# KNOWLEDGE REGARDING PREVENTION OF HYPOTHERMIA AMONG MOTHERS OF LBW NEONATES IN SNCU OF M.K.C.G. MEDICAL COLLEGE HOSPITAL

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**ABSTRACT**

**BACKGROUND**

As per NFHS-4 data under 5 mortality in India is 50 and infant mortality rate is 41. Globally, neonatal deaths account for 41% of mortality in children under 5 years of age, rate that has been increasing over recent years. Hypothermia is an important cause of death in low birth weight (LBW) babies.[1] Neonatal hypothermia, defined as an abnormally low body temperature of under 36.5*C is a risk factor for newborn survival. The essential care of LBW includes maintenance of warmth to prevent hypothermia. Hypothermia is considered as a silent killer.[2] Infants born small or prematurely are recognized as needing more intense thermal protection.[3] Apart from intrinsic problems in LBW neonate, the thermal control in them is greatly influenced by knowledge and practice of caregivers specifically mother.[4] Objective- While hypothermia has long been recognized as a potential threat to newborn survival in resource-limited settings, it has not received sufficient attention. So there is a need of assessing the knowledge of mothers of LBW babies on prevention of hypothermia and to provide them the knowledge of cost effective thermal protection measures. A very few studies have been made in our institution SNCU which caters a good number of LBW neonate from south Odisha.

**MATERIALS AND METHODS**

It is a cross-sectional study using pre-tested, pre-structured questionnaire. 54 mothers having LBW babies admitted to SNCU of MKCG Medical College were included in study. Descriptive analytical statistics applied.

**RESULTS**

Out of 54 mothers 57% were from rural area, residing in nuclear family were 59%. Mothers attended hospital for confinement were 95% and 85% started breast feeding their babies. Only 44% had knowledge of keeping the baby warm by immediately wiping the baby. But no mother had knowledge of Kangaroo Mother Care (KMC).

**CONCLUSION**

However, simple strategies such as skin-to-skin care are not consistently practiced by many of mothers. Mothers still need more knowledge to prevent the baby from heat loss.

**KEYWORDS**

Hypothermia, LBW Baby, Knowledge of Mother.

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## BACKGROUND

The transition from intrauterine to extra uterine life is perhaps the greatest challenge. The period from birth to 28 days of life is called neonatal period and the infant in this period is termed as neonate or newborn baby.[1] The neonates are at risk for various health problems. NFHS-4 data reveals the true picture. Under 5 mortality 50 and Infant mortality rate of 41 per 1000 live births. Odisha state figures are 49 and 40 respectively. Neonatal hypothermia, defined by the World Health Organization (WHO) as axillary temperature less than 36.5°C (97.7°F). Low birth weight (LBW) in babies is defined as birth weight less than 2.5 Kg and also includes premature babies.[2] Hypothermia is a common problem in neonates particularly in developing countries where it is an important contributing factor to neonatal mortality and morbidity especially in the immediate neonatal period also considered as silent killer in neonates.[3] According to WHO reports most of the newborn deaths are due to hypothermia that is about 42% and 3.6 million develop moderate to severe hypothermia. The immature thermo-regulatory mechanisms and small body size means that preterm and LBW neonates are more prone to temperature maintenance problems and thermal stress associated with increased morbidity and mortality.[4]

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Hypothermia is a risk for LBW newborn in any climate whether in the tropics or in cool mountainous areas.[5] They lose heat because of little subcutaneous fat; poorly developed autonomic thermoregulatory response, body surface area is more in relation to weight. Hypothermia increases the newborn's metabolic requirements and is associated with hypoglycaemia, hypoxia, and ultimately severe infections and newborn mortality. 20% neonatal deaths are due to hypothermic complications.

The important cause adding to the above physiological risk factors is, ignorance related to newborn care, separation of baby from mother, cold environment, change of temperature, inadequate warming, excessive loss of heat.[6] The various clinical signs of neonatal hypothermia are skin temperature less than 36.5°C, hands, feet, abdomen are cold to touch, weak and lethargy, bluish extremities, slow heart rate and irregular respiration.[7] A baby under cold stress wastes own energy and oxygen in trying to maintain body temperature. The various consequences of neonatal hypothermia are hypoxia, hypoglycaemia, respiratory distress, neonatal jaundice, sudden infant death syndrome and impaired cardiac function. Thermoregulation is one of the challenging aspects of neonatal care.[3,5] The WHO has provided guidelines for thermal care in low-resource settings and the 10-step warm chain described previously highlights specific practices that need to be promoted for both home and facility births.[2,8] Mastering the art of maintaining the neutral thermal environment is one of the most influential and cost effective interventions to be practiced by all. Improving newborn survival is a natural priority in child health today.[9] Apart from intrinsic problems in LBW neonate, the thermal control in them is greatly influenced by knowledge and practice of caregivers specifically mother.[10,11]

Objectives- To assess the level of knowledge of mothers of LBW neonates regarding prevention of hypothermia admitted in SNCU of paediatric ward of M.K.C.G. Medical College Hospital.

## MATERIALS AND METHODS

It is a cross sectional study. A systematic sampling technique was adopted to select 54 mothers for the study. The criteria for selection of sample was mothers of those LBW babies who are admitted in SNCU of paediatric indoor and are available during data collection period. Exclusion criteria- Mother of neonates those who are severely ill at the time of data collection. Study tool- Responses got from the mothers of LBW neonates to the questions stated in the Pre-tested, pre structured questionnaire regarding prevention of hypothermia like early skin to skin contact, early initiation of breastfeeding, covering baby in multiple layer of cloths. Study approved by the institutional ethical committee of Medical College. Written informed consent was obtained from the mothers under study group.

Statistical Analysis- Descriptive analytical statistics planned. A p value of $<0.05$ was considered statistically significant in z- test for single proportions used for analysis of the result.

## RESULTS

Our study on 54 mothers had the following results. Maximum mothers were of age less than 25 years (52%), 44% were aged 25-30 years. In our study, 57% mothers were residing in rural area and 39% in urban area.

Literacy status of mothers as evidenced was 35% illiterates, 31% studied up to primary, 24% were 10$^{th}$ pass. Most of mothers (59%) belong to nuclear family, and rest 41% had joint family. In our present study most of the mothers (69%) were house wives, 22% labour class and 9% were professionals. It was seen that 95% babies delivered at hospital and only 5% home delivered. Of 95% babies 52% were inborn and 43% out born (Table I and II).

It can be observed from Table III that in all age groups, 43% mothers could assess baby's temperature by touching head, 39% on touching extremities had correct knowledge of identifying neonates temperature. Regarding knowledge on prevention of heat loss, 44% of mother had knowledge of drying the baby immediately, 37% agreed to transport the baby immediately; skin to skin contact practiced only by 11% of mother & rest of mothers rely on breast feeding as a mode to prevent heat loss.

About 54% of mother knew refusal to feed as a sign of Hypothermia, 20% could mark their baby lethargy and 15% felt their babies extremities cold. 85% of mothers breastfeed their babies and only in 15% it was not satisfactory for various reasons (Table IV).

Association of concept of bathing the newborn as a cause of hypothermia was observed in 5% of mothers. 43% mothers knew that not wiping the baby or not drying after birth may cause hypothermia. Only 59% mother had knowledge of covering the baby with warm blanket or clothes in multiple layers to prevent heat loss; 31% of mothers rely on continuous breast feed and 9% only knew time to time checking of baby's skin temperature; all mothers were lacking knowledge about KMC (Table 5).

## DISCUSSION

Hypothermia is a common risk factor for LBW neonates survival and directly affecting their outcome. In our present study, 52% of mothers were less than 25 years age and less responsive towards hypothermia. 57% of mothers of rural area were not aware of prevention of hypothermia.[3,9] This signifies the need to improve appropriate health care facilities in rural area. 35% of Illiterate mothers had lack of knowledge of newborn care. 59% of mothers living in nuclear family had insufficient knowledge regarding how to keep the baby warm after birth. Zambian study had also similar results.[10] Housewife mothers (69%) had improper knowledge of baby care.[4] This study found that the mothers still need more knowledge to prevent the baby from heat loss.

Due to increase awareness & facilities by Government, 95% of babies were delivered in hospital which is very encouraging. Out of that 52% were inborn & 43% out borns. There were only 5% home deliveries mainly preterm delivery. These mothers need to improve their knowledge & be prepared before child birth.[3,4,7]

In survival of LBW babies crucial factor is to know body temperature in them at the earliest; Mothers had knowledge of knowing body temperature by touching head of babies (43%) and 39% on touching extremities.[7] Hypothermia is more caused by lack of knowledge than lack of equipment. Only 44% mothers believed in drying the baby immediately to prevent heat loss and 11% of mothers had proper knowledge of skin to skin contact which is the most reliable measure for prevention of heat loss. Similar results found in other studies also.[10] Refusal to feed as a sign of hypothermia was appreciated by 54% of mothers in our study and 20% could mark their baby less active or lethargy. The data showed that majority of postnatal mothers had poor knowledge regarding, signs and symptoms and complications of hypothermia in newborn. Similar studies conducted in UP, Zambia and 7 other countries had also similar results.[4,10]

Almost 85% of mothers had followed practice of exclusive breast feeding for their babies. Wiping the babies is practiced by 43% of mothers to protect from hypothermia & many thought baby bath should not be done or must be postponed.[5] Hypothermia during transfer is also an aggravating factor which should be avoided. 59% of mother had knowledge of covering the baby in layers of cloth & blankets but all mothers were ignorant of KMC to protect the baby from hypothermia during transport.[4,9,10] However, the warm chain as recommended by the WHO as the standard of care of newborn baby was not consistently maintained during the first hours after delivery, when newborns are at greatest risk.[2,11] Community members in the study area were not familiar with skin-to-skin care and did not practice it.[5,12] Various studies conducted globally also showing similar knowledge and practice among mothers.[3,4,10]

## CONCLUSION

Understanding and addressing community-based practices on hypothermia prevention and management might help improve newborn survival in resource-limited settings. Infants born small or prematurely are recognized as needing more intense thermal protection. Possible interventions include the implementation of skin-to-skin care and support families in their provision of newborn thermal protection. Training family members to support mothers to promote breastfeeding. Similar studies can be conducted in a large sample for drawing better conclusions and generalization of findings. Emphasis must be given to limitation of handling of the LBW babies. Health education must be given to mother and care provider. Consideration should be given to practice of skin-to-skin contact by the mother. Kangaroo mother care is suitable for LBW babies with no medical problem. Mother and baby should be kept together in a warm room. Hypothermia is caused more by lack of knowledge than lack of equipment.

| Sl. No. | Mother's Age | Number of Mothers | Percentage | p value |
|---|---|---|---|---|
| 1. | <25 years | 28 | 52 | <0.001 |
| 2. | 25-30 years | 24 | 44 | <0.001 |
| 3. | 31-35 years | 2 | 4 | 0.141 |
| | **Place of Residence** | | | |
| 1. | Urban | 21 | 39 | <0.001 |
| 2. | Rural | 31 | 57 | <0.001 |
| 3. | Slum | 2 | 4 | 0.141 |
| | **Educational Level of the Mother** | | | |
| 1. | Illiterate | 19 | 35 | <0.001 |
| 2. | Primary | 17 | 31 | <0.001 |
| 3. | 10th pass & above | 13 | 24 | <0.001 |
| 4. | Graduate | 5 | 9 | 0.806 |

***Table 1. Frequency and Percentage Distribution of Cases on Various Parameters (N=54)***

| Sl. No | Profession of Mothers | Number of Mothers | Percentage | p value |
|---|---|---|---|---|
| 1. | House Wife | 37 | 69 | <0.001 |
| 2. | Professional | 5 | 9 | 0.806 |
| 3. | Labourers | 12 | 22 | 0.003 |
| | **Place of Delivery** | | | |
| 1. | Outborn | 23 | 43 | <0.001 |
| 2. | Inborn | 28 | 52 | <0.001 |
| 3. | Home delivery | 3 | 5 | 0.327 |
| | **Type of family** | | | |
| 1. | Nuclear | 32 | 59 | <0.001 |
| 2. | Joint | 22 | 41 | <0.001 |

***Table 2. Frequency and Percentage Distribution of Cases According to Other Parameters (N=54 )***

| Sl. No. | Body Part to Touch | Number of Mothers | Percentage | p value |
|---|---|---|---|---|
| 1. | Head | 23 | 43 | <0.001 |
| 2. | Chest & Abdomen | 6 | 11 | 0.806 |
| 3. | Extremities | 21 | 39 | <0.001 |
| 4. | Whole body | 4 | 7 | 0.462 |

| | | | | |
|---|---|---|---|---|
| | **Measures Taken** | | | |
| 1. | Immediate drying | 24 | 44 | <0.001 |
| 2. | Skin to skin contact | 6 | 11 | 0.806 |
| 3. | Open transport | 20 | 37 | <0.001 |
| 4. | Breast Feeding | 4 | 7 | 0.462 |

***Table 3. Frequency and Percentage Distribution of Cases According to Knowledge of Mother on Assessment on Prevention of Hypothermia (N=54)***

| Sl. No. | Breast feeding practices | Number of Mothers | Percentage | p value |
|---|---|---|---|---|
| 1. | Yes | 46 | 85 | <0.001 |
| 2. | No | 8 | 15 | 0.22 |
| | **Danger sign of Hypothermia** | | | |
| 1. | Lethargy | 11 | 20 | 0.014 |
| 2. | Refusal of feeding | 29 | 54 | <0.001 |
| 3. | Extremities feel cold | 8 | 15 | 0.22 |
| 4. | Vomiting | 6 | 11 | 0.806 |

***Table 4. Frequency and Percentage Distribution of Cases According to Breast Feeding Practice & Causes (N=54)***

| Sl. No. | Causes | Number of Mothers | Percentage | p value |
|---|---|---|---|---|
| 1. | Wiping the baby | 18 | 33 | <0.001 |
| 2. | Not wiping the baby | 23 | 43 | <0.001 |
| 3. | Weighing the baby | 5 | 9 | 0.806 |
| 4. | Giving bath to baby | 8 | 15 | 0.22 |
| | **Method of Transportation to Hospital** | | | |
| 1. | Monitor the baby temperature | 5 | 9 | 0.806 |
| 2. | Dress the baby with warm blanket | 32 | 59 | <0.001 |
| 3. | Kangaroo mother care | 0 | 0 | 0.014 |
| 4. | Immediate breast feeding | 17 | 31 | <0.001 |

***Table 5. Frequency and Percentage Distribution of Cases According to Mothers' Knowledge on Causes of Hypothermia etc. (N=54)***

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