

Scientific Study on Morbidity and Mortality in Late-preterm Infants in Neonatal Intensive Care Unit in Kanyakumari Government Medical College Hospital

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Abstract

Introduction: Late-preterm infants are infants born between 34 and 37 weeks. The morbidities are more common among these infants. They constitute around 9% of neonates. The various morbidities are due to physiological and metabolic immaturity.

Aim: This study aims to study the morbidities and mortalities in late-preterm infants admitted in our neonatal intensive care unit (NICU).

Materials and Methods: This is a retrospective analysis of all late-preterm infants admitted in our NICU during January 2016–December 2016.

Results: A total of 206 late-preterm infants were analyzed in this study. Among the morbidities, 30% of infants had neonatal hyperbilirubinemia (NNH), 30% had sepsis, 17% of infants had respiratory distress syndrome (RDS), 10% were intrauterine growth retardation (IUGR), meconium-stained amniotic fluid (MSAF) 4%, tachypnea of the newborn (TTN) 6%, and 3% had congenital anomalies mortality of 3%.

Conclusion: The most common morbidity among the infants analyzed is NNH, 30% had sepsis, 17% of infants had RDS, 10% were IUGR, MSAF 4%, TTN 6%, 3% had congenital anomalies, and mortality is about 3%.

Keywords: Meconium-stained amniotic fluid, Morbidity, Neonatal hyperbilirubinemia, Preterm infants, Respiratory distress syndrome, Tachypnea of the newborn

INTRODUCTION

Late-preterm infants - The American Academy of Paediatrics, define late-preterm birth as the delivery of an infant from 34 weeks to 36 weeks and 6 days of gestation.^[1] They account for 9.1% of all births and three-quarter of all preterm births.^[2] The morbidity and mortality pattern in late-preterm infants is higher than term infants (gestational age ≥ 37 weeks). The main reason behind that is the relative

physiologic and metabolic immaturity. The late-preterm infants are at twice to thrice increased risk of morbidities such as hypoglycemia, poor feeding, jaundice, infection, and readmission rates after initial hospital discharge.^[3] The infant mortality rate during 1st year of life for late-preterm infants is on an average 4-fold higher than that for term infant. Apnea occurs more frequently among late-preterm infants than term infants. The incidence of apnea in late-preterm infants is reported to be between 4% and 7%. Immature liver glycogenolysis, hormonal dysregulation, and inefficient hepatic glycogenesis and ketogenesis predispose preterm's for developing symptomatic hypoglycemia.^[4-6] Furthermore, late-preterm infants have increased chances of developing hyperbilirubinemia because feeding difficulties that predispose them to an increase in enterohepatic circulation, decreased stool frequency, and dehydration.^[7,8] Late-

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preterm infants are also more vulnerable to develop various respiratory morbidities including transient tachypnea of the newborn, respiratory distress syndrome (RDS), pneumonia, and pulmonary hypertension.

Aim

This study aims to study the morbidities and mortalities in late-preterm infants admitted in our neonatal intensive care unit (NICU).

MATERIALS AND METHODS

This is a retrospective analysis done in late-preterm infants admitted in NICU. All data regarding gestation age, sex, birth weight, and morbidities were taken and analyzed. Inclusion criteria: All preterm infants admitted during January 2016–December 2016. All babies blood count, C-reactive protein, blood culture, serum bilirubin, and X-ray chest were done. Babies with increased respiratory rate, retractions, and grunting as RDS. Statistical analysis: All data of the late-preterm babies were collected and analyzed by SPSS. Among the morbidities, 30% of infants had neonatal hyperbilirubinemia (NNH), 30% had sepsis, 17% of infants had RDS, 10% were intrauterine growth retardation (IUGR), meconium-stained amniotic fluid (MSAF) 4%, tachypnea of the newborn (TTN) 6%, and 3% had congenital anomalies mortality of 3%.

RESULTS

A total of 206 infants were analyzed, 127 were male babies (62%) and 79 were female babies (38%) Table 1.

Babies were further subgrouped based on birth weight, babies <2 kg were 61 (30%) and 2–2.5 kg were 91% and those >2–5 kg were 54 (26%) Table 2.

About 30% of babies had NNH and sepsis, 17% had RDS, 10% were IUGR, 7% had perinatal hypoxia, 4% had meconium aspiration amniotic fluid and distress, 3% had anomalies, and 3% mortality Table 3.

Among the various morbidities RDS, PNH, TTN, IUCR were statistical significant on birth weight.

DISCUSSION

A total of 206 late-preterm infants admitted in KKG MCH, Asaripallam, NICU were analyzed in this study. Among the total 206 babies, 127 were male babies (62%) and 79 were female babies (38%). The babies <2 kg were 61 (30%) and 2–2.5 kg were 91% and those >2–5 kg were

Table 1: Distribution of gender

Gender	Number of cases (%)
Male	127 (62)
Female	79 (38)

Table 2: Distribution of birth weight

Birth weight	Number of cases (%)
<2	61 (30)
2-2.5	91 (44)
>2.5	54 (26)

Table 3: Distribution of neonatal complications

Complication	Percentage
RDS	17
NNH	30
Sepsis	30
PNH	7
MSAF	4
TTN	6
IUGR	10
Anomalies	3
Mortality	3

RDS: Respiratory distress syndrome, NNH: Neonatal hyperbilirubinemia, MSAF: Meconium-stained amniotic fluid, TTN: Tachypnea of the newborn, IUGR: Intrauterine growth retardation

Table 4: Distribution of neonatal complications in birth weight

Complication	Birth weight			P
	<2.5 (%)	2–2.5 (%)	>2.5 (%)	
RDS	28	15	7	0.012
NNH	30	27	33	0.756
Sepsis	31	32	24	0.581
PNH	2	5	17	0.006
MSAF	2	5	6	0.462
TTN	2	5	13	0.041
IUCR	16	12	0	0.011
Anomalies	2	4	4	0.649
Mortality	3	3	2	0.864

RDS: Respiratory distress syndrome, NNH: Neonatal hyperbilirubinemia, MSAF: Meconium-stained amniotic fluid, TTN: Tachypnea of the newborn, IUGR: Intrauterine growth retardation

54 (26%). Late-preterm infants have increased chances of developing hyperbilirubinemia because feeding difficulties that predispose them to an increase in enterohepatic circulation, decreased stool frequency, and dehydration.^[7-9]

Among the morbidities analyzed, most of babies had NNH and sepsis, 30% of infants had NNH, 30% had sepsis, and preterm infants are at increased risk of developing hypoglycemia after birth because they have immature hepatic glycogenolysis and adipose tissue lipolysis, hormonal dysregulation, and deficient hepatic gluconeogenesis and ketogenesis.^[4-6] Statistically, respiratory morbidities were found significantly higher in late-preterm

neonates as compared to term neonates. Due to immaturity of respiratory system, 17% of infants had RDS, 10% were IUGR, MSAF 4%, TTN 6%, and 3% had congenital anomalies mortality of 3%.

CONCLUSION

In late-preterm neonates analyzed in our center, NNH is the most common morbidity in our institutes about 30% and 30% had sepsis, 17% had RDS, 10% had IUGR, and MSAF 4%.

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