Knowledge, attitude, and practice of kangaroo mother care among doctors in a tertiary care hospital from North India

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ABSTRACT

Introduction: Kangaroo mother care (KMC) has been established as having an important role in the care of all the babies; especially, the preterm and low birth weight babies. Successful implementation of KMC depends on knowledge, attitude, and practice (KAP) of healthcare workers, mothers, fathers, and other family members. **Objectives:** The objectives of the study ws to determine the KAP of KMC among the faculty and residents of the departments of neonatology and obstetrics in a tertiary care hospital. **Methods:** The study was a cross-sectional descriptive study in which data were collected from departments of neonatology, maternal health, and reproductive health. The study subjects were faculty and residents from both the departments. They were interviewed using a structured pre-tested questionnaire in three domains, knowledge (11), attitude (8), and practice (4). The responses were tested against standard predefined answers and were expressed in percentages. **Results:** A total number of 25 doctors were interviewed; among knowledge domain, approximately 60% doctors responded correctly for the need of KMC, duration of KMC, feeding during KMC and type of baby's clothes during KMC. In the domain of attitude, response of KMC for who can give, when to start/stop, position of mother, and feasibility of KMC during non-invasive ventilation was correct for all subjects. For practice aspect, there was a lack of counseling and re-checking, though almost everyone felt the need of separate KMC room and counselor. **Conclusions:** From the above results, it is apparent that knowledge and attitude, among health-care professionals, is optimum. However, there is lots of scope for filling a few gaps to improve practices and training workshops are required to bring in behavior change among doctors.

Key words: *Kangaroo mother care, Knowledge, Attitude, Practices*

The neonatal mortality rate of India is 25.4/1000 live births, and approximately 0.75 million neonates die every year in India. The mortality during the first 28 days of life is about 30-fold higher than that in the post-neonatal period. Newborn deaths account for two-third and 40% of the infant mortality and under-five mortality, respectively. The major reasons for neonatal death in developing countries are birth asphyxia, infections, and complications due to prematurity and low birth weight (LBW) [1]. LBW babies account for 60–80% of all neonatal deaths, and they have 20 times more risk of death than normal birth weight babies [2]. Hypothermia is one of the main reasons of sickness and death in LBW and premature babies. For maintaining the thermoregulation, incubator and warmers are standard of care. However, these equipments are costly and are not always available in resource limited settings.

A low-cost intervention which can help the thermal care and survival of LBW babies is kangaroo mother care (KMC). KMC is "the early, prolonged, and continuous skin-to-skin contact between the mother (or substitute) and her LBW infant, both in the hospital and after early discharge, until at least the 40th week of postnatal gestation age, with ideally exclusive breastfeeding and proper follow-up" [3]. An updated Cochrane review in 2016, which included 21 studies, demonstrated multiple beneficial effects of KMC. Compared with conventional neonatal care, KMC was found to reduce: Mortality at discharge and the latest follow-up, severe infection/sepsis, nosocomial infections, hypothermia, severe illness, lower respiratory tract disease, and length of hospital stay. The same review also revealed that KMC resulted in improved weight and length, head circumference, breastfeeding, mother-infant bonding, and maternal satisfaction as compared with conventional methods. Out of 21 trials, eight assessed the mortality at discharge or 40–41 weeks and reported a statistically significant reduction in the risk of mortality [4].

Implementation of any intervention is strongly influenced by the attitude [5]. It has been observed that despite several available evidence about the benefits of KMC; the implementation of KMC is often influenced by the personal knowledge and beliefs of health-care providers [6]. Therefore, the study was aimed to assess the knowledge, attitude, and practices (KAP) of KMC amongst health-care providers in a tertiary care hospital. This would help in identifying the sectors in which efforts should be made for the improvement.

MATERIALS AND METHODS

This was a cross-sectional study conducted over a period of 2 weeks in the Level III neonatal intensive care unit in department of neonatology and department of the maternal and reproductive health of a tertiary care center. The center offered facilities such as outpatient care, inpatient care; maternity and newborn care services and the unit had antenatal and postnatal maternity wards. As doctors from the neonatology and maternal and reproductive health departments are often involved in the care of newborns, they were taken as study subjects to evaluate KAP about KMC, and the data were collected from them. The demographic characteristics of the doctors were collected including age, years of experience in dealing with newborns, educational degree, any formal training in KMC, and familiarity with KMC.

The doctors were interviewed using a structured pre-tested questionnaire in three domains, knowledge (11), attitude (8), and practice (4). The responses were tested against standard predefined answers and were expressed in percentages. The structured questionnaire contained 23 questions in three domains, knowledge (questions 1–11), attitude (questions 12–19), and practices (questions 20–23). The questionnaire was pretested in five doctors to check its appropriateness and was modified. Both open- and closed-ended questions were used to evaluate their knowledge and attitudes. Answers related to knowledge were evaluated as correct and incorrect. Informed verbal consent was taken from all the subjects before the study after explaining the purpose of the study and maintaining confidentiality. The results were expressed as mean and percentages.

RESULTS

The questionnaire was handed over to 25 doctors including faculty and residents from the department of neonatology and maternal and reproductive health. All the doctors responded to the questionnaire. Demographic characteristics of the subjects are mentioned in Table 1. Mean age of the respondent was 35.04±1.79 years with an age range of 26–63 years. The mean work experience was 10.26±1.81 years. Out of the total 25 doctors, 9 (36%) were faculty members and 16 (64) were residents. None of the doctors had received formal training in KMC. Out of 25 doctors, 76% were female and 24% male. 48% were from neonatology and 62% from maternal and reproductive health.

Table 1: Demographic characteristics of doctors

Characteristics	n=25
Department (%)	
Neonatology	48
Maternal and reproductive health	62
Age (Mean+SD)	35.04±1.79
Experience in dealing with newborns (in years) (Mean+SD)	10.26±1.81
Designation (%)	
Faculty	36
Residents	64
Formal training in KMC (%)	
Yes	0
No	100

KMC: Kangaroo mother care

Knowledge Related to KMC

In the knowledge domain of KMC, only 20% of the doctors knew standard definition of KMC. When enquired about the components of KMC, only 3 (12%) could correctly enlist all the components, i.e., skin-to-skin contact, exclusive breastfeeding, early discharge and support to the mother in practicing KMC.

Twenty subjects (80%) could correctly respond about types of KMC. When asked regarding which babies require KMC, 14 (56%) replied correctly. Approximately 80% of respondents knew about correct position of mother and baby during KMC. Similarly, 80% of subjects knew about the minimum and maximum duration of KMC. Approximately 70% of doctors knew how baby should be dressed during KMC and when KMC can be stopped (Table 2).

Attitude Regarding KMC Practice

Almost all respondent believed that KMC is beneficial to both mother and baby and baby can be breastfed during KMC. 8% felt that KMC can be given by anyone. 64% believed that KMC can be started as soon as after birth. Although 22 (88%) felt that KMC can be given while baby is on non-invasive ventilation/oxygen support; only 9 (36%) were confident enough to advise for KMC while the baby is on invasive ventilation. Only 40 (27.6%) doctors thought that it enhances breastfeeding while 9 (6.2%) did not responded to the question. Regarding KMC to be given immediately after birth, only 41 (28.3%) HCPs had positive belief that it should be started immediately while 7 (4.8%) did not respond to the question. Two doctors still thought that KMC can be associated with some risks.

Practices Regarding KMC

It was observed that only 8 (32%) and 5 (20%) of doctors counseled mother and father about benefits and how to do KMC. Only 5 (20%) re-checked that how effectively KMC was being given. Eleven (44%) doctors used posters and videos to emphasize on KMC implementation.

DISCUSSION

KMC is a safe and effective low-cost intervention for the care of LBW [7]. Successful implementation of KMC requires motivation, supervision, and care from health-care professionals. Hence, it is important to assess the KAP of healthcare workers for the same. In the present study, only 20% of the doctors knew standard definition of KMC and 12% could correctly enlist all the components of KMC, however, 56% knew that which babies are

Table 2: Knowledge and attitude of doctors regarding KMC

No.	Questions	Response in percentage	
		Correct	Incorrect
I	Knowledge		
1.	What is KMC	20	80
2.	What are the different components of KMC	12	88
3.	What are types of KMC	80	20
4.	Which babies require KMC	56	44
5.	What should be position of the baby during KMC	80	20
6.	What should be position of mother during KMC	76	24
7.	For how many hours KMC can be given	84	16
8.	What is minimum duration of KMC	80	20
9.	What should be room temperature during KMC	44	56
10.	How baby should be dressed during KMC	68	32
11.	When KMC can be stopped	72	28
II	Attitude		
12.	Do you agree that KMC is beneficial to baby	100	0
13.	Do you agree that KMC is beneficial to mother	96	4
14.	Do you agree that KMC can be given by anyone	80	20
15.	Do you agree that KMC can be started at the earliest	64	36
16.	Do you agree that baby can be breastfed during KMC	100	0
17.	Do you agree that KMC can be given on oxygen/non-invasive ventilation support	88	12
18.	Do you agree that KMC can be given on invasive ventilation support	36	64
19.	Do you agree that KMC does not have any associated risks	92	8
III	Practices	Yes	No
20.	Do u counsel mother for KMC	32	68
21.	Do u counsel father for KMC	20	80
22.	Do u recheck for implementation of KMC	20	80
23.	Do you use posters and videos for KMC implementation	44	56

KMC: Kangaroo mother care

eligible for KMC. In the study by Dalal *et al*., it was observed that 33.1% of the doctors knew about a different component of KMC and 29.7% of doctors had the correct knowledge about eligible babies for KMC [8]. While in a study conducted in Kenya, 87.5% of health-care professionals had knowledge regarding the need of KMC for LBW babies and 94.3% knew that KMC involves skin-to-skin contact [9]. In another study from Africa by Solomons and Rosant, it was observed that the majority of nursing staff had some knowledge of the advantages of KMC [10].

Studies from low-income countries have shown that KMC provides effective thermal control and may be associated with a reduced risk of hypothermia. KMC has also been found to facilitate the initiation and establishment of breastfeeding in small babies [7]. In the present study, though the majority of the doctors did not have any formal training in KMC, almost all doctors believed that KMC is beneficial for a baby for preventing hypothermia, promoting breastfeeding, and bonding between mother and baby. In a study by Dalal *et al*., 73.8% health-care professional knew that KMC is effective in preventing hypothermia and 27.6% of doctors believed that KMC increases breastfeeding [8]. In the study from Kenya, 38.6% health-care professional believed that KMC leads to more effective breastfeeding [9]. Therefore, it is apparent that the findings of our study are almost similar to other studies regarding baseline knowledge about KMC and its benefits.

About the eligibility criteria of KMC, the difference was observed between the present study and study by Dalal *et al*. (56% vs. 29.7%). This difference could be due to the fact that in the study by Dalal *et al*., most of the subjects were either Anganwadi worker or staff nurse (79.3% Anganwadi workers, 15.9% link workers, and 4.8% staff nurses) [8]. While in the present study, most of the subjects were specialist in either pediatrics or maternal and reproductive health. In the study from Kenya, study subjects were both staff nurse and medical officers, which could be the reason for similar results as in the present study [9].

In the present study, only one-third of the doctors counseled the mother and other family members for KMC, and 20% tried to check how the KMC is being implemented. In the study conducted by Solomons and Rosant, most nursing staff did not feel that KMC should be facilitated kangaroo care of mothers [10]. Encouraging and facilitating mothers and other caregiver during KMC practice is important which is often missed in routine practice.

Limitation of this study was that this was a cross-sectional study and an interventional study after training the staff would be a better design to evaluate KAP and generalize the findings. After training in a study done in Kenya, it was observed that there was

a significant difference in the knowledge score of the participants. However, the training did not lead to much improvement in attitude and practice score of study subjects [9]. To bring in the change in attitude and practices, it is important to make health-care professional realize the benefits of KMC by directly involving them in the intensive KMC implementation program. Objective evaluation and demonstration of benefits of KMC in terms of weight gain, breastfeeding rates, maternal perception, lesser hypothermia episodes, etc., would be more appropriate to bring a sustainable change in practice. Small sample size was another limitation. It would also have been better to look for a difference in KAP in respect to age, experience, and place of posting of study subjects. However, the study sample size was small, due to which it was not feasible to get meaningful observations for the same.

CONCLUSIONS

Knowledge related to KMC was poor among doctors. Although health-care professionals believe that KMC has several benefits, the proportion of actual practice in eligible babies is low. Hence, it is very important to train the health-care professional regularly for the same to increase their knowledge and bring a change in attitude and practices.

REFERENCES

1. Liu L, Johnson HL, Cousens S, Perin J, Scott S, Lawn JE, *et al.* Global, regional, and national causes of child mortality: An updated systematic analysis for 2010 with time trends since 2000. Lancet 2012;379:2151-61.
2. United Nations Children's Fund and WHO: Low Birth Weight Country, Regional and Global Estimates. New York; 2004. Available from: http://www.unicef.org/publications/index_24840.html. [Last accessed on 2018 Sep 28].
3. Cattaneo A, Davanzo R, Uxa F, Tamburlini G. Recommendations for the implementation of kangaroo mother care for low birthweight infants. International network on kangaroo mother care. Acta Paediatr 1998;87:440-5.
4. Conde-Agudelo A, Díaz-Rossello JL. Kangaroo mother care to reduce morbidity and mortality in low birth weight infants. Cochrane Database Syst Rev 2016;23:CD002771.
5. Engler AJ, Ludington-Hoe SM, Cusson RM, Adams R, Bahnsen M, Brumbaugh E, *et al.* Kangaroo care: National survey of practice, knowledge, barriers, and perceptions. MCN Am J Matern Child Nurs 2002;27:146-53.
6. Ann F, Patricia LW. Neonatal nurses' knowledge and beliefs regarding kangaroo care with preterm infants in an Irish neonatal unit. J Neonatal Nurs 2010;16:221-8.
7. Charpak N, Ruiz JG, Zupan J, Cattaneo A, Figueroa Z, Tessier R, *et al.* Kangaroo mother care: 25 years after. Acta Paediatr 2005;94:514-22.
8. Dalal A, Bala DV, Chauhan S. A cross-sectional study on knowledge and attitude regarding kangaroo mother care practice among health care providers in Ahmedabad District. Int J Med Sci Public Health 2014;3:253-6.
9. George OB. Effect of 'Kangaroo Mother Care' Training on Knowledge, Attitude and Practice of Health Care Providers in Selected District Hospitals in North Rift Region, Kenya. 2013. Available from: http://www.ir.mu.ac.ke:8080/xmlui/handle/123456789/370. [Last accessed on 2013 Sep 02].
10. Solomons N, Rosant C. Knowledge and attitudes of nursing staff and mothers towards kangaroo mother care in the Eastern sub-district of Cape Town. S Afr J Clin Nutr 2012;25:33-9.

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