

# A study on maternal and perinatal outcome in women with late preterm delivery (34-36 weeks 6 days)

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## Abstract

Infants born between 34 and 36 weeks and 6 days gestation are referred to as late preterm and they have high incidence of morbidity and mortality compared to term babies. This study was aimed to find out the incidence of late preterm births and to identify mode of delivery, causes, maternal co-morbid conditions and perinatal outcomes. This one year prospective study was conducted on a total of 69 pregnant women who delivered between 34-36 weeks and 6/7 days at Department of Obstetrics and Gynaecology in Yenepoya Medical College from January 2016 to January 2017. The maternal and perinatal outcome were assessed.

**Key Words:** late preterm delivery.

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## INTRODUCTION

The American College of Obstetricians and Gynecologists (ACOG) suggests that preterm birth rates have also increased because of a dramatic rise in late preterm births (previously referred to as *near term births*) defined as births at a gestational age between 34 weeks and 36 weeks 6 days, and comprise nearly 74% of all preterm deliveries and approximately 8% of total deliveries. Although the incidence of preterm-related morbidity decreases after 34 weeks of gestation, previous studies show that late preterm neonates have higher rates of morbidity, such as feeding difficulty, jaundice, hypoglycemia, temperature instability, apnea, respiratory distress, and mortality, compared to full-term births.

Moreover, a recent study showed that antenatal administration of betamethasone reduces neonatal respiratory morbidity in late preterm births. However, most obstetrical providers tend to stop the administration of antenatal corticosteroids and tocolytics and deliver fetuses with suspected compromised intrauterine status or poor maternal conditions after 34 completed weeks, rather than continuing a high-risk pregnancy. Understanding morbidity risks among late preterm infants is important for helping newborn care providers to anticipate and to manage potential morbidity during birth hospitalization. It may possibly assist in guiding non-emergency obstetric interventional decisions. The present study was designed to find out the incidence of late preterm births and, to study the relation between mode of delivery and perinatal outcome, to identify and evaluate the causes of spontaneous and the maternal co-morbid conditions associated with it.

## MATERIALS AND METHODOLOGY

This was a prospective study of singleton late preterm births between January 2016 to January 2017. We identified patients and collected clinical information from medical records. We included late preterm births that were delivered between a gestational age of 34 and 36 weeks 6 days. We excluded multiple pregnancies, major

structural anomalies (especially congenital heart anomalies), chromosomal anomalies, and stillbirths.

As per the latest guidelines, patients were not given betamethasone antenatally as they crossed 34 weeks. The spontaneous late preterm birth group included patients who presented with preterm labor with intact membranes and preterm premature rupture of membranes (PPROM); the indicated late preterm birth group included hypertensive disorders such as gestational hypertension, preeclampsia and superimposed preeclampsia, placental causes (placental abruption, placental previa), fetal causes (intrauterine growth restriction, oligohydramnios, fetal distress), and maternal medical diseases, including rheumatic diseases. We assessed maternal and neonatal characteristics including age, parity, gestational age at delivery, mode of delivery, birth weight, and gender. Additionally, we reviewed the Apgar score at 1 and 5 minutes after each birth, admission to the neonatal intensive care unit (NICU), duration of NICU stay and the complications that were associated with the newborns, namely hypoglycaemia, hyperbilirubinemia, RDS, etc. Hypoglycemia was defined as plasma glucose less than 40 mg/dL, RDS was defined as the presence of diagnostic radiographic chest findings, plus one or more clinical signs of respiratory distress, including respiratory grunting, retraction and increased oxygen requirement (fraction of inspired oxygen greater than 0.4), or the administration of exogenous pulmonary surfactant. We then compared maternal and neonatal characteristics and perinatal outcomes in the two groups. This study used Pearson's chi-squared ( $\chi^2$ ) test for categorical variables and Student's t-test for continuous variables. Statistical analysis was performed using SPSS software, version 19.0 (SPSS Inc., Chicago, IL, USA. Demographic data like age, occupation, socio-economic status were obtained and recorded on pre-designed and pre-tested proforma. Patients were interviewed for obstetric history. A thorough clinical examination was conducted and findings were noted. The selected women were assessed for perinatal outcome that is, onset of labour, mode of delivery, indication for caesarean section, maternal comorbid conditions associated with late preterm births and its indications (spontaneous/medical/elective). The perinatal outcome comprised of birth weight, Apgar score and complications, patients admission to NICU and perinatal death.

## RESULTS AND DISCUSSION

Of these 76 preterm births, 69 were late preterm births. Among the preterm babies the incidence of late preterm was determined to be 90.78%. Most of the women were aged 22 to 30 years and were noted to be in lower middle

class status. Primi para was noted in 42.80% of the women while the rest were multiparous. History of previous preterm pregnancy was noted in 6% of women. Labour was spontaneous in 26 women (37%) while in the rest 43 women, it was an induced labour. Among the 26 women who had spontaneous labour, 20 women had a vaginal delivery while the other 6 women had emergency LSCS. While out of the 43 women who had induced labour, 68% had vaginal delivery and emergency LSCS was noted among 32%. In total, out of the 69 women, only 21 women that is 30% of them underwent LSCS. Of the 26 women who underwent spontaneous labour, PPRM was seen in 7 women while the rest 17 women had established preterm labour and was the commonest condition noted. The indicated group, hypertensive disorders accounted for most no: of cases, followed by fetal indications like fetal distress, placental causes and maternal causes. A study showed that, a larger proportion of late preterm births are due to spontaneous preterm labor (two-thirds) compared with PPRM (one-third). A study done in Ohio reported that, the causes of indicated late preterm births are similar to that for all preterm births, including preeclampsia (46%), fetal indications (18%), placental abruption (14%), and other indications (20%). In our study IUGR was the commonest comorbid condition for induction (13.16%). There were 8 women who underwent elective LSCS and gestational diabetes mellitus was the commonest comorbid condition (37.50%). Fetal distress was the comorbid condition noted in 40.28% of the women who underwent emergency LSCS.

**Table 1**

Comorbidities	Number	Percentage
Fetal distress	8	13%
Gestational hypertension, Uncontrolled hypertension, Eclampsia, Abruption	13	21%
IUGR	7	8%
Gestational diabetes mellitus	8	9%
Placenta praevia	3	2%
Previous LSCS, Scar dehiscence	4	5%
Non progress of labour	2	4%
Malpresentation (Compound / Oblique)	2	4%
Oligohydramnious	2	4%
Failed induction	2	4%
PPROM	7	11%
Preterm labour	9	14%
Chorioamnionitis	1	1%
CPD	1	1%

Table 2

Spontaneous / Induced		Number	%
Spontaneous	Vaginal delivery	20	79%
	LSCS	-----	-----
	Elective	-----	-----
	Emergency	6	21%
	Total	26	
Induced	Vaginal delivery	28	68%
	LSCS	5	10%
	Elective	10	22%
	Emergency	43	

A prospective cohort study done in Hyderabad reported that 257 (70.8%) out of 363 late preterm infants had at least one of the predefined condition of neonates. Late preterm infants were in significantly higher risk for overall morbidity due to various cause: jaundice, hypoglycaemia, respiratory morbidity, any ventilation (non invasive or invasive) and probable sepsis. The incidence of morbidities decreased from 87.9% at 34 weeks to 67.5% at 36 weeks respectively. The study concluded that late preterm infants are at high risk compared with term infants for respiratory morbidity, jaundice, hypoglycaemia, need of ventilation (non invasive or invasive) sepsis, and probable sepsis. Kase *et al.* reported that medically-indicated preterm births had a significantly higher rate of small for gestational age (SGA) infants compared to the spontaneous preterm birth group in chronic hypertensive women, but there was no difference in perinatal outcomes between the two groups. Out of 69 deliveries, 11 women delivered between 34-35 weeks, 25 women between 35-36 weeks and 33 women delivered after 36 weeks. In this study, the 34-35-week groups have increased rates of RDS, and sepsis. Also there were relatively high rates of admission to neonatal intensive care unit (NICU) at 34 weeks of gestation whereas this rate decreased by 36 weeks of gestation. The commonest cause of NICU admission was low birth weight followed by hyperbilirubinemia and hypoglycaemia. The pattern of NICU admission observed in babies with 34, 35 and 36 weeks was comparable that is, maximum NICU admissions were noted in babies with gestational age of 34 weeks. Growth restricted babies were more at 35-36 week group which correlated with the IUGR cases which were more between 35-36 weeks. The number of babies kept for observation were maximum at 36 weeks and there were no babies kept for observation at 34 weeks. There were no cases of congenital heart diseases detected or any death reported.

Table 3

	34 weeks (11/69)	35 weeks (25/69)	36 weeks or more (33/69)
NICU	11	17	20
Ward admission	0	8	13
<b>Complications</b>	<b>34 weeks (11/69)</b>	<b>35 weeks (25/69)</b>	<b>36 weeks or more (33/69)</b>
Low birth weight	3	4	3
Hyperbilirubinemia	2	2	2
RDS	2	1	1
Hypoglycaemia	2	2	3
Growth restriction	1	3	1
Sepsis	1	2	2
MAS	----	1	1
Observation	----	1	7
Death	----	----	----

There are several limitations in our study. We could not evaluate important composite morbidities, such as bronchopulmonary dysplasia (BPD), necrotizing enterocolitis (NEC), intraventricular hemorrhage (IVH), and mortality rate, due to uncertainty of these diagnosis and the small study sample size.

## CONCLUSION

Indication for delivery in late preterm birth might influence several perinatal outcomes (NICU admission, hypoglycemia, and respiratory support); therefore, obstetrical providers should individualize the management of late preterm deliveries.

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