

Original Research Article

Study to assess the knowledge, attitude and practice of Kangaroo mother care among post-natal mothers in a tertiary care centre of North Kerala, India

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ABSTRACT

Background: Kangaroo Mother Care (KMC) is a practical low-cost intervention which is very cost effective in developing countries for babies weighing less than 2500 g. This study is aimed to evaluate the knowledge, attitude and practices about KMC in the post-natal mothers of low birth weight (LBW) and preterm babies before and after a teaching session by a trained staff in a tertiary care center in North Kerala

Methods: A cross sectional descriptive study of 201 mothers whose neonates were admitted in Neonatal intensive care unit (NICU) of tertiary care centre from June 2014 to June 2015. Mothers were interviewed at enrolment to assess their knowledge of KMC and were then oriented on its practice. Data about their perceptions, attitudes and practices of KMC were recorded before they were discharged from the hospital.

Results: At recruitment (95.4%) mothers didn't know about KMC. 80% of mothers could follow the verbal instructions in first sitting. 92.8% of mothers reflected photo exhibition would have been better than verbal explanation, 91.8% of mothers thought that KMC is beneficial for their babies and 89% thought that it was beneficial for them too. At discharge 99% were willing to continue KMC at home with 93.1% willing to practice at night. 100% would recommend KMC to other mothers. All of them were practicing intermittent KMC and believed that other family members especially grandmothers could also be KMC providers as well.

Conclusions: Maternal knowledge of KMC was low before enrolment, but after initiation mothers were happily practicing KMC in hospital with assurance to continue same from home and involve other family members in KMC care.

Keywords: Attitude, Kangaroo mother care, Knowledge, Low birth weight baby, Preterm infants

INTRODUCTION

In developing countries especially in south Asia morbidity of new born babies is mainly due to term intra uterine growth retardation in contrast to preterm babies which is more prevalent in western world.¹ The birth of a preterm infant can be a turbulent and sometimes traumatic experience for parents. Provision of interventions both community based, and hospital based

in the care of their infant may improve outcomes for both the parents and the infant.²

KMC is identified by WHO as a biologically sound method of care for all new-borns, particularly for low birth weight infants as part of their strategy to decrease the morbidity and mortality of premature infants.²⁻⁴ KMC is derived from the advantages seen in marsupial care giving which avoids the untoward experiences faced by

preterms in a busy ward.² Essential components of KMC are: skin-to-skin contact for 24 hours per day (or as great a part of the day as possible), exclusive breastfeeding and support to the mother and infant. To improve the implementation of KMC we will require bigger and better equipped KMC wards, as well as regular KMC training sessions for nursing staff. The benefit of KMC includes empowering the mother to care for her LBW infant, decreasing infant mortality, encouraging breastfeeding and reducing the frequency of low birth weight babies visiting clinics after discharge from hospital.³

Kangaroo mother care has shown to have more advantages over conventional new born care in preventing neonatal mortality and morbidity especially in resource limited countries. Even though the infant mortality rate in Kerala has touched single digit there has been many fallacies in new born care.⁴ KMC has been shown to improve the lactation in mother, boost the psychological bonding between mother and neonate improves the sleep cycle and oxygenation in sick preterms and reduces the apnoeic spells.⁵

KMC assessed other outcomes in addition to mortality and morbidity including weight gain, breastfeeding and psycho-social outcomes such as bonding and maternal satisfaction and length of hospital stay.⁵

The practice now is to start KMC earlier as soon as the baby is clinically stable and this should result in a higher impact since the majority of neonatal deaths especially for small babies occur in the first few days of life. Where exclusive breastfeeding is uncommon among LBW, KMC may bring about an increase in its prevalence and duration, with consequent benefits for health and growth. For hospitals in low-income countries KMC may represent an appropriate use of scarce resources. The general hypothesis is that skin-to-skin contact in the KMC group will build up a positive perception in the mothers and a state of readiness to detect and respond to infant's cues.⁶

The WHO has defined KMC as early, continuous, and prolonged skin-to-skin contact (SSC) 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

KMC has three components.⁷ The first is the kangaroo position. Once the premature infant has adapted to extra uterine life, he is positioned on the mother's chest, in an upright position, with direct skin-to-skin contact. The second component is kangaroo nutrition. The third component is the clinical control; infants are monitored on a regular basis, daily until they are gaining at least 20 g per day. These results show that KMC is a safe approach to the care of clinically stable LBW infants. This research aims to determine the effect of education about kangaroo mother care (KMC) on the confidence

and ability of young mothers to implement KMC. According to the general bonding hypothesis kangaroo mother care (KMC) imparts an atmosphere in the family whereby mothers become prone to sensitive care giving.⁹

The general consensus is that skin-to-skin contact will create a positive perception in the mothers and a state of readiness to understand infant's cues.¹⁰

METHODS

A cross sectional descriptive study was conducted to assess the knowledge regarding kangaroo mother care among postnatal mothers. Data was collected regarding knowledge of kangaroo mother care by structured knowledge questionnaire.

The study was conducted in mothers whose babies were admitted to neonatal intensive care unit (NICU) of Academy of Medical sciences, Pariyaram, Kannur and weighing less than 2500 gm. The study was approved by institutional ethics committee. Babies were enrolled after getting informed consent from parents.

Inclusion criteria

All infants including term and preterm babies weighing less than 2500 gm admitted to neonatal intensive care unit of Pariyaram Medical college from June 2014 through June 2015 were included in the study.

Exclusion criteria

- Mothers whose babies expired after enrolment
- Mothers who were not willing to administer KMC
- Mothers of babies with congenital anomalies
- Mothers who were sick and were not in a health condition to provide KMC.

The inclusion criteria and exclusion criteria were ascertained by history clinical examination and verifying mothers case records.

Aim of the present study was to determine the level of knowledge, attitude and practices regarding KMC among the mothers with low birth weight babies.

Objectives of the research were to assess the knowledge of kangaroo mothers on KMC, to assess the attitude of post-natal mothers towards KMC and to assess the KMC practices of mothers with new-born premature and/or low birth weight infants.

Kangaroo mother care (KMC)

KMC is a method, which involves placing the infant with a hat and diaper on the mother's chest between her breasts. The infant is placed in an up- right position under the parent's clothes on the naked skin.

RESULTS

Out of mothers of 215 babies admitted in NICU weighing less than 2500 gm, 201 mothers were willing to provide KMC and satisfied the inclusion criteria. Antenatal, natal and demographic details of them were taken using a structured questionnaire. All these mothers were explained about the knowledge, attitude and practice (KAP) of KMC and pre-structured questionnaire for KMC was filled by the interviewer after conducting a short interview with the mother. KMC was started after stabilizing the babies with conventional care. Out of 201 babies enrolled, 195 completed the KMC because 6 babies expired after enrolment.

Babies ranging from less than 25 weeks to term were registered. Less than 28 weeks were 15 (7.7%), 28-32 weeks constituted 87 (44.6%), 32-37 were 91 (46.7%) and more than 37 weeks were 2 (1%).

The birth weight ranged from 645 gm to 2330 gm. Less than 1000 gm constituted 29 babies (14.9%), 1000-1500 gm, 66 (36.1%); babies ranging from 1.5 kg to 2.5 kg were the maximum 100 (49%).

Parity of the mothers ranged from primi to gravid 7. Primi mothers were 79 in number (40.5%), second gravid 63 (32.3%). More than third gravid were 53 (27.2%).

Age of the mothers range from 18 to 39 yrs. 18 to 25-year-old mothers constituted 77 (39.5%); 25 to 30 were 64 in number (33.2%); more than 30 years were 54 (37.3%). Educational status of the mothers ranges from 8th standard to professional course. Mother with plus two education were 123 in number and 4 mothers had professional qualification.

Antenatal problems noticed in mothers were pregnancy induced hypertension (PIH) 89, gestational diabetes mellitus (GDM) 39, intrauterine growth retardation 34, urinary tract infection 25, premature rupture of membranes (PROM) 29, PTOL 2. Oligohydramnios 4, Bad obstetric history (BOH) 1.

Table 1: Details of babies undergoing KMC.

Days	No. of babies with starting day of KMC	Number of babies		
		Who regained birth weight in	Started on EBM	Stay in NICU
<1 week	145 (74.36%)	4 (2%)	184 (94.35%)	13 (6.66%)
<2 weeks	40 (20.5%)	91 (46.67%)	5 (2.5%)	46 (23.5%)
>2weeks	10 (5.1%)	100 (51.3%)	6 (51.28%)	136 (69.7%)

Average duration of stay in NICU ranged from 10 to 48 days. 18 babies had 9 days stay and 17 babies 14 days stay. Expressed breast milk (EBM) was started on first day in 94 (48.2%) and all babies by 9th day. By day 3 82.1 % of babies was on EBM.

KMC was started from 1 to 19 days 43 babies (22.1%) was on KMC by 5th day. Weight on starting day of KMC ranged from 620 gm to 2.2 kg. About 50% of babies weigh 1.405 kg.

Weight gain per day in KMC ranged from 2 gm to 45 gm. Maximum number of babies 55 (28.2%) had a weight gain of 25 gm/day. Birth weight was regained from 6 to 29 days. Maximum number 33 (16.9%) regained birth weight on 14th day.

Knowledge

95.4% of mothers had no knowledge about KMC before coming to hospital. Only 4.6% had prior knowledge about KMC. Out of 9, 2 knew it from relatives who had preterm babies and 2 from internet; 2 from magazines; 1 from colleagues and two from staff nurses. 7 mothers thought that KMC may not be beneficial. 188 (96.4%) thought that KMC is beneficial before the training session from trained staff.

Table 2: Knowledge of post-natal mothers regarding KMC.

Response	Knowledge	Beneficial	Understanding explanation	Needing 2 nd round	Necessity	Wanting photo exhibition	Readiness to implement
Yes	9 (46.18%)	188 (96.4%)	156 (80%)	41 (21.02%)	179 (91.79%)	37 (18.97%)	193 (98.9%)
No	186 (95.38%)	7 (3.58%)	39 (20%)	154 (78.9%)	16 (8.2%)	158 (81.2%)	2 (1.02%)

Understanding KMC

156 (80%) was able to follow the instructions given by the staff nurses about KMC. 39 (20%) could not understand in the first sitting. 154 (79%) did not think a

second explanation was needed. 41(21%) thought a second explanation would be beneficial. 179(91.8%) thought that KMC is needed for their baby;16 (8,2%) thought it was not needed. 193(99%)accepted to implement KMC.

2 (1%) didn't want to do KMC. 37 (19%) felt uncomfortable after hearing the explanation for how to do KMC and 158 were comfortable after explanation. 18 (92.8%) thought that a photo exhibition will cause a better understanding. 14 (7.2%) thought that it won't be beneficial.

Table 3: Attitude of mothers.

	Feeling about KMC	Closeness to baby	Confidence
Very good	30 (15.54%)	193 (100%)	181(93.78%)
Good	153 (79.27%)	0	12 (6.21%)
Not good	10 (5.18%)	0	0

Practice

After one hour of KMC following the briefing out of 193 were actually performed KMC. 30 (15.4%) felt very good after doing KMC; 153 (79.2%) felt good; and 10 (5.2%) did not feel good after one hour. 100% felt close to the baby after doing KMC. 181 (92.8%) were confident to KMC after this trial and 12 (6.2%) were not confident. 165 (85.4%) thought that other family members can also get involved in implementing KMC. 80.7% of them preferred grandmothers and rest preferred husbands were doing KMC. 100% mothers assured that they will continue KMC from home they will advise others regarding the benefits of KMC. None of the mothers were confident to try breast feeding while administering KMC though 85.7% felt that this has resulted in increased breast milk production.

DISCUSSION

Cultural and educational differences can affect communication, level of trust, and the ability to carry out newborn care especially in implementing KMC which involves a lot of commitment from mothers.¹¹ The focus of this study was to assess attitude and practises and maternal perceptions of the value of KMC through assessing views of mothers of the NICU babies for care partnership.¹² KMC and maternal care provision have become an important aspect of care in the NICU associated with improved short-and long-term neonatal care health outcome.¹³ Mothers giving birth to preterm babies (LBWs) have less confidence in caring for their babies due to lack of experience and knowledge.¹⁴

The majority of mothers (91.8%) understood the importance of KMC and had a positive attitude towards KMC, although they did not receive enough information about KMC at the prenatal facilities. A study conducted in Harare Central Hospital (Kambarami, Mutambirwa and Maramba, 2002) demonstrated mothers positive attitude towards KMC. They recommend that KMC should be promoted country wide through the media (television and radio).¹⁵ The most important gap for improving KMC implementation was identified to be a lack of better equipped KMC ward and lack of education

given to mothers at prenatal clinics. 100% of mothers in our study had a positive attitude after a trial of KMC and all of them thought of giving oral publicity for the same.

In a study by Reeta et al majority of the mothers (80.2%) had received adequate knowledge, almost in contrast with our study.¹⁶ This may be because of the difference in the education of mothers and predominance of rural population in the present study. Bergh et al, Feldman and Eidelman, Roberts, Paynter and McEwan, Worku and Kassie reported that when implementing skin-to-skin contact the LBW infants were found to spend more time in quiet sleep, their heart rate was lower and more stable, apnoea decreased, the body temperature was maintained better and the infants' oxygenation and gas exchange improved, present study also showed similar findings.¹⁷⁻²⁰

Another benefit of KMC is the increased stimulation of breast milk production that facilitates more frequent breastfeeding (Anderson).¹⁰ Although the mothers thought the breast milk production increased considerably, none of them thought that breast feeding was practical during KMC.

KMC is a benefit to the mother by allowing her to be more actively involved and competent in caring for her LBW infant which contributes to bonding (Cattaneo, et al and Davanzo).^{21,22} Both the parents can do kangaroo care. In our study also 85.4% of mothers thought that other family members can equally get involved in KMC. This empowers them through gaining confidence in handling their infant resulting in better bonding and a decrease in the chances of child neglect (Dimenna).²³

Although KMC can be practised at home, and 77% mothers were willing to do community based KMC Quasem et al, it has been reported that mothers experience discomfort when the infant grows bigger.²⁴ In present study also 6.2% of mothers experienced physical difficulties for practical implementation compared to 54% who experienced back pain in this study. These factors may negatively influence the mother's attitude towards the continuation of KMC at home. For the successful implementation of KMC, it is important that the family is involved and support the mothers, especially those with multiple births (Roller).²⁵ One cross-sectional study reported that the majority of mothers preferred the kangaroo method, mainly because their baby was closer to them. Touch was important to mothers, as it induced feelings of well-being and fulfilment in parents.²⁶ Majority of mothers (79%) felt good after doing KMC.

CONCLUSION

It is very important to improve the knowledge and practices of KMC in developing countries through mass media communications to improve the outcomes of low birth weight babies especially in resource limited settings. Mothers often enjoy providing KMC and it increases their confidence and bonding to their new-borns.

Providing flawless care environment in the new-born nurseries and presence of motivated staff, encourage the parents to implement KMC successfully.

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