Original Research Article

A Prospective Study to Assess Early Neonatal Morbidities in Early Term Neonates Admitted in NICU/SNCU of District Hospital

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Abstract

Background: Although preterm babies are a category known for its high mortality and diverse morbidities, the overall incidence of prematurity related complications decreases significantly with increasing gestational age. The present prospective study was conducted to assess early neonatal morbidities in early term neonates admitted in NICU/SNCU of district hospital. **Materials and Methods:** This was a prospective study to assess early neonatal morbidities in early term neonates admitted in NICU/SNCU of district hospital. A consecutive 750 intramural newborns were examined. Morbidities of the early term and full-term babies within the first seven days of life were observed. All the babies included in the study were examined at birth, after 24 hours, after 48 hours and daily up to seven days. The recorded data was compiled, and data analysis was done using SPSS Version 20.0 (SPSS Inc., Chicago, Illinois, USA). P-value less than 0.05 was considered statistically significant. **Results:** In the present study 750 term babies constituted in the study population. Out of the total 750 population included in the study, 227 were early term (30.26%) and 523(69.73%) were full terms. Among the study population most of the babies were 39 weeks of gestational age (30.66%) and the least being 37 weeks (12.4%). NICU/SNCU admission rates were higher for babies born at an earlier gestational age (15.85% v/s 8.6%) than babies born later. Incidence of morbidities like jaundice requiring phototherapy (6.6% v/s 2.86%), need for resuscitation (7.04% v/s 3.44%), hypoglycemia on admission (5.28% v/s 1.72%), respiratory morbidities (2.86% v/s 1.72%), need for mechanical ventilation (2.2% v/s 0.95%), clinical sepsis (7.04% v/s 3.05%), confirmed sepsis (4.5% v/s 1.72%), need for intravenous antibiotics (11.01% v/s 5.35%), need for intravenous fluid (12.77% v/s 6.30%) were significantly higher in early terms than full terms during the first one week of life. **Conclusion:** The present study concluded that early term babies were 30.26% and 69.73% were full terms. NICU/SNCU admission rates were higher for babies born at an earlier gestational age than babies born later.

Keywords: NICU/SNCU Admission, Early Term Babies, Full Term Babies.

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Introduction

Every year, four million newborn babies die in the first month of life—99% in lowand middle-income countries[1].India carries the single largest share (around 25-30%) of neonatal deaths in the world. Neonatal deaths constitute two-thirds of infant deaths in India; 45% of the deaths occur within the first two days of life[2]. The Infant Mortality Rate (IMR) is widely accepted as a crude indicator of the overall health scenario of a country or a region. The neonatal period, the first 28 days of life carries the highest risk of mortality per day than any other period during the childhood (NMR). In India the current IMR is 32 (infant deaths per thousand live births) is about one-fourth as compared to IMR which was 129 in 1971. In the last ten years, IMR has witnessed a decline of about 35% in rural area and 32% in urban area. Among the States/Union Territories, the IMR ranges from 4 in Nagaland to 48 in Madhya Pradesh for 2018. Seventy percent of total infant deaths and more than half of under-five deaths fall in the neonatal period. Indeed, deaths in the first week alone account for ~ 45% of total under-five deaths[3]. The present prospective study was conducted to assess early neonatal morbidities in early term neonates admitted in NICU/SNCU of district hospital.

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Materials and methods

This was a prospective study to assess early neonatal morbidities in early term neonates admitted in NICU/SNCU of district hospital. Before the commencement of the study ethical approval was taken from the Ethical Committee of the institute and written consent was taken from the guardian /parents after explaining the study. A consecutive 750 intramural newborns were examined and all the early term (37 [0/7] to 38[6/7] weeks) and the full-term (39[0/7] to 41[6/7] weeks) babies were enrolled for the study. Newborns with congenital malformations, genetic disorders in born metabolic disorders, pre terms & post terms were excluded from the study. Morbidities of the early term and full-term babies within the first seven days of life were observed. All the babies included in the study were examined at birth, after 24 hours, after 48 hours and daily up to seven days. For babies who were discharged early, the parents were advised to attend Sick Newborn Care Unit if any form of illness develops within seven days. The recorded data was compiled, and data analysis was done using SPSS Version 20.0 (SPSS Inc., Chicago, Illinois, USA). P-value less than 0.05 was considered statistically significant.

Results

In the present study 750 term babies constituted in the study population. Out of the total 750 population included in the study, 227 were early term (30.26%) and 523(69.73%) were full terms. Among the study population most of the babies were 39 weeks of gestational age (30.66%) and the least being 37 weeks (12.4%). NICU/SNCU admission rates were higher for babies born at an earlier gestational age (15.85% v/s 8.6%) than babies born later. Incidence of morbidities like jaundice requiring phototherapy (6.6% v/s 2.86%), need for resuscitation (7.04% v/s 3.44%), hypoglycemia on admission (5.28% v/s 1.72%), respiratory morbidities (2.86% v/s 1.72%), need for mechanical ventilation (2.2% v/s 0.95%), clinical sepsis (7.04% v/s 3.05%), confirmed sepsis (4.5% v/s 1.72%), need for intravenous

antibiotics (11.01% v/s 5.35%), need for intravenous fluid (12.77% v/s 6.30%) were significantly higher in early terms than full terms during the first one week of life.

Table 1: Distribution of study population according to gestational age

Gestational age	N(%)
37 weeks	93(12.4%)
38 weeks	134(17.86%)
39 weeks	230(30.66%)
40 weeks	156(20.8%)
41 weeks	137(18.26%)
Total	750(100%)

Table 2. Comparison of morbidities between early & full term babies

Morbidities	Early Term (n=227)	Full Term (n=523)
NICU/SNCU admission	15.85%	8.6%
Phototherapy for jaundice	6.6%	2.86%
Need for resuscitation	7.04%	3.44%
Hypoglycemia	5.28%	1.72%
Respiratory morbidities	2.86%	1.72%
Ventilation support	2.2%	0.95%
Clinical sepsis	7.04%	3.05%
Confirmed sepsis	4.5%	1.72%
Need for antibiotics	11.01%	5.35%
Need for IV fluid therapy	12.77%	6.30%

Discussion

Human pregnancy is considered to be full-term when it lasts between 37-42 weeks. Anything shorter is considered to be a pre-term birth and anything longer is considered post-term. Longer pregnancies can be a risk to both the mother and infant and so labour tends to be induced if a pregnancy goes on past 42 weeks. On the other hand, it is well documented that pre-term babies can have a variety of health problems[4-6].In the present study 750 term babies constituted in the study population. Out of the total 750 population included in the study, 227 were early term (30.26%) and 523(69.73%) were full terms. Among the study population most of the babies were 39 weeks of gestational age(30.66%) and the least being 37 weeks(12.4%). NICU/SNCU admission rates were higher for babies born at an earlier gestational age (15.85% v/s 8.6%) than babies born later. Incidence of morbidities like jaundice requiring phototherapy (6.6% v/s 2.86%), need for resuscitation (7.04% v/s 3.44%), hypoglycemia on admission (5.28% v/s 1.72%), respiratory morbidities (2.86% v/s 1.72%), need for mechanical ventilation (2.2% v/s 0.95%), clinical sepsis (7.04% v/s 3.05%), confirmed sepsis (4.5% v/s 1.72%), need for intravenous antibiotics (11.01% v/s 5.35%), need for intravenous fluid (12.77% v/s 6.30%) were significantly higher in early terms than full terms during the first one week of life. The study of Parikh LI et al[6] and Sengupta S et al[7] showed that the full-term population is twice the early term, whereas the study conducted by Ramprakash MA et al[8] has nearly equal distribution of early and full-term population.

Ramprakash MA et al. also found that odds of NICU admission were 2.61 times in early term pregnancies, compared to full term pregnancies. Mandal S et al did a study to know the early neonatal (within first 7 days of life) morbidities, in early terms infants in comparison to their full-term counterparts. 761 term babies were included in the study, out of which 244 were early term & 517 were full term. NICU/SNCU admission rates were higher for babies born at an earlier gestational age (14.69% v/s 8.53%) than babies born later. Incidence of morbidities like jaundice requiring phototherapy (4.9% v/s 1.6%), need for resuscitation (6.9% v/s 3.3%), hypoglycemia on admission (4.9% v/s 1.6%), respiratory morbidities (2.9% v/s 1.6%), need for mechanical ventilation (1.2% v/s 0.4%), clinical sepsis (6.9% v/s 3.4%), confirmed sepsis (4.5% v/s 1.7%), need for intravenous antibiotics (10.6% v/s 6.0%), need for intravenous fluid (12.7% v/s 6.8%) were significantly higher in early terms than full terms during the first one week of life[9].

Irfan A et al conducted a study to evaluate the early neonatal morbidities in early term neonates. Consecutive 320 live births were included in the study during the study period. Out of the total 320 population included in the study, 120 were early term (37.5%) and 200 were full terms (62.5%). Among the study population most of the babies were 39 weeks of gestational age and the least being 37 weeks. The mean gestational age of the population was 39.44 ± 1.42 weeks. Among the total population 95 were delivered by caesarean section (29.69%) and 225 had vaginal (70.31%) birth (table 3). Among the early term deliveries 39 were delivered by caesarean section (32.5%) and 81 by vaginal delivery (67.5%). Out of total full tem deliveries 56 were by caesarean section (28%) and 144 by vaginal delivery (72%). P value is 0.784. NICU/SNCU admission rates were higher for babies born at an earlier gestational age (14.67% v/s 9%) than babies born later. Incidence of morbidities like jaundice requiring phototherapy (5% v/s 2%), need for resuscitation (6.67% v/s4 %), hypoglycemia on admission (5% v/s 2%), respiratory morbidities (3.33% v/s 2%), need for mechanical ventilation (1.67% v/s 0.5%),clinical sepsis (6.67% v/s 3.5%),confirmed sepsis(5% v/s 1.5%),need for intravenous antibiotics (10.83% v/s 6.5%), need for intravenous fluid (12.5% v/s 7%) were significantly higher in early terms than full terms during the first one week of life. Significantly higher number of babies delivered by caesarean section needed intervention and NICU admission (15.79% v/s 8.44%) than vaginally born babies. Moreover, among the caesarean deliveries the early term babies had significantly more morbidities or NICU/SNCU admission than their counterparts[10]

Conclusion

The present study concluded that early term babies were 30.26% and 69.73% were full terms. NICU/SNCU admission rates were higher for babies born at an earlier gestational age than babies born later.

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