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# Assessment of Immediate Care of Newborn at the Time of Birth and Neonatal Outcomes

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**Abstract:** ***The first hour after birth has a major influence in the survival future health and wellbeing of newly born infant. All newborns need closed observation and care immediate after delivery to minimize the risk of illness and maximize their growth and development. The aim of this study was to assess immediate care of newborn at the time of birth and neonatal outcomes. Non experimental descriptive research design was used at delivery room and postnatal ward of civil Hospital at Ambala, Haryana. Indelivery room, newborns were chosen by non-probability-total enumeration sampling technique. Data was collected through observational checklist for Immediate care of newborn, record sheet for physiological parameters and observational checklist for breastfeeding pattern, data was entered and analyzed by using SPSS, Descriptive and inferential statistics, correlation and graphs were used to illustrate the results. The findings of study revealed that, The highest mean percentage score was found in areas-Administration of vitamin k ( 86.67%) followed by cord care (83.33%) and immediately dry the newborn (72.92%) and the highest care deficit areas are assess the newborn's breathing, eye care, skin-to-skin contact and identity label. Half of the newborns had mild hypothermia and the mean score of breastfeeding pattern of newborn was (8.17). This observational assessment concluded that immediate cares of newborn which was received by newborns are below WHO guidelines. Immediate care of newborn and neonatal outcomes will require a multifaceted approach for their better survival.***

**Keywords:** Immediate care, newborn, neonatal outcomes

## 1. Introduction

### 1.1 Background of study

The birth of a baby is one of the most awe inspiring and emotional events that can occur in one"s life time.[1]The morbidly and mortality rates in newborn infants are high. They need optimal care for improved survival. Neonatal care is highly cost effective because saving the life of a newborn baby is associated with survival and productivity of the future adult. They constitute the foundation of life. So essential newborn care is emphasized to reduce the neonatal illness and deaths by preventing neonatal problems.[2]

Of the 6.6 million under-five child deaths that occur globally every year, about 44 percent occur in the neonatal period (the first 28 days of life) [3]. India contributes to one-fifth of global live births and more than a quarter of neonatal deaths. About 0.76 million neonates die every year in India, the highest for any country in the world.[4] A pooled analysis of the data from different studies on the timing of neonatal deaths indicates that about three-fourths of all neonatal deaths occur in the first week of life. The first 24 hours account for more than one-third (36.9 percent) of the deaths that occur in the entire neonatal period.[5]

Datta et al. studied the feasibility of implementing a specific intervention package likely to reduce morbidity and mortality among LBW babies during the first year of life in two community development blocks of Haryana. The study included 970 newborns in 16 control villages and 1,061 newborns in 19 intervention villages. The package of services included TT immunization of pregnant women, delivery of infants using a clean delivery kit, and promotion of breastfeeding. For the first time in a community setting in India, oral penicillin was administered by primary health care workers for five days, for treatment of moderate to severe respiratory infections. The intervention resulted in a 42 percent reduction in IMR in LBW infants, with an even greater reduction in the 11 post-neonatal mortality rate (60 percent) than in the NMR (30 percent). Treatment of Acute Respiratory Infection (ARIs) in LBW infants with penicillin resulted in a significant decline in the Case Fatality Rate (CFR) (8.7 per 100 episodes in intervention areas versus 24.6 per 100 episodes in control areas).[6]

Sobel HL et al, (2011) founded that Drying, weighing, eye care and vitamin K injections were performed in more than 90% of newborns. Only 9.6% were allowed skin-to-skin contact. Interventions were inappropriately sequenced, e.g. Immediate cord clamping (median 12 sec), delayed drying (96.5%) and early bathing (90.0%). While 68.2% were put to the breast, they were separated two minutes later. Unnecessary suctioning was performed in 94.9%. Doctors trained in neonatal resuscitation were 2.5 (1.1-5.7) times more likely to unnecessarily suction vigorous newborns. 2% died and 5.7% developed sepsis / pneumonia the researcher found this minute-by-minute observational assessment revealed that performance and timing of immediate newborn care interventions below WHO standards and deprive newborns of basic protections against infection and death.[7]

## 2. Need of the study

Immediate proper care of newborn is vitally important for survival, growth and development of a newborn. Despite

several studies conducted about maternal and child health care practices, little is known about factors that determine behaviors" related to immediate care of newborn. Most people are unaware of importance of immediate care of newborn and many unsafe behavior do exist such as common use of untrained attendants, unsafe cord care, immediate bathing of baby.[8]

Evidence suggests that a significant proportion of neonatal morbidity and mortality in developing countries could be prevented through inexpensive, simple practices and interventions during pregnancy, delivery and postnatal period. These include tetanus toxoid immunization to mothers, proper nutrition including iron, folate and iodine supplements, clean and skilled care at delivery, newborn resuscitation, prevention of hypothermia, early and exclusive breast feeding, clean umbilical cord care and management of pneumonia and sepsis.[9]

Most of these babies die from preventable or treatable causes, and it is estimated that up to two-thirds could be saved if essential care reached all mothers and newborns. Maternal and newborn survival is interconnected and the most dangerous time in a child's life is during birth, as the majority of newborns die due to stressful events surrounding delivery. Newborn babies account for more than 40% of deaths amongst children under age five.[10]

Immediate newborn care is a step by step procedure in caring for a newborn to ensure comfort and security while providing their needs. Basically focuses on certain procedures done on a newborn upon delivery from the mother. Such procedures include clearing of their airways upon delivery, providing warmth and attachment tomother, cord care, APGAR scoring, temperature taking, anthropometric measurements, eye prophylaxis, Vitamin K administration, immunization, bathing, initial feeding and proper documentation. [11]

This study was conducted to collect data regarding where were the health care provider lacking behind in order to provide appropriate immediate care to the newborn which affects the neonatal outcome. So, that the data of this study will help us to about what all the areas of immediate care of newborn were lack behind and future researches can be done which involves the various measures that can be taken in order to fill those gaps, which will automatically help in reducing the neonatal mortality rate.

## 3. Objective

To assess the immediate care of newborn at the timeof birth and neonatal outcomes.

## 4. Methodology

The Quantitative research approach and Non-experimental descriptive research design was used at delivery room and postnatal ward of civil Hospital at Ambala, Haryana. In delivery room, 60 newborns were chosen by non-probability-total enumeration sampling technique.

Data was collected from January to February 2015 through observational checklist for Immediate care of newborn consists of 12 areas of immediate care of newborn, as follows: Receiving the newborn, Immediately dry the newborn, assess the newborn's breathing, Eye care, cord care, skin-to-skin contact, cover the baby with warm cloth, identity label, initiation of breastfeeding, Give vitamin K administration, Monitoring the newborn, weighing the newborn. Which includes total 63 items. Record sheet for physiological parameters one of the neonatal outcome, refers to Temperature as measured through digital thermometer and categorized as hyperthermia (>99.50F), normal (97.7-99.50F), mild hypothermia (96.8-97.60F), moderate hypothermia (89.6- 96.70F), and severe hypothermia (< 89.60F). Heart rate as counted by listening through stethoscope for one minute, and categorized as Tachycardia (> 160 bpm), normal (120-160 bpm) and Brady cardia (<120 bpm). Respiratory rate as counted by observing the number of chest rise and fall in one minute), and categorized as Tachypnea (>60 bpm), normal (40-60 bpm) and bradypnea (<40 bpm). and observational checklist for breastfeeding pattern which was also a neonatal outcome in this study comprised of 15 items of newborn attachment, sucking and swallowing over the breast of mother. The data was entered and analyzed by using SPSS, Descriptive and inferential statistics.

## 5. Results

### 5.1 Description of selected variables of mothers and newborns:

Findings revealed that majority (65%) of mothers was in age group of 20-25 years and 33.3% of them are educated upto secondary level. Majority of mothers (63.3%) had family income from Rs > 5000-10,000. Maximum number of them (56.7%) was multipara.55% of mothers had Hemoglobin level from >8-9 gm/dl and none of them had any history of disease condition during pregnancy.

Data revealed that majority of newborns (53.3%) weregirls and maximum of them (56.7%) were of gestational age 37-38 wks. Majority of newborns (48.3) had weight from 2.6-3 kg at the time of birth and for majority (30%) of newborns the time of initiation of breastfeeding after birth was >30-45 minutes and the duration of breastfeeding among maximum number (48.3%) of newborns was for >5-10 minutes.

### 5.2 Findings of immediate care of newborn

**Table 1:** Area wise mean, Mean Percentage, Standard Deviation of scores of immediate care of newborn, N = 60

| S. No. | Area | Max Score | Mean Score | Mean% Score | S.D |
|---|---|---|---|---|---|
| I | Receiving thenewborn | 5 | 3.28 | 65.67 | 0.739 |
| II | Immediately dry the newborn | 4 | 2.92 | 72.92 | 0.279 |
| III | Assess the newborn's breathing | 4 | 0.00 | 0.00 | 0.000 |
| IV | Eye care | 3 | 0.00 | 0.00 | 0.000 |
| V | Cord care | 6 | 5.00 | 83.33 | 0.000 |
| VI | Skin-to-skin contact | 8 | 0.00 | 0.00 | 0.000 |
| VII | Cover the baby with warm clothes | 3 | 1.37 | 45.56 | 0.610 |
| VIII | Identity label | 6 | 0.00 | 0.00 | 0.000 |
| IX | Initiation of breastfeeding | 13 | 4.57 | 35.13 | 2.872 |

| | | | | | |
|---|---|---|---|---|---|
| X | Administration of vitamin K | 3 | 2.60 | 86.67 | 1.028 |
| XI | Monitoring the newborn | 2 | 0.32 | 15.83 | 0.469 |
| XII | Weighing the newborn | 6 | 3.00 | 50.00 | 0.000 |

**Table 2:** Item wise frequency and percentage distribution of newborn in terms of scores of immediate care of newborn N = 60

| S. N | Items | f | % |
|---|---|---|---|
| **I** | **Receiving the newborn :** | | |
| 1) | Call out the time of birth | 27 | 44.3 |
| 2) | Record accurately the time of birth | 50 | 82.0 |
| 3) | Deliver the newborn on to a clean and dry cloth | 60 | 100 |
| 4) | Pre warm cloth | 00 | 000 |
| 5) | Keep on mother's abdomen or chest (between the breasts) / close to themother | 60 | 100 |
| **II** | **Immediately dry the newborn :** | | |
| 6) | With a warm clean towel or a piece of cloth | 00 | 000 |
| 7) | If secretions are present suction first and then dry | 55 | 91.7 |
| 8) | Blood or meconium on the skin is wipedaway | 60 | 100 |
| 9) | Vernix is not to be wiped off | 60 | 100 |
| **V** | **Cord Care:** | | |
| 17) | Cord clamped after 1 minute | 60 | 100 |
| 18) | Using a sterile, disposable clamp or sterile tie | 60 | 100 |
| 19) | Cord cut by using a sterile blade about 2 - 3 cm away from the skin | 00 | 00 |
| 20) | Do not apply any substance to the stump | 60 | 100 |
| 21) | Leave stump exposed and nothing shouldbe placed on it | 60 | 100 |
| 22) | If stump is soiled, wash it with clean water and dry with a clean cloth | 60 | 100 |
| **VII** | **Cover the newborn with a warm cloth:** | | |
| 31) | Cover the baby with warm cloth | 57 | 95 |
| 32) | Newborn"s head is covered with a cap | 21 | 35 |
| 33) | Newborn"s feet are covered with socks | 4 | 6.7 |
| **IX** | **Initiation of breastfeeding:** | | |
| | Positioning of Mother: | | |
| 40) | Comfortable-sitting / sleeping / standing | 08 | 13.3 |
| 41) | Not leaning on the newborn | 45 | 75.0 |
| | Positioning of newborn : | | |
| 42) | Head in line with the body | 00 | 00.0 |
| 43) | Entire body well supported | 44 | 73.3 |
| 44) | Newborn turned towards the mother with newborn"s nose on nipple band | 45 | 75.0 |
| 45) | Newborn"s abdomen touching the mother abdomen | 04 | 06.7 |
| | Good attachment: | | |
| 46) | Newborn's mouth is wide open | 35 | 58.3 |
| 47) | More of areola inside the mouth that outside | 22 | 36.7 |
| 48) | Newborn"s lower lip turned outwards | 26 | 43.3 |
| 49) | Newborn"s chin is touching the breast | 45 | 75.0 |
| | Says that the baby should | | |
| 50) | Pass urine 6-8 times a day | - | - |
| 51) | Have adequate weight gain after 7 -10 days in term/ 14 days in preterm infant | - | - |
| 52) | Sleeps for 2-3 hours after feeding, feeds for 7-10 minutes and then spontaneously leaves the breast | - | - |
| X | Administration of Vitamin K: | | |
| 53) | Within one hour after delivery | 52 | 86.7 |
| 54) | By intramuscular injection | 52 | 86.7 |
| 55) | Dose 1 mg for term newborns and 0.5 for preterm newborns | 52 | 86.7 |
| XI | Monitoring the newborn (during first hour after delivery): | | |
| 56) | After every 15 minutes | 0 | - |
| 57) | Both mother and newborn baby remain in delivery room. | 19 | 31.7 |
| XII | Weighing the newborn: | | |
| 58) | Put the weighing scale on a flat, stable surface | 60 | 100 |
| 59) | Put a clean warm towel / cloth on the scale pan. | 00 | 00 |
| 60) | Zero the scale if the machine has the facility. If a zero facility is not available, record the weight of the towel. | 00 | 00 |
| 61) | Keep the naked baby on the towel and record the weight (subtract the weight of the towel) | 00 | 00 |
| 62) | Keep baby in middle of scale pan | 60 | 100 |
| 63) | Note the weight of newborn. | 60 | 100 |

Findings revealed that (table 1 and 2 )the highest mean percentage of scores of immediate care of newborn was found in administration of vitamin k (86.67), followed by cord care (83.33%) and immediately dry the baby (72.92%) respectively. And the maximum immediate care deficit areas were assess the newborn"s breathing, eye care, skin-to skin contact followed by identity label with zero mean percent score because newborns did not receive any one of this immediate care.

**Findings of neonatal outcomes:**

Half of the newborns (50%) had normal temperature (97.7-99.5) and half of the (50%) newborns had Mild hypothermia (96.8-97.6). and all of the subjects (60%) had normal respiratory rate (40-60 bpm) and normal heart rate (120-160 bpm).

The range (5-12) mean score (8.17) mean percentage (54.46) median (8) and standard deviation (1.404) of newborns in terms of scores breastfeeding pattern.

**Table 3:** Correlation between-immediate care ofnewborn and neonatal outcomes, N=60

| | Physiological parameters | | | |
|---|---|---|---|---|
| | Temperature | Respiratory rate | Heart rate | Breast feeding pattern |
| Receiving the Newborn | $0.136^{NS}$ ($p \leq 0.299$) | $0.042^{NS}$ ($p \leq 0.750$) | $-0.035^{NS}$ ($p \leq 0.792$) | $-0.079^{NS}$ ($p \leq 0.549$) |
| Immediately dry the newborn | $0.130^{NS}$ ($p \leq 0.324$) | $0.037^{NS}$ ($p \leq 0.778$) | -0.321** ($p \leq 0.012$) | $-0.007^{NS}$ ($p \leq 0.956$) |
| Skin-to - skin contact | - | - | - | - |
| Cover the newborn with warm clothes | 0.592** ($p \leq 0.001$) | $-0.007^{NS}$ ($p \leq 0.959$) | 0.359* ($p \leq 0.005$) | $0.026^{NS}$ ($p \leq 0.841$) |
| Initiation of breastfeeding | $0.134^{NS}$ ($p \leq 0.309$) | $0.183^{NS}$ ($p \leq 0.162$) | $0.126^{NS}$ ($p \leq 0.337$) | 0.670** ($p \leq 0.001$) |
| Breastfeeding Pattern | $0.160^{NS}$ ($p \leq 0.223$) | $0.121^{NS}$ ($p \leq 0.358$) | 0.255* ($p \leq 0.049$) | |

**ANOVAs and 't' test value showing the association of scores of immediate care of newborn and breastfeeding pattern with selected variables of mothers and newborns**

Findings showed that by using one way ANOVA a significant association was found between education along with family income of mothers and scores of cover the newborn with warm clothes ($p < 0.05$). Newborn belonging to mothers having higher education and higher family income had score more in cover the newborn with warm clothes. On the another hand by using "t" test a significant association was found between gender and scores of initiation of breastfeeding ($p < 0.05$). Newborns who were boys had score more in initiation of breastfeeding.

One way ANOVA was used and a significant association was found between age of mothers and scores of breastfeeding pattern ($p < 0.05$). Newborn belonging to mothers having age had score more in breastfeeding pattern, Also a significant association was found between initiation of breastfeeding of newborns and scores of breastfeeding pattern ($p < 0.05$). Newborns with early initiation of breastfeeding had score more in breastfeeding pattern. Association of duration of breastfeeding of newborns with scores of breastfeeding pattern was assessed using one way ANOVA .Significant association was found between duration of breastfeeding of newborns and scores of breastfeeding pattern. Newborns with more duration of breastfeeding had score more in breastfeeding pattern.

## 6. Discussion

Analysis of this study indicated that highest mean percentage of scores of immediate care of newborn was found in Give vitamin k (86.67), followed by cord care (83.33%) and immediately dry the baby (72.92%) respectively. And the maximum immediate care deficit areas were assess the baby"s breathing, eye care, skin-to skin contact followed by identity label with least mean percentage score. Which are partially consistent with the findings of the study conducted by Howard l Sobel et. al (2011) a survey was conducted through trained physicians who observed 481 consecutive deliveries in 51 hospitals to record practices and timing of immediate newborn care procedures. Results reveled that drying, weighing, eye care and vitamin K injections were performed in more than 90 % of newborns. Only 9.6% were allowed skin-to-skin contact. This observational assessment revealed that performance and timing of immediate newborn care interventions are below WHO standards.[7]

Analysis of this study find the significant association of parity with scores of immediate care of newborn (early initiation of breastfeeding) is supported through the study conducted by Orun Emel et al (2010) to investigate factors associated with the early initiation of breastfeeding .results revealed that Breastfeeding initiation was later in primiparous mothers than in mothers with parities > 2 (67.2% vs 77.4 %, respectively, $p = 0.006$) which supports the finding of this study. [12]

Orun Emel et al. (2010) investigate that the breastfeeding initiation rate was significantly lower in mothers who had an illness during pregnancy than in those who had no illness (66.0%, 75.4%, respectively; $p = 0.03$). Gender and birth weight had no effect on early breastfeeding initiation.[12]

This study showed a positive association of age of mothers with scores of breastfeeding pattern of newborn which was supported with the findings of Lessen et al. who reported that previous breastfeeding experience was positively associated with both intention and initiation of breastfeeding.

In this study Hb level of mothers had no association with the scores of immediate care of newborn, which are not consistent with the findings of the study conducted by Orun Emel et al. (2010) reveled that anemic mothers were less likely to initiate early breastfeeding ($p = 0.03$) which is the one of the area of immediate care of newborn. [12]

In this study educational status of mothers had no association with the scores of initiation of breastfeeding, which are not consistent with the findings, In an another study conducted by Anteo Di Napoli et al, to evaluate the effects of level of education on the initiation and duration of breastfeeding .Results showed that a low level of education, determines a negative effect on the initiation and duration of breastfeeding (area of immediate care of newborn in this study)

In this study time of initiation of breastfeeding had significant association with breastfeeding pattern of newborn which is an neonatal outcome in this study, which may consistent with the findings in an another study conducted by Debes K Amanda et al, to review the evidence for early breastfeeding initiation practices and to estimate the association between timing and neonatal outcomes as mortality and morbidity, if this study was an longitudinal study to assess the association after a long span of time which could not be possible due to time constraints. The results of Debes K Amanda et al study demonstrated lower risks of all-cause neonatal mortality among all live births and among low birth weight babies, and infection-related neonatal mortality.[13]

## 7. Conclusion

This observational assessment revealed that immediate cares of newborn which was received by newborns are below WHO guidelines. Immediate care of newborn and neonatal outcomes will require a multifaceted approach for their better survival.

## 8. Recommendations

A longitudinal study can be done to assess the impact of "immediate care of newborn" on developmental outcomes.

A comparative study can be done to assess impact of immediate care of newborn and neonatal outcomes of newborns delivered through normal vaginal delivery and cesarean section.

A study can be done to assess the utilization and receipt of maternal and newborn health services and its impact on neonatal outcomes.

A study to assess and evaluate the effectiveness of educational package in terms of knowledge and practice of staff nurses regarding immediate care of newborn and neonatal outcomes.

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