A Comparative Study to Assess the Effectiveness of Kangaroo Mother Care and Conventional Method of Care on Hypothermia among New Born's at Selected Hospitals, Vellore

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Abstract- To assess the effectiveness of the Kangaroo Mother Care and conventional method of care on hypothermia, Experimental factorial research design was used. 60 new born's were chosen among them 30 were in KMC and 30 were in Conventional method of care through Convenient sampling technique. There is a significant increase in the body temperature of baby after Kangaroo Mother Care in KMC group the findings indicate the computer t value is 31.56 and is > t table value (3.659) at 29 degrees of freedom so the null hypothesis is rejected. So use of this technique would humanize the practice of newborn care, promote the breast feeding and shorten the hospital stay without compromising survival growth and development.

Keywords: Effectiveness, Kangaroo Mother Care, Conventional method of care, Hypothermia, New born.

INTRODUCTION

A fetus that is in the womb, once born has to get adjusted to the external environment. The body temperature of the new born tends to fall progressively after birth as a part of the transition from the intrauterine to extra uterine environment particularly among preterm babies. Maintenance of temperature is crucial for the survival of the newborn. (Rahul. M (2010))

Neonatal hypothermia is associatedwith an increased mortality risk for 28 days. There are few Hospital – based data on specific risk factors for neonatal hypothermia. Hypothermia is well recognized as a factor influencing newborn health. The newborn infant exhibits immature thermoregulation, as compare with the older child or adult and therefore needs to be protected from extremes ofcold. World Health Organization(WHO) provides definitions of normothermia and hypothermia:

- Normal range : 36.5 – 37.5°C
- Potential cold stress: 36.0 -36.5°C ; cause for concern
- Moderate Hypothermia: 32.0 – 36.0°C; danger, immediate warming of the baby needed
- Severe Hypothermia: less than 32.0°C; outlook gave; skilled care urgently needed.

New born care manual, (2005) Skin-to- skin (STS) care, also called kangaroo care, is an intervention in which the unclothed, diapered infant is placed on the mother's bare chest, to promote thermoregulation.

Infants lose heat from the skin to the environment by convection when exposed to cold air or moisture, by conduction when placed naked on a cold table, weighing scale, by evaporation after delivery or after a bath. By radiation of heat from an infant's skin to distant cold objects, such as cold window panes, walls and the incubator hood.

Conventional Method of Care are also widely used for sick preterm and term newborns to effectively control body temperature and provide uniform heating over exposed body areas in radiant warmer, Incubator, etc.,

NEED FOR THE STUDY

Lack of thermal protection is one of the major challenges faced by developingnations for newborn survival. In India, the prevalence of hypothermia varies widely but recent estimates in normal newborns incommunity settings are around 31%

and about 32% in hospital settings, but these included mostly normal weight newborns. The prevalence can be estimated to be even higher for low birth weight newborns. A greater proportion of childdeaths in the western and southern parts of India are attributable to low birth weight and premature babies. Almost 2.8 million neonatal deaths occurred in the year 2013 globally, of which 73% deaths occurredduring the first seven days of life. Neonatal mortality contributes to more than half of the under-five mortality in countries such as India. The rates of decline in the last decade have been the slowest for neonatal mortality. Every 1°C below 36°C onadmission increased the odds of late onset sepsis by 11% and of death by 28%.

Skin to Skin care conducts heat to entire body of infant and keeps warm without causing change in neither oxygen consumption nor metabolic rate. Skin to skin care maintains temperature in neutral thermal zone. Skin to Skin care is more efficient for rewarming.

American Academy of Pediatricians (AAP) recommends Kangaroo mother care (KMC) for thermoregulation.

OBJECTIVE

- To assess the effectiveness of the Kangaroo Mother Care and to assess the effectiveness of the conventional method of care on hyperthermia among New born's.
- To compare the effectiveness of Kangaroo Mother Care and Conventional Method of Care onHypothermia among New born's.
- To associate the effectiveness of Kangaroo Mother Care and Conventional Method of Care onHypothermia among New born with a selected socio-demographicvariables.

RESEARCH METHODOLOGY

RESEARCH DESIGN: The research design adopted or the study is experimental factorial research design.

POPULATION: The population in the present study is New born's in the selected Hospitals, Vellore.

SAMPLE SIZE: The sample size consistsof total 60 New born among them 30 new born will be in Kangaroo Mother Care and 30 New born will be in Conventional Method of Care group.

SAMPLING TECHNIQUE: It is the Process of selection of population. Convenient Sampling technique is used in the study to select the neonatal hypothermic babies. Neonatal hypothermic babies were only chosen by the researcher

INTERPRETATION AND RESULTS

There is significant difference between pre and post mean scores of KMC group. The t-value is significant (27.329) with 5% level of significance.

(S) = Significance

The table shows mean and standard deviation for the pre and post test scores of the KMC group. The mean in the pretest group was 0, 3.43 AND 0.83 respectively for grade I, II and grade III scores, where as the mean was 7.38, 5 and 0 for grade I, II and grade III respectively in the post test group.

The standard deviation was 0, 0.787 and 0.778 for grade I, II and grade III respectively in the pretest group. The post test group recorded 0.804 for grade I and 0 respectively for grade II and grade III.

The computed't' of 27.329 exceeds the table value 2.042, so the null hypothesis is rejected. This test provided statistically significant evidence that KMC stabilizes the physiological parameters of hypothermic babies and improves breast feeding.

There is significant difference between pre and post mean scores of CMC group. The t-value is significant (13.889) with 5% level of significance.

The mean and standard deviation for the pre and post test scores of the CMC group. The mean in the pretest group was 0, 3.5, and 0.69 respectively for grade I, II and grade III scores, whereas the mean was 6.77, 0.832 and 4.9 for grade I, II and grade III scores respectively in the post test group.

During pretest the mean score was 34 with the standard deviation of 3.1. whereas in posttest the mean score was 36.8 with the standard deviation of 3.2.

Similarly in the CMC group during pretest mean score was 33.6 with standard deviation 2.7 whereas in posttest the mean score was 34.2 with the standard deviation 3.4.

There is a significant increase in the body temperature of baby after Kangaroo Mother Care in KMC group the findings indicate the computer t value is 31.56 and is > t table value(3.659) at 29 degrees of freedom so the null hypothesis is rejected.

There is no significant association between KMC and gestational age of the mother, mode of delivery, place of residence, occupational status. There is a significant association between KMC and Educational status.

The association between posttest scores of Kangaroo Mother Care and selected demographic variables of newborn in KMC Group. By using chi-square.

Table value for χ^2 at D.F. (n-1), p=0.05 is 5.99

There is no significant association between KMC and Age of the baby, and Sex, there is significant association between KMC and weight type of feeding of the babies.

the association between posttest scores of Conventional Method of Care and selected demographic variables of newborn in Experimental Group-II. By using chi-square.

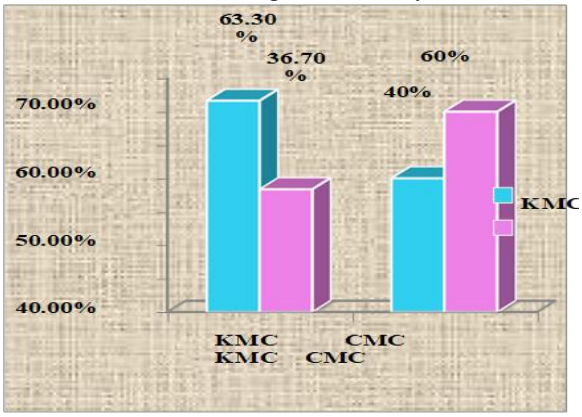
Table value for χ^2 at df (n-1), p=0.05 is 5.99

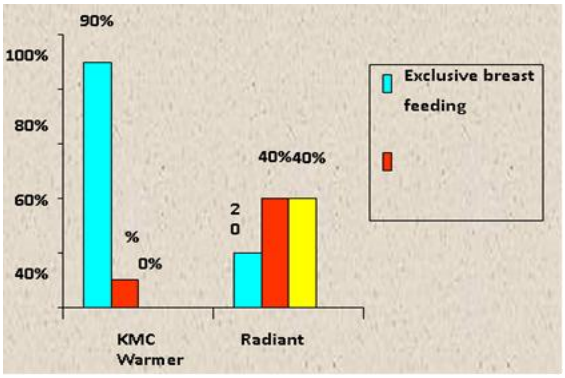
There is no significant association between Radiant Warmer and gestational age of the mother, mode of delivery, place of residence. It shows a significant association between occupational status, educational status effect on hypothermia.

The association between posttest scores of Conventional Method of Care and selected demographic variables of newborn in CMC Group. By using chi-square

Table value for χ^2 at D.F. (n-1) , p=0.05 is 5.99

There is no significant association between effect of Conventional Method of Care and Age of the baby, sex and Type of feeding shows effect on hypothermia. There is significant association between Conventional Method of Care and Weight of the baby.





S.NO	DEMOGRAPHICVARIABLES	KMC GROUP		CMC GROUP	
		FREQUENCY	%	FREQUENCY	%
1.	Age of the baby				
	0-7 days	16	53.3%	06	20%
	8-16 days	14	46.7%	18	60%
	17-28 days	00	00%	06	20%
2.	Sex				
	Female	19	63.3%	12	40%
	Male	11	36.7%	18	60%
3.	Weight				
	a) 1-2kgs	00	00%	00	00%
	b) >2-2.5kgs	08	26.7%	20	66.6%
	c) >2.5-3kgs	18	60%	08	26.7%
	d) >3-3.5kgs	04	13.3%	02	6.7%
4.	Type of feeding				
	a) ExclusiveBreast Feeding	27	90%	06	20%
	b) Expressed breast milkfeeding	03	10%	12	40%
	c) Artificialfeeding	00	00%	12	40%
	d) Parenteral feeding	00	00%	00	00%

DISCUSSION

The aim of the study was to compare the effectiveness of Kangaroo Mother Care and Conventional Method of Care on hypothermia among Newborn's at Selected Hospitals, Vellore. A quantitative research approach was used, and Randomized controlled trial design for both Kangaroo Mother Care and Conventional Method of Care was used. The setting of the study was Newborn's at Selected Hospitals, Vellore. The total samples were 60; 30 samples were for KMC group, 30 Samples were for CMC group. The findings of the study were discussed with reference to the objectives, the frame work and hypothesis of the study.

The mean and standard deviation for the pre and post kangaroo mother care group. It shows 100% shift from pre-care Grade III Hypothermia score to Grade I and Grade II hypothermia score in the post-care newborn and there were no grade III scores in post-care new born. Gupta M et.al, (2007) conducted a study to determine the various beneficial effects of KMC in LBW babies. 50 LBW babies (birth weight> 2 kg) who delivered at Umaid Hospital, RIMCH Jodhpur included in this study and they have given KMC 4-6 hours/day in 3-4 settings. They concluded that KMC is effective and safe in stable preterm infants.

The mean and standard deviation for the pre and post test scores of the Conventional Method of Care group. It shows the difference where in the pre-care hypothermia score of grade III and Grade II which was 100% was reduced to 30% Grade III and the rest 70% were shifted to Grade I and Grade II score. Michael P. Meyer, (2008) conducted a study with an aim to determine the efficacy of radiant warmer as compared for preterm infants from birth to 1800 grams. Randomised controlled trial was done on 60 preterm infants <33 weeks' gestation in Middle more Hospital and the University of Auckland;, Auckland, New Zealand. The study has shown radiant warmers lead more rapid warming and improved maintenance of abdominal temperature from day 1 extending to the end of the first week, although fluid requirements were higher in the radiant warmer group.

The mean and standard deviation for both KMC and Conventional Method of Care Group. It shows the gross difference between both the groups that there were no Grade III hypothermia scores in Kangaroo Mother Care group in the post test evaluation. Whereas the Conventional Method of Care group showed 70% shift from grade I, grade II and the rest 30% remained in the Grade III score. Ibe et. al, (2006) conducted a study to compare the kangaroo mother care and Conventional Method of Care for thermal regulation of infants < 2000 g in Nigeria using continuous ambulatory temperature monitoring, An experimental study with a crossover design included thirteen eligible infants who were nursed by their mothers in a 38 4-hour sessions of KMC and the results compared with 38 sessions of radiant warmer care. They concluded that mothers felt that KMC was safe, and preferred the method to radiant warmer because it did not separate them from their infants. Where equipment for thermal regulation is lacking or unreliable, KMC is a preferable method for managing stable low birth weight infants.

CONCLUSION

Weight gain is significant in babies with KMC care than compared to CMC care. KMC care for low birth weight and pre term babies it is a need of the hour for better survival and better quality of life. Event though the sample size for the study was small, the present study found that KMC, a technique developed to combat the burden of overcrowding of neonatal units, delivers ideal condition for hypothermic newborns, pre term babies with hypothermia and low birth weight babies with hypothermia to thrive. So use of this technique would humanize the practice of newborn care, promote the breast feeding and shorten the hospital stay without compromising survival growth and development. KMC accepted as an integral part of standard neonatal care in health care facilities. The nurse should take initiative in formulating clinical practice guidelines for Kangaroo Mother Care. In affluence, Kangaroo Mother Care is Precious gift. In financial constraints it is useful addition to infant care. In poverty it may be the only means of survival.

RECOMMENDATION

The findings of the study serves as basis for the nursing professionals and the students to conduct further studies. There is a need for wide research in this area to generate more details and specific data base and to provide much needed information for consumers and providers. A similar study can be conducted in various settings like government hospital

and PHC. A similar study can be done with large samples with different demographic variables. Evaluation of temperature pulse respiration and weight after KMC and CMC can be compared by using other different checklist among newborn who received KMC and CMC.

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