

Observation on hypothermia among infants less than 2 months in urban slums of Indore City

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Abstract

Aim: To study Hypothermia in infants of less than 2 months of age in urban slums of Indore city. **Methods:** Retrospective, cross-sectional observational study of 411 infants of below 2 months of age. **Period of study:** 1 year (August 2015 to August 2016) **Results:** Infants below 2 months of age when studied in home deliveries; conducted by Trained Birth Attendant's- 19% were having 'hypothermia by maternal perception' Immediately after birth only 47% were covered fully, 52% were only partially covered, while 1% were not at all covered. Immediately post delivery only 24% were kept in skin-to-skin contact with mother. First bath immediately post birth was given in 57% infants. **Conclusion:** In urban slums of Indore city, in home deliveries 19% of newborns were suffering from hypothermia even when deliveries were attended by Trained Birth Attendant. This can be attributed to faulty newborn care practices.

Keywords: Hypothermia, Neonatal care, Newborn, Urban slums

Introduction

Many practices in midwifery care are prevalent without ever having been properly assessed. Perinatal routine care in urban slums seems to be in particular need of assessment. Birth asphyxia and hypothermia are common antecedents of excessive morbidity and mortality in the neonatal period. The prevention of neonatal hypothermia in uncompromised newborns is dependent on the degree of adherence to simple routines after birth. These routines are- wiping and wrapping the baby, keeping the delivery room warm and giving opportunities for early breast feeding. The newborn responds differently to hypothermia-by 'non shivering thermogenesis'- a metabolic process whereby oxygen consumption is raised independently of muscle activity; occasionally transient shivering can be observed [1] but mostly newborn responds to cold stress by changing its position in an attempt to decrease its body surface.

First bath and hypothermia: Bathing the newborn is a common routine mostly to remove the 'dirty skin'- the 'vernix caseosa'. Vernix is actually a product of fetal skin representing physiological and sterile coverage of parts of the fetal body beyond 34 to 36 wks of normal pregnancy. It has no infected material and on the contrary it has got antibacterial properties that may contribute to the protection of the newborn from bacterial infections.

Methods

This study was conducted over a period of 1 year at the Aanganwadi centres of various urban slums of Indore city at M.P. state. For these purpose 411 subjects of age 0-2 months were randomly selected.

Inclusion criteria: All term Neonates and infants up to age 2 months who are permanent residents of urban slums of Indore city

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Exclusion criteria: More than 2 months old preterm or sick newborns who needed admission in NICU within 7 days after birth or who were delivered in institutes and children of guests or relatives from other places were excluded from the study. Mothers were explained about the aims, objectives and type of study. They were asked if they understand the term ‘hypothermia by maternal perception’. Only those mothers were included who had home delivery conducted by Trained Birth Attendant. Mothers who had recollection of perceiving body temperature of infants less than 2 months old, were included.

Pre-conceived and printed questionnaire was used as proforma and filled by both the investigators themselves; based on mothers interview.

Data was collected, tabulated and analysed statistically. As this is a one-time single observation study,

Confidence Interval (CI) was chosen as the best tool to gather reliable data; narrower the range, more the confidence in the data. The calculation of 95% CI was done by method described by J.E.Park [2]

95% Confidence Interval (CI): it is the range of 95% confidence in any data To calculate CI, SEP (Standard Error of Proportion) is calculated as follows: $SEP = \sqrt{(pq/n)}$

Where,

P= proportion of parameter for which 95% CI is to be calculated

Q= proportion of the rest of the parameters

N= sample size

$95\% \text{ CI} = SEP \times 1.96 \pm p$

i.e. $(SEP \times 1.96 \text{ CI}) + p$ to $(SEP \times 1.96 \text{ CI}) - p$

For every parameter 95% CI is calculated.

Results

In home delivery 19% newborns were hypothermic by maternal perception (95% CI-0.15-0.22). Only 47% newborns were fully covered with cloth (95% CI-0.43-0.51) and only 24% were kept in skin contact with mother (95%CI-0.19-0.28), most of the babies (57%) were given bath immediately (95%CI-0.52-0.61).

Table-1: Distribution according to Hypothermia by maternal perception (Home delivery)

Hypothermia	No.	%	95% CI
Yes	78	19	(CI-0.15-0.22)
No	333	81	(CI-0.77-0.84)
Total	411	100	

Hypothermia was present in 19% of subjects (95%CI-0.15-0.22)

Table-2: Distribution according to way of covering the baby

Baby covered as	No.	%	95% CI
Head covered	8	2	(CI-0.006-0.03)
Head +body covered	193	47	(CI-0.42-0.51)
Only body covered	206	50	(CI-0.45-0.54)
not covered	4	1	(CI-0.0004-0.02)
Total	411	100	

Only 47% were covered fully (95%CI-0.43-0.51)

Table-3: Distribution according to status of Baby-Mother skin-to-skin contact

Whether kept in skin-to-skin contact with mother	No	%	95% CI
YES	99	24	(CI-0.91-0.28)
NO	312	76	(CI-0.71-0.80)
TOTAL	411	100	

Only 24% were kept in contact with mother (95% CI-0.19-0.28)

Table-4: Distribution according to time since birth for first bath

First bath after how many hrs since birth	No.	%	95% CI
Immediately	234	57	(CI-0.52-0.61)
B/w 12-24 hrs	116	28	(CI-0.23-0.32)
B/w 24-48 hrs	35	9	(CI-0.06-0.11)
B/w 48-72 hrs	26	6	(CI-0.03-0.08)
Total	411	100	

Majority of the newborns (57%) were immediately bathed (95% CI-0.51-0.61)

Discussion

In our study overall incidence of Hypothermia was found to be 19% by maternal perception. Hands and body both were covered in only 47% newborns while 50% were kept with only body covered, 2% only head covered and 1% were not covered at all. Only 24% were kept in skin – to-skin contact with mother, 57% were bathed immediately, 28% between 12-24hrs, 9% within 24-48 hrs and 6% were given bath within 48-72hrs.

A similar study in Zambia [3] found that 30.64% neonates were completely wrapped, which is similar to our study, 20.96% were incompletely wrapped; which is less than our study and 8% were not wrapped at all; which is more than our study. A similar study on uncomplicated newborn infants in Nepal [4] found that hypothermia was present in 2.9% of hospital deliveries; which is less than our study.

A similar study in Shimla [5] found that hypothermia was present in 81% of newborns on first day after birth, which is more than our study. In a community based study in Ambala city [6] incidence of hypothermia was 11.1% which is less than our study. A cross-sectional community based study of care of newborns in Nepal [7]; found that in home deliveries only 4% newborns were wrapped, which is less than our study.

In Uganda: A randomized, controlled trial [8] found that 83% neonates were hypothermic after 1 hour, which is more than our study.

A study was conducted by UHRC[9] with 15025 mothers across 45 slums in Meerut city of UP found

that the incidence of hypothermia was 12%, which is similar to our study, 26.5% were kept in contact with mother and 18.8% were wrapped completely; these findings are less than our study. 71.5% were wrapped partially, which is more than our study. 32% were bathed immediately, which is less than our study.

A similar study conducted in urban slums of Lucknow city, UP [10] found that 79.7% newborns were bathed immediately, which is more than our study. A study among slum dwellers in Rachna Town, Lahore [11] found that 37.2% newborns were bathed immediately, which is less than our study; 18.8% were wrapped completely, which is less than our study and only 26.5% were kept in contact with mother, which is similar to our study.

A systemic review on similar topic [12] found out that in home deliveries; range of prevalence of hypothermia was from 11 to 92.3%. 92.3% in Sarlahi, Nepal, 82% in Kathmandu, 43% in Uttar Pradesh and 25% in Delhi, which are more than our study and 11% in Haryana, 17% in Gadchiroli; which is less than our study.

Conclusion

The incidence of Hypothermia varies in different regions and seasons. The incidence of hypothermia reported in this study should be taken as minimum as lower environmental temperatures in the night might have increased the incidence during night hours.

Since the relation between neonatal temperature and mortality is shown to be linear; appropriate practices

like-warm delivery room, immediate drying and skin to skin contact with mother for first hours after birth and delaying first bath must be followed. While promoting the programme for prevention of neonatal hypothermia, caution should be taken to modify the guidelines according to the specific environmental situation.

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Permission from IRB: Yes

What is already known?: Hypothermia is a common cause of excessive morbidity and mortality in neonatal period.

What this study adds?: In urban slums of Indore city incidence of hypothermia is high in home deliveries even while they are being conducted by Trained Birth Attendants. Hypothermia can fully be attributed to faulty newborn care practices.

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