group was aware of the KMC concept. Majority of the females responded that KMC brought them close to their child, both before (74.66%) and after (86.66%) the study. Majority of female (97.33%) denied the benefit of KMC in breast feeding at the start of study but towards end 82% agreed on the benefit of KMC in breast feeding. Majority of the females (92%) were not confident of handling baby at the start, but towards the end almost

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97.33% female was confident of handling baby independently. Majority of the females (88%) were not confident of rearing there at the start, but towards end almost every female (97.33%) was confident of rearing.

DISCUSSION

. Kangaroo mother care (KMC) is an evidence-based approach to reducing mortality and morbidity in preterm infants. The present study was aimed to determine the effectiveness of kangaroo mother care versus routine care for stable low birth weight neonate. The effect was assessed in terms of weight gain, exclusive breast feeding, bonding and confidence of mothers in caring for low birth weight babies and the overall acceptance of KMC by mother. The baseline demographic characteristics of enrolled neonates showed, no significant difference in the average age of neonates in KMC and CMC group (p=0.49) with majority of the neonates in the age group of 5 to 10 days in both the group i.e. 52% and 57.33 % in KMC and CMC group respectively .. The average gestational age of neonates in both the group were similar i.e. around 34 weeks in both the group without any statistical difference. Samra NM [7] reported similar findings with average age in KMC group around 31.1 ± 2.5 weeks and 32.0 ± 2.1 week in CMC group without significant difference. . WHO report [8] has highlighted pre term delivery is the most common direct cause of LBW neonate and the associated neonatal mortality. Primarily our study wanted to compare the weight gain among neonate in both the group, the results highlighted, the average weight gain was significantly high among neonates in KMC group throughout the study period, the average weight gain per day was 15gm in KMC group and 10 grams in CMC group in first 4 days of the study, from day 4 to 8 of the study it was 25gm in KMC group and 12 grams in CMC group and from day 8th to 12th was 20 gm in KMC group and 12 grams in CMC group. Hence the calculated weight gain was roughly 20gm/day in KMC group and 11 gm/day CMC group throughout the study period, with the difference of 9gm/day. In a study by Simiyu et al at KNH Newborn Unit- Kenya where KMC was practiced for eight hours per day, the KMC infants demonstrated a mean weight gain of 17.7g/kg/day versus the 7.4g/kg/day of the control group infants.[9] The other developmental parameters, change in length and head circumference was also significantly better in the KMC group

One of the important benefits of KMC is successful promotion of breast feeding. . KMC had impact on the breast feeding in our study. At the end of study babies on exclusive breast milk (direct breast feeding and breast feeding combined with spoon feeding) was seen in 86.66% in KMC group and 62.66% in CMC group (p=0.001). [10] The earlier breastfeeding in the KMC group is attributed to improved milk let down with the increased volumes and frequency of feeds facilitated by the close infant-mother contact.

KMC also help in emotional attachment of mother with the baby, this was highlighted in our study where 74.66% of mother before and 86.66% of mother towards the end of study reported closeness with the baby

CONCLUSION

Kangaroo mother care (KMC) is an effective method for the early weight gain in preterm neonate. KMC method helped in early and exclusive breast feeding among neonates in the group. At the beginning of study, Majority of the mothers lacked knowledge about KMC in all aspect. Mothers have

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reluctant attitude towards this important aspect of mother care and rarely practiced this.

But this study has created awareness among all the enrolled mother in KMC group , about the role and importance of KMC, this will definitely change knowledge, attitude and practice of them so that a fruitful outcome can be seen in near future when these mother will encourage other mother to practice KMC. Thus our study made an attempt to highlights the benefits of KMC in growth of low birth neonate and thus recommends the practice of following KMC in every institute.

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