Newborn Care Practices at Home among Mothers of Neonates Admitted with Sepsis

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ABSTRACT

Background: Child rearing practices and family environment determine the health of newborn. Harmful newborn care practices are the risk factors for late onset neonatal sepsis. The objective was to identify newborn practices related to breast feeding, cord care, hygiene of newborn and thermal care practice at home of admitted neonates with diagnosis Late Onset Neonatal Sepsis in pediatric unit of B.P. Koirala Institute of Health Sciences tertiary center in eastern Nepal.

Methods: Descriptive cross sectional study was carried out from December 2014 to January 2015 using consecutive sampling. Semi structured, pretested questionnaire was used to interview 40 mothers. Data were analyzed using SPSS 20, descriptive and inferential statistics were used.

Results: Initiation of breastfeeding within one hour of delivery was practiced by only 40% of mother. Among neonates, 65% were given colostrum, 25% were given pre lacteal feed, and 45% were given formula milk and animal milk. Mustard oil was used to care umbilical cord by 72.5%. Hand washing was practiced by 62.5 % before touching the baby. Application of kajal (52.5%) in eyes and use of mustard oil (95%) for massaging newborn was common. For thermal care, burning charcoal (75%) was mostly used. The study revealed association between newborn care and mother education, per capita income of family and family type (p =0.012, p= 0.012, p=0.039) respectively.

Conclusions: Majority of practices in breast feeding and thermal care were good however in cord care and newborn hygiene practices was poor which stresses the need for the promotion of health education program to mothers by health care facilities.

Keywords: LONS; newborn care; practice

INTRODUCTION

Neonatal infection is the systemic infections accompanied with bacteremia in the first month of life.¹ It is the second most cause for neonatal death worldwide.¹ Deaths during this period accounts for almost 2/3 of all deaths in the first year of life and 40% of deaths before the age of five.² Globally, one million newborn (36%) died on the day they were born, and another one million (37%) died within next six days of birth.¹ Nepal has a Neonatal Mortality Rate of 21 per 1,000 live birth³ and neonatal infection accounts 30% of death.⁴

Traditional harmful newborn care practices is the leading reason for Late Onset Neonatal Sepsis (LONS) contributing to neonatal morbidity and mortality.¹ Prime cause of neonatal admission in pediatric ward of B.P.Koirala Institute of Health Sciences (BPKIHS) is LONS.

We did this study with the objective to identify care practices of admitted neonates at home and to find out the relationship between the socio-demographic characteristics with care practiced.

METHODS

A descriptive cross sectional study was conducted in pediatric unit of BPKIHS from December 2014 to January 2015. This institution is a tertiary level referral center hospital in eastern Nepal. Newborn care parameters were taken as dependent variable whereas socio demographic profile of family was taken as independent variable. Mothers of neonate admitted with LONS were included whereas mothers of preterm and post term were excluded from the study. Consecutive sampling technique was used and total sample size was 40, calculated on the
basis of monthly approximation of admitted cases of Late Onset Neonatal Sepsis (LONS).

Self-developed semi-structured interview schedule was used which consisted questions regarding demographic information and newborn care based on the selected component. Breast feeding, cord care, thermal care and hygiene of the newborn were the components chosen from the World Health Organization (WHO) guidelines for essential new born care. As, there was no standard cut off value to differentiate between good and bad practice of the participant, neonatal care was assessed by calculating mean percentage score. For this, questions regarding newborn care practice were taken. On the basis of experts and literature review correct practice was given 1 and wrong was given as 0. The score of the entire respondent was converted into mean percentage score ±1.96 Standard Deviation (SD) at 95% Confidence Interval (CI) and lower boundary of mean percentage score was taken as cut off value. Value between minimum score and lower boundary was considered as poor practice and value between lower boundary and maximum score was considered as good practice. Tool validation was done by consulting with experts. Pretesting of the tool was done to 10% of the total research participant.

The collected data were stored analyzed with Statistical Package for Social Sciences (SPSS) version 20, IBM, USA. Descriptive statistics was used to describe the demographic characteristics of participants. Inferential statistics Chi-square test was used to find out the association between the demographic variables and newborn care practices. The probability (p-value) of <0.05 was considered statistically significant at 95% confidence level. Ethical clearance was taken by Institutional Review Committee of BPKIHS. Written consent was obtained from the study participant.

RESULTS

There were total 40 mothers of admitted with LONS in this study. The 72.5% (29) of admitted newborn were male and 27.5% (11) were female and 70% (28) of the admitted child were of age between 7-28 days with median value (Inter Quartile Range) 12 (7-22). Majority (75%, 30) of the mother’s marital age as well as first pregnancy (60%, 24) was below 20 years. Institutional delivery was most common (80%, 32). In modes of delivery majority (92.5%, 37) of the delivery was normal vaginal delivery and 7.5% was cesarean section. In religion Buddhist, Kirat and Muslim were kept as others, also in ethnicity dalit, disadvantaged non dalitirai caste, religious minorities and relatively advantaged janajati were kept as others. The religion and ethnicity was classified as per Nepal Demographic and Health Survey. Per day earning of 1.25$ was taken as the cut off point for calculating per capita income above or below the poverty line. Socio demo graphic data is given in Table 1.

| Characteristic  | Category | Frequency | Percent |
|-----------------|----------|-----------|---------|
| Age of mother (years) | <20 | 9 | 22.5 |
| | 20-30 | 28 | 70 |
| | ≥30 | 3 | 7.5 |
| Religion | Hindu | 29 | 72.5 |
| | Others | 11 | 27.5 |
| Ethnicity | Disadvantaged Janajatis | 16 | 40 |
| | Upper caste groups | 11 | 27.5 |
| | Others | 13 | 32.5 |
| Education of mother | Literate | 26 | 65 |
| | Illiterate | 14 | 35 |
| Occupation of mother | House wife | 32 | 80 |
| | Others | 8 | 20 |
| Income (per Capita) | Below Poverty Line (BPL) | 17 | 42.5 |
| | Above Poverty Line (APL) | 23 | 57.5 |
| Family type | Nuclear | 9 | 22.5 |
| | Joint | 31 | 77.5 |
| Family size | <6 | 26 | 65 |
| | ≥6 | 14 | 35 |
| No of children | <2 | 34 | 85 |
| | ≥2 | 6 | 15 |

Breast Feeding Practices (Table 2), Cord Care Practices (Table 3), Thermal Care of Practices (Table 3), Newborn Hygiene Practices (Table 4).
Newborn Care Practices at Home among Mothers of Neonates Admitted with Sepsis

If yes, what was given?

| Milk other than breast milk of mother | Frequency | Percent |
|--------------------------------------|-----------|---------|
| Yes                                  | 18        | 45      |
| No                                   | 22        | 55      |

If yes, what was given?

| If yes, what was given? | Frequency | Percent |
|-------------------------|-----------|---------|
| Cow’s milk              | 5         | 28      |
| Lactogen ®              | 11        | 61      |
| Others (Dairy milk, buffalo milk) | 2 | 11 |

Types of feeding

| Types of feeding | Frequency | Percent |
|------------------|-----------|---------|
| Breast feeding   | 30        | 75      |
| Bottle and spoon feeding | 10 | 25 |

Frequency of feed at day time

| Frequency of feed at day time | Frequency | Percent |
|--------------------------------|-----------|---------|
| ≤ 8 times                      | 12        | 30      |
| Whenever cries                | 28        | 70      |

Duration per feed

| Duration per feed | Frequency | Percent |
|-------------------|-----------|---------|
| 10-15mins         | 22        | 55      |
| Until baby sleeps | 18        | 45      |

Night feed

| Night feed | Frequency | Percent |
|------------|-----------|---------|
| Yes        | 36        | 90      |
| No         | 4         | 10      |

Frequency of feed at night time

| Frequency of feed at night time | Frequency | Percent |
|---------------------------------|-----------|---------|
| ≤2                               | 4         | 10      |
| Whenever cries                  | 32        | 90      |

Burping

| Burping | Frequency | Percent |
|---------|-----------|---------|
| Yes     | 10        | 25      |
| No      | 30        | 75      |

The mean percentage score for breast feeding practice was 63.57±21.44. Minimum score was 29 and maximum was 56. Thus, the score (29-42) was considered poor and score (42-56) was considered good.

In newborn hygiene, mean percentage score was 72.05±17.39, Minimum score was 36 and maximum was 66, score (36-55) was considered poor and score (55-66) was considered good.

In thermal care, mean score was 61±16.91, 20 was minimum score 20 and 55 was maximum. The score (20-44) was considered poor and score (44-55) was considered good.

As the data of cord care was non parametric median score was taken. The median score was 25 with inter quartiles

| Table 3. Cord Care and Thermal Care Practiced by Respondent (n=40). |
|---------------------------------------------------------------|
| Care Components | Care Characteristics | Category | Frequency | Percent |
| Cord care        | Cord care at home    | Yes       | 25        | 62.5    |
|                  | Anything applied to the cord | Yes | 29 | 72.5 |
|                  |                         | No        | 11        | 27.5    |
|                  | If yes, what was applied? | Mustard oil | 18 | 62 |
|                  |                         | Powder    | 7         | 24       |
|                  |                         | Ointment  | 4         | 14       |
|                  | Anything applied to cord stump | Yes | 15 | 40 |
|                  |                         | No        | 25        | 60       |
|                  | If yes, what was applied? | Mustard oil | 12 | 81 |
|                  | Use of delivery kit in home delivery (Home delivery-8) | Yes | 2 | 25 |
|                  | If no, what was used? | New blade | 6 | 100 |
|                  | Burning charcoal to keep baby warm | Yes | 29 | 75 |
|                  |                         | No        | 11        | 25       |
|                  | Placing baby under sunlight | Yes | 32 | 80 |
|                  |                         | No        | 8         | 20       |
|                  | Using warm cloth for baby | Yes | 40 | 100 |
|                  | Placing baby mother side | Yes | 5 | 12.5 |
|                  |                         | No        | 35        | 87.5     |
|                  | Heater used            | Yes | 2 | 5 |
|                  |                         | No        | 38        | 95       |
range of 25-75. Minimum score of the respondent was 0 and maximum score was 75. Q1 was taken as cut off value so the score (0-25) was considered as poor and (25-75) as good practice.

Table 5 shows that the association of socio demographic variable with newborn care practices at 5% significant (p<0.05).

| Characteristics | Variable | Frequency | Percent |
|-----------------|----------|-----------|---------|
| Wash hand before touching baby | Yes | 25 | 62.5 |
|                  | No | 15 | 37.5 |
| First Baby bath | Within 24 hrs | 5 | 12.5 |
|                  | After 24 hrs | 35 | 87.5 |
| Eye clean | Yes | 15 | 37.5 |
|                  | No | 25 | 62.5 |
| If yes, what was used for cleaning? | Luke warm water | 8 | 53.3 |
|                  | Oil | 7 | 46.7 |
| Kajal applied | Yes | 21 | 52.5 |
|                  | No | 19 | 47.5 |
| Massage newborn | Yes | 38 | 95 |
|                  | No | 2 | 5 |
| If yes, what was used for massaging? | Mustard oil | 38 | 100 |
| Nose clean | Yes | 19 | 60 |
|                  | No | 21 | 40 |
|                  | Oil | 7 | 37 |
|                  | Luke warm water | 9 | 47 |
|                  | Others (ear bud, cotton) | 3 | 16 |
| Ear clean | Yes | 15 | 37.5 |
|                  | No | 25 | 62.5 |
|                  | Oil | 8 | 53 |
|                  | Luke warm water | 4 | 27 |
| If yes, what was used for cleaning? | Cotton ear bud | 3 | 20 |
Newborn Care Practices at Home among Mothers of Neonates Admitted with Sepsis

| Parity of mother** | Primi | Multi |
|--------------------|-------|-------|
|                    | 11 (44%) | 8 (53.3%) |
|                    | 14 (56%) | 7 (46.7%) |
| *Continuity correction, **Pearson Chi-square test |

**DISCUSSION**

Reduction in the mortality and morbidity of the neonate is the major challenge for Nepal government. For this, it has developed the National Neonatal Health Strategy 2004 with support from the Saving Newborn lives Initiatives, Save the Children Federation. But for the implementation of an effective program necessitates an understanding of community and household traditional newborn care practices to enable the development of a program that promotes culturally sensitive and acceptable change in practice.

Initiation of breast feeding within one hour of delivery was practiced for only 40% of the neonates remaining were fed after this time. This finding of the study is supported by the study conducted by Sriramareddy et al., but is contradicted to the study done by Tura et al. and Mullary et al. Colostrum feeding was practiced by more than half of the mother. This finding is similar to the study done in Pakistan. However, the result was different to the study done at Uttar Pradesh, India and urban Nepal where the mother had discarded the colostrum. Prelacteal feed was not given to majority of newborn. This finding is similar to the previous study done in rural and urban areas of Nepal. Honey was the commonest type of prelacteal fed used which was given by putting it on a fingertip, which is similar to the result of study done in Pakistan. Exclusive breast feeding was done only for 45% of the neonates, whereas remaining were fed with complementary feeding, formula milk (Lactogen ®) was mostly used this finding contradict the finding of study done at urban women of Nepal where breast feeding was only traditional newborn care practice which seems to be healthy and encouraging.

The finding of this study suggested, in home delivery new unused blade was to cut cord rather than delivery kit, the finding supported by the previous study. New thread was used in all home deliveries, this practice was different form the study by Kaphe et al. Previous study has recommended for dry cord care to reduce cord infections and overall neonatal mortality rate. Unfortunately, luke warm water was mostly used for cleaning the umbilical cord and stump in present study. In spite of efficacy and free supply of Chlorhexidine to umbilical cord, unsterile substance like oil, talcum powder, ointment was applied to the cord and cord stump out of which, mustard oil was most commonly used. This is similar to the reports form study from Nepal and Pakistan. Our study also revealed an interesting finding of oil and talcum powder being even used in institutional deliveries this can be due to cultural beliefs in relation to neonatal care practice.

Hand washing was practiced by 62.5% (25) mother before touching their baby, however only 13.3% of caretaker had practiced this in study done in southern Nepal. Nationally only 9.3% of the babies were bathed after 24 hours of birth 2006 and 26.1% in 2011. However, current study shows 87.5% of newborn taking bath after 24 hours of life. We found that half of the mother had practiced of cleaning eye with luke warm water and remaining had done by instilling drops of mustard oil in eye while massaging the newborn. This finding is different to study in Pakistan, where mothers were not aware of eye care practices in case of institutional deliveries where as in home deliveries in most of the cases eyes were simply cleaned with wet cotton swab. Application of kajal was common in this study which is similar to study done in Pakistan. A study from India reported that the prevalence of kajal application to the newborns’ eyes was much higher in slums as compared to urban areas. Kajal is applied to the baby’s eyes as it is believed to make the eyes beautiful, improve vision and ward off evil.

Massaging newborn with mustard oil is universal (95%) in the study, the finding is similar to the study in southern Nepal. Promotion of strength, maintenance of health and provision of warmth were the common reason for oil application. Full body massage with oil may, however, be harmful to the new born, depending on the oil used and how it is applied. Mustard oil had the most deleterious effects on epidermal barrier leading to neonatal septicemia whereas sunflower seed oil enhance barrier function in neonates. Massage therapies is considered safe practice and there are no significant harmful effects, if performed appropriately as suggested by study done by Kulkurni et al.

Cleaning neonate nose and ear was also common. Mostly luke warm water was used to clean neonate’s nose whereas oil was used for cleaning ear as well as nose. The result is similar to the study done in Nepal where in focus group discussion women said that application of oil in the eyes will help the baby to make tears, in nose keeps from drying out, making breathing easier also Muslim community suggested that putting some small drops of oil in the nose prevent cough and ears gets the dirt out. The entire respondent had practiced...
of cleaning genitilia with plain water after defecation as recommended in other study.23 The study had shown, no evidence of use of ointment after cleaning the nappy area however use of ointment free form preservative, antiseptic, fragrance or coloring has found to be effective for preventing nappy rash.24 All mother had sun dried the used cloths and napkins of newborn but regarding washing, napkins were washed with soap water only after defecation but not after urination, this can act as source for multiplication of microorganism.

Maximum mother(80%)had practiced of placing newborn under sunlight during day time which can increase risk for skin cancer in future.24 Burning charcoal to keep the neonates warm was most commonly practiced which has increases the risk for pneumonia.25 However good practice of using cap, socks to keep their baby warm was also practice, this result is supported by the study done by Samba D et al at Tanzania where the baby was wrapped with cloths and head was covered with cap with the belief to protect child from hurting through witchcraft. 26

Education of the mother, family income, family type and ethnicity is directly associated with these newborn care practices this finding is supported by the study in Pakistan where mother education and family income was significantly associated with newborn care component.13

This study revealed that mother had practiced poor newborn care practices like delayed breast feeding (after one hour of life), formula feeding, applying mustard oil to cord and cord stump, applying oil in the eye, nose and ears of newborn, burning charcoal to keep newborn warm and using un washed napkins after urination which is supported by the literature reviewed.

The study is subjected to some limitations, including the subjective bias as the study is based on reporting of past newborn care practice rather than in actual observations and small sample size. The current study is helpful to identify harmful newborn care practices at home.

CONCLUSIONS

Majority of good practices in breast feeding and thermal care practices however in cord care and newborn hygiene poor practices were followed by the mother. Education of the mother, family income, family type and ethnicity were the important factors associated with poor newborn care practices.

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