

EFFECT OF EARLY SKIN TO SKIN CONTACT ON STABILIZATION OF BODY TEMPERATURE OF PRETERM BABIES AND PERCEPTION ON SKIN TO SKIN CONTACT AMONG MOTHERS OF BABIES ADMITTED IN A SELECTED HOSPITAL, BHUBANESWAR, ODISHA

Mrs. Niyati Das* & Dr. Amarjit Kaur Sandhu**

*Research Scholar in Himalayan University, Arunachal Pradesh, India.

**Research Supervisor in Himalayan University, Arunachal Pradesh, India.

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ABSTRACT

Early skin-to-skin contact (SSC) begins at birth and involves placing the naked baby, head covered with a dry cap and a warm towel across the back, prone on the mother's bare chest to intimate contact inherent and evokes neurobehaviors ensuring fulfilment of basic biological needs. The objectives of the study were, to compare the body temperature of preterm babies in the experimental and control group in relation to early skin to skin contact and to assess the perception of mothers regarding skin to skin contact.

Material and methods: The pre-experimental study only post-test control group designs with sixty samples were collected by a convenience sampling technique. Skin to skin contact was given to the experimental group for 20 minutes in an interval of 3 hours and 3 times a day for 3 days and Post-test temperature was measured by using valid digital measuring instrument. The perception of mothers in experimental group towards skin to skin contact was assessed on 3 day in a questionnaire by using Likert scale.

Major findings: The data were gathered and analysed by using SPSS (STATA). The main result revealed that the obtained mean value in experimental group was higher 98.23(SD=0.51) than the control group 96.75(SD=0.50). The obtained t value 10.918 ($p < 0.05$) was significant. Regarding the perception of mothers on the skin to skin contact in the experimental group mean perception value (67.6) was high. hence mothers had positive perceptions regarding skin to skincare.

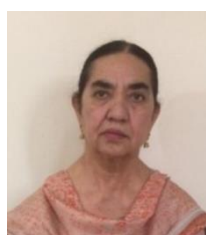
Conclusion: it was concluded that Skin to skin contact was effective to prevent hypothermia in preterm babies.

Key words: effectiveness, hypothermia, preterm, perception, skin to skin contact, temperature.

ABOUT AUTHORS:



Author Mrs. Niyati Das is Ph.D. Scholar at Himalayan University, Itanagar, Arunachal Pradesh, India.



Author Dr. Amarjit Kaur Sandhu is Research Supervisor in Himalayan University, Arunachal Pradesh, India. She has attended and organized Workshops, Seminars and Conferences. She has published various research articles in National and International Journals.

INTRODUCTION

Maintenance of a normal body temperature is of vital importance to the preterm neonate. Many advances in neonatal care, including measures to improve thermal balance and care environment, have contributed to the increased survival of preterm infants. One such measure is the kangaroo mother care technique, which features early initiated and continuous skin-to skin care (SSC). The kangaroo position reduces infant heat loss by minimizing the skin surface area exposed to the cooler environment, and allows conductive heat gain through skin-to-skin contact between infant and parent. Kangaroo mother care is recommended for use in stable low birth weight (BW) infants. Infants born extremely preterm are at particular risk for hypothermia and require a strictly controlled care environment to maintain thermal homeostasis. In these infants, evaporative heat loss because of poor skin barrier function is the dominant mechanism of heat loss early after birth. Because the loss of fluid from the skin is inversely related to ambient relative humidity, creating a high–relative humidity microenvironment close to the skin will reduce fluid loss and improve thermal balance. Furthermore, the high body surface-to-mass ratio and poor capacity for thermogenesis of extremely preterm infants implies that they need to gain heat from the environment to avoid hypothermia and cold stress. We hypothesized that SSC would provide a thermally adequate care environment for the early postnatal care of these infants. One of the most important needs of infants at birth is the maintenance of temperature because an infant is not able to generate heat due to lack of shivering mechanism, and this leads to a rapid decline in its temperature. Currently, the routine care to prevent hypothermia is to put the infant under a warmer, causing the separation of the mother and new-born. One of the most important roles of a nurse is to facilitate a close bonding relationship between the mother and infant. To fulfil this role and to treat hypothermia, nurses apply an efficient, accessible, and applicable method called mother and new-born skin-to-skin contact. To test this hypothesis, we studied a group of extremely preterm infants who received SSC early after birth. We monitored and evaluated these infants' thermal balance and care environment during SSC and conventional incubator care.

BACKGROUND

Worldwide, 15 million infants are born preterm annually, and preterm birth is one of the largest direct causes of neonatal mortality and morbidity. Compared to full-term infants, preterm infants are at increased risk of neurodevelopmental impairments. This also includes lower self-esteem, social relations, and quality of life in adulthood.

Kangaroo care (KC), family-centered care (FCC), Newborn Individualized Development Care and Assessment Program (NIDCAP), and a variety of early intervention programs emphasize the importance of establishing early parent-infant interaction to support an optimal development. Facilitating early skin-to-skin care (SSC) is one way of supporting early parent-infant bonding and is also associated with improved physiological stability and decreased cortisol reactivity. In addition, a recent World Health Organization (WHO) guideline on interventions to improve outcomes for preterm infants, strongly recommends early SSC as thermal care for preterm infants weighing <2000 grams.

Skin-to-skin care in the delivery room (DR) has been studied for preterm infants from 32 weeks of gestation. However, to the best of our knowledge, SSC in the DR and the operating room (OR) has not been systematically investigated for infants born at gestational age (GA) <32 weeks. Obvious obstacles to do so would be the need for medical equipment and competent personnel, usually available only in the NICU. Breathing support, need of surfactant, intravenous access, and monitoring equipment are needed in a large proportion of infants below 32 weeks. To combine medical interventions with early SSC, a trained team and formalized guidelines are required to ensure the medical safety of the infant.

The movement of the infant's hands over the mother breasts in kangaroo care leads to increased secretion of oxytocin, which results in increased secretion of breast milk and breast heat. The heat is transferred from the mother to the baby because the mother's body temperature activates the baby's sensory nerves, and it results in the baby's relaxation, reduction in the tone of the sympathetic nerves, dilation of the skin vessels, and increase in the baby's body temperature.

Mother and infant skin-to-skin contact is well-known in full-term infants with natural deliveries. However, it is believed that infants delivered via caesarean section are predisposed to hypothermia due to low temperature in the operation room, mother's unconsciousness, and spread of mother's heat from the center to the environment, and reduction in mother's central temperature. Therefore, mother and infant skin-to-skin contact is potentially limited in infants after born via caesarean deliveries.

Although mother and infant skin-to-skin contact immediately after birth and the start of breastfeeding during the first hour of birth are considered the top four measures to obtain baby friendly status within hospitals, these measures are still not done effectively in Iran and there has been no endeavour to initiate SSC in the country so that the mean of breastfeeding starting is 3.5 hours in natural deliveries and 6.9 hours in delivering

via caesarean section, and only 1.5% of infants are breastfed during the first hour of birth. According to the Center for Disease Prevention, only 32 percent of American's hospitals were doing skin-to-skin contact of mother and new-born for two hours after birth and the usual method is to take the baby under a radiant heating in the operating room and nursery ward while the World Health Organization recommends that skin-to-skin contact for mothers and new-born should be done regardless of age, birth weight, and the clinical status. Therefore, this study was conducted to determine the effect of skin-to-skin contact on infants' temperatures.

MATERIALS AND METHODS

This study was designed as a pre-experimental post test control group design in a selected tertiary care hospital, Bhubaneswar, Odisha. The inclusion criteria for the mothers included singleton pregnancy, gestational age of 34-36 weeks, age range of 18-40 years old with normal vaginal delivery and for the babies included the APGAR scoring at 5 minutes equal to or more than 7. The exclusion criteria for the mothers included problems such as severe bleeding, uterine inertia, gestational diabetes and hypertension, and heart disease. The study excluded the infants with high risks and abnormalities or any other problems which needed hospitalization and incubator, according to the doctor's advice. According to sample size formula and considering the loss of samples mother-infant dyads were selected. Then the samples were given to skin-to-skin (30) and routine care (30) groups.

The data collection tools consisted of four parts. The first part included the demographic data of the mothers and baby including age, education, occupation, income of family and sex, birth weight, apgar score at 5 minutes and time of initiation of breast feeding. The second part was a form to record temperatures of the mothers and other physiological parameters. The third part was Information of perception of mothers regarding skin to skin contact. There were 15 items in a 5 point rating scale ranging strongly agree to strongly disagree. The perception of mothers was determined by using the questionnaire. Positive responses were scored as 1, 2, 3, 4, 5 and 5, 4, 3, 2 and 1 for negative responses. Maximum score was 75. Negative 16-30 and positive 45-65, highly negative 1-15, neutral 31-45 and highly positive 65. The questionnaire was validated from authentic scientific resources. Its validity was confirmed through the content validity based on the expert viewpoints of faculty members, and its reliability was confirmed through direct observation on 6 samples in the pilot study in which correlation coefficient was 0.94. tool was found to be highly reliable. skin to skin contact was demonstrated as per procedure guide on Kangaroo care. Instruments were validated and already in use in the hospital. Electronic thermometer was used for measuring the temperature. Introduction and skin to skin contact was given and procedure about preparation, and timing was explained to them. Informed consent was obtained. 2 to 3 babies with their mothers selected per day, depending on their availability. skin to skin was administered without pre-test and per the procedures for 3 times in a day for 20 minutes duration. Physiological parameters were observed after each procedure for consecutive days.

The samples were selected from Nov.2018 to December 2019, according to the inclusion criteria of the study and their informed consent to participate in the study. Subsequently, the mothers' temperatures in the two groups after skin to skin were recorded via the axial thermometer. The mothers and infants' temperatures were measured and recorded at the start of skin-to-skin contact, 20 minutes, 3 times a day in an interval of 3 hours for consecutive 3 days. In the control group, the infants were dressed and embraced by their mothers to be breastfed, and their temperatures were measured Also, the mothers in the two groups were trained how to breastfeed.

To analyse the data, descriptive statistics including frequencies, means, standard deviations, *t*-tests, chi-square tests. The analyses were done and considered as blind.

RESULT

Findings on comparison of physiological parameters of preterm babies in experimental and control group in relation to SSC the analysis of the data concerning the means and standard deviations of mother and infant's physiological parameters at the start of skin-to-skin contact after the contact did not show significant differences between the two groups of skin-to-skin and routine care (Table 1) at 0.05 was considered statistically significant

TABLE-1: POST TEST MEAN, STANDARD DEVIATION, RANGE AND T VALUE OF PHYSIOLOGICAL PARAMETERS-AMONG EXPERIMENTAL AND CONTROL GROUP.

variable	Experimental group(n)=30			Control group (n)=30			“t” value	p
	Mean	SD	Range	MEAN	SD	Range		
HEART RATE	130.13	11.31	37.7	137.7	5.13	21.1	3.606	P<0.05 S
RESPIRATORY RATE	40.23	7.97	24.9	40.51	3.97	16.7	0.182	P>0.05 NS
OXYGEN SATURATION	87.76	3.19	10.9	92.34	0.94	4.0	8.590	P<0.05 S
TEMPERATURE	96.75	0.54	2.0	98.23	0.51	3.0	10.918	P<0.05 S

S = SIGNIFICANT (P<0.05)

NS =NOTSIGNIFICANT (P>0.05)

TABLE .1: Shows post test mean, standard deviation, range and (t) value of parameters after the intervention in experimental and control group.

Regarding the heart rate, oxygen saturation and temperature, the obtained mean values in experimental group were higher 137.7 (SD = 5.13), 92.34 (SD=0.94) and 98.23 (SD=0.51). than the control group 130.13 (SD=11.31), 87.76 (SD=3.19) and 96.75 (SD=0.50) respectively. The obtained “t” values t=3.6 of (p<0.05) t=8.59 (p<0.05) and t= 10.918 (p<0.05) were significant there was significant difference in heart rate, oxygen saturation and temperature between preterm babies who received SSC than those who did not receive SSC.

Regarding respiratory rate, the obtained mean value was lower in experimental group 40.51 (SD=3.97), than control group 40.23 (SD=7.97). The obtained “t” value 0.182 (p>0.05). There was no significant difference in the respiratory rate between preterm babies who received SSC than those who did not receive SSC.

DATA ON PERCEPTION OF MOTHERS ON SSC

TABLE-2: MEAN VALUE OF PERCEPTION OF MOTHERS ON SSC

VARIABLE	MEDIUM SCORE	MEAN
PERCEPTION OF MOTHERS ON SSC	75	67.6

Table: 2 shows MEAN VALUE OF PERCEPTION OF MOTHERS ON SSC

Regarding perception of mothers on SSC in experimental group, mean perception value (67.6) was high. Mothers had positive perception regarding SSC.

DISCUSSION

The findings of the present study showed that skin-to-skin contact between mother and infant after Regarding the heart rate, oxygen saturation and temperature, the obtained mean values in experimental group were higher 137.7 (sd=5.13), 92.34 (SD=0.94) and 98.23 (SD=0.51) than the control group 130.13 (SD=11.31), 87.76(SD=3.19) and 96.75(SD=0.50) respectively. The obtained “t” value st=3.6 of (p<0.05) t=8.59(p<0.05) and t= 10.918(p<0.05) were significant. There was significant difference in heart rate, oxygen saturation and temperature between preterm babies who received SSC than those who did not receive SSC

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The above findings were supported by the studies conducted by Ferber. S. G., (2006), Papi Gomez. A. (1998). Mother had positive perception regarding SSC and above findings was supported by the Costello A. et al. (2001).

IMPLICATIONS

The study had implications, guidelines and suggestions for nursing practice ,nursing administration and nursing research

Infant skin temperature rises after birth in relation to an increased metabolic rate and the mechanism by which skin-to-skin contact influences the infant’s temperature. It has been suggested that the touch, light pressure, and, in particular, the warmth received by the infant during the skin-to-skin contact activate sensory nerves, leading to cutaneous vasodilation and increased skin temperature. The increase in maternal breast skin temperature occurring in the postpartum period is probably on expression of an inborn psychophysiological pattern which aimed at helping the mother in her interaction with the baby after birth. The maternal giving of warmth diminishes the risk for development of hypothermia in the infant in the postpartum period [13].

This care was performed for the first time in Asali Hospital of Khorramabad (west of Iran). This method of caring is simple, safe, economical, practical, and applicable. It is also a therapeutic method to prevent

hypothermia in term neonates. Therefore, it is necessary to standardize nursing workforce to implement this method routinely.

RECOMMENDATION

To implement the method, it is recommended that extensive research on it should be performed.

A similar study can be done on a larger sample to obtain other benefits of SSC

Primi mothers must be provided adequate knowledge regarding care of the preterm baby

CONCLUSION

According to the results of the present study, it is concluded that skin-to-skin contact after intervention among preterm mothers, maternal satisfaction level with skin-to-skin contact was higher, and neonates were not prone to hypothermia and improve breastfeeding initiation and facilitate the first successful experience of breastfeeding compared to routine method of infant care. The results of this study can be applied in various areas of nursing including nursing management, nursing education, and nursing research.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interests regarding the publication of this paper.

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