

# To Compare the Morbidity and Mortality Pattern of late Preterm and Term Neonates at GRMC, Gwalior

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## Abstract

**Background:** This is a hospital based prospective observational study, carried out at Gajara Raja Medical College, Gwalior. All the inborn late preterm babies have been included in the study. Selection of late preterm neonates is done by determination of gestational age. **Subjects and Methods:** All the inborn late preterm babies have been included in the study. Selection of late preterm neonates is done by determination of gestational age. We compared the mortality and morbidity pattern of preterm neonates with the term counterpart, the data of term neonates retrieved from hospital record. **Results:** Maximum no. of cases in late preterm in Jaundice i.e. 9%, followed by Septicaemia 7.8% & Respiratory Distress 7.6%. In Term Jaundice i.e. 3.34%, followed by Septicaemia 3.38% & Respiratory Distress 3.41%. In our study Neonatal convulsions were more common among the late preterm neonates as compare to term group. **Conclusion:** In our study jaundice, septicemia, respiratory distress and hypoglycemia were found as major morbidities, among late preterm the rate was found to be 9%, 7.8%, 7.6% and 6% respectively while in term group the rate was 3.34%, 3.38%, 3.41% and 2.56% respectively. The mortality and morbidity among late preterm neonates were higher as compared to their term counterparts, implying the need for special attention to these babies because they may be overlooked among other preterm and sick babies.

**Keywords:** Morbidity, Mortality, Preterm & Neonates.

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## Introduction

The morbidity and mortality pattern in late preterm infants is higher than term infants (gestational age  $\geq 37$  weeks). The main reason behind that is the relative physiologic and metabolic immaturity, though there is no significant difference in the weight or the size of the two groups. The late preterm infants are at twice to thrice increased risk of morbidities like hypoglycaemia, poor feeding, jaundice, infection and re-admission rates after initial hospital discharge.<sup>[1]</sup> The infant mortality rate during first year of life for late-preterm infants is on an average four-fold higher than that for term infants.<sup>[2]</sup>

During the past few years proportion of late-preterm births has increased. The reason for the increase in late-preterm births during the last decade is not well understood. One hypothesis is that it may be attributable, in part, to increased use of reproductive technologies and, as a result, an increase in multi fetal pregnancies. Another hypothesis is that advances in obstetric practice have led to an increase in surveillance and medical interventions during pregnancy, as a result, at risk infants like those of intrauterine growth restrictions, fetal abnormalities and anomalies can be identified earlier and hence delivered earlier.<sup>[3]</sup>

The various morbidities of late preterm birth arise from

immature organ systems that are not yet prepared to support life in the extra uterine environment. The risk of acute

neonatal illness decreases with gestational age, reflecting the fragility and immaturity of the brain, lungs, immune system, kidneys, skin, eyes, and gastrointestinal system. In general, more immature preterm infants require more life support.

A Prospective study was conducted by Ezhilvannan NR, Vani HN;Niranjan HS et al,<sup>[4]</sup> demonstrated short term adverse outcomes of late preterm neonates.

## Subjects and Methods

This is a hospital based prospective observational study, carried out at Gajara Raja Medical College, Gwalior for a period of 12 months from Jan 2013 to Jan 2014.

### **Inclusion criteria:**

**Cases:** All late preterm neonates (34-< 37 weeks of gestation) which were born at the Obstetrics department have been included.

**Control:** All term neonates which were born during the study period included as control group.

**Exclusion criteria:**

Preterm babies (<34 weeks of gestation)  
 Out born neonates which were admitted in SCNU and still births have been excluded.

**Method**

All the inborn late preterm babies have been included in the study. Selection of late preterm neonates is done by determination of gestational age. Gestational age is determined by using Naegle’s formula, antenatal ultrasound records and by applying Ballard scoring system on newborn. The babies were either shifted to NICU or to mother’s side based on the baby’s condition and was followed up till discharge or death. All the neonates were enrolled on a structured protocol, which included the data on antenatal care, maternal risk factors, mode and place of delivery, birth weight, gestational age, gender, diagnosis, relevant investigations, duration of stay and outcome. The data was recorded on Proforma and analyzed using descriptive statistics. Survival was defined as the discharge of a live infant from the hospital. Our study was to evaluate the short term outcomes of late preterm babies in comparison with term babies.

We compared the mortality and morbidity pattern of preterm neonates with the term counterpart, the data of term neonates retrieved from hospital record.

**Results & Discussion**

**Table 1: Comparison of various causes of morbidities between Late Preterm and Term Babies.**

Neonatal Morbidities	Late Preterm	Term
	(Total :N=1301 )	(Total: N=5885)
Jaundice	117 (9%)	197 (3.34%)
Septicaemia	101 (7.8%)	199 (3.38%)
Respiratory Distress	99 (7.6%)	201 (3.41%)
Birth Asphyxia	76 (5.6%)	117 (2%)
Hypoglycemia	79 (6%)	15 (2.56%)
Feed Intolerance	43 (3.3%)	98 (1.6)
Neonatal Convulsion	42 (3.22%)	45 (0.75%)
Apnea	39 (3.03%)	27 (0.45%)
NEC	27 (2.11%)	13 (0.22%)
Congenital Malformation	14 (1.11%)	29 (0.5%)

Maximum no. of cases in late preterm in Jaundice i.e. 9%, followed by Septicaemia 7.8% & Respiratory Distress 7.6%. In Term Jaundice i.e. 3.34%, followed by Septicaemia 3.38% & Respiratory Distress 3.41%.

**Table 2: Comparison of Occurrence of Neonatal Convulsion between Late Preterm and Term Babies.**

Neonatal Convulsion	Gestational Maturity		Total
	Late preterm (%)	Term (%)	
Yes	42(3.2)	44(0.76)	86
No	1259(96.8)	5841(99.24)	7099
	1301	5885	7186

$\chi^2=109.5$ ,  $df=1$ ,  $p<0.000$  (difference is statistically significant)

RR=2.74, 95%CI=2.34, 3.20

In our study Neonatal convulsions were more common among the late preterm neonates as compare to term group. Late preterm’s are at higher risk for neonatal morbidities and mortality contrary to the belief that they are nearly mature. The aim of the study was to evaluate short term outcome of late preterm’s as compared with term gestation. This is a prospective observational study done over a period of 12 months.<sup>[5]</sup>

Out of the total live births, term births (37 weeks /more) were 75.99%, late preterm births were 16.8% and preterm birth below 34 weeks were 7.2%. It indicates that late Preterm constitutes significant proportion of total birth. There is increase in proportion of late preterm neonates similar to study in USA whereas the proportion of late preterm babies has been increased from 6.2 % in 1995 to 7.5 % in 2008, these changes are results of early obstetric interventions,<sup>[6]</sup>for examples early termination of pregnancy in eclampsia, and other maternal and fetal morbidities.<sup>[7]</sup>

**Risk Factors, Morbidity And Mortality Data Of Late Preterm Neonates**

The various morbidities of late preterm birth arise from immature organ systems that are not yet prepared to support life in the extra uterine environment. The risk of acute neonatal illness decreases with gestational age, reflecting the fragility and immaturity of the brain, lungs, immune system, kidneys, skin, eyes, and gastrointestinal system. In general, more immature preterm infants require more life support.

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144 LPT comprised the study group. Male preponderance was present. Majority of the neonates had birth weight more than 2 kg. PPRM and previous history of caesarian section formed the major maternal risk factor for preterm. Neonatal hyperbilirubinaemia was the major morbidity followed by respiratory distress, sepsis and feed intolerance. Majority of late preterm neonates required more than 7 days of hospital stay. Rate of rehospitalisation were also high among late preterm. Conclusion of the study was that late preterm had morbidity and mortality higher than expected; hence they need special attention while in hospital and a better follow up protocol after discharge. Late preterm infants comprise the majority of preterm newborns, caring for such a large population who are prone to have unfavorable outcomes can exert a profound impact on the society.

A prospective study was conducted on a total of 161 pregnant women who delivered LPT neonates at Department of Obstetrics and Gynaecology, KLE S Dr. Prabhakar Kore Hospital, Belgaum, by Divyakala

Karegoudar<sup>1</sup>, Arati Prabhu et al<sup>9</sup>. During study maternal and perinatal outcome were assessed. Most of the women 56 (34.78%) were aged 22 to 25 years and mean age was 24.54 ± 4.18 years. Primipara was noted in 85 (52.80%) of the women and history of previous preterm pregnancy was present in 3.11% of women.<sup>10</sup> Labour was indicated in 60 (37.27%) of the women while in 101 (62.73%) it was spontaneous. In those with indicated labor, 14 (36.84%) were induced and 36.84% underwent vaginal delivery while 24 (63.16%) had emergency LSCS. With regard to spontaneous labour, 67 (66.34%) had vaginal delivery and 34 (33.66%) had emergency LSCS. Post partum eclampsia and eclampsia were noted in 2(1.24%) each.<sup>11</sup> The incidence of late preterm birth was 61.68%. Most of the babies (41.61%) had birth weight between 1.51 to 2.00 Kgs and mean birth weight was 2.19 ± 0.48 Kg. There were 84 (52.17%) of babies who required NICU admission and low birth weight 51 (60.71%) was the commonest cause.<sup>12</sup> The mortality was observed in 5 (5.95%) of the babies. Late preterm births being a large sub-group of preterm makes significant impact on perinatal outcome at each week of gestation 34, 35 and 36 weeks 6 days respectively. Hence managing late preterm births needs judicious decision making to reduce the mortality and morbidity.<sup>[13-15]</sup>

## Conclusion

In our study jaundice, septicemia, respiratory distress and hypoglycemia were found as major morbidities, among late preterm the rate was found to be 9%,7.8%,7.6% and 6% respectively while in term group the rate was 3.34%, 3.38%, 3.41% and 2.56% respectively.

The mortality and morbidity among late preterm neonates were higher as compared to their term counterparts, implying the need for special attention to these babies because they may be overlooked among other preterm and sick babies.

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