ORIGINAL RESEARCH PAPER
Volume - 14 | Issue - 03 | March - 2025 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

MATERNAL AND FETAL OUTCOMES FOLLOWING LATE PRETERM LABOUR (34-37 WEEKS) AT PRAVARA RURAL HOSPITAL

Obstetrics & Gynaecology

Dr Mehta Manushi Rajkumar* Resident. *Corresponding Author
Dr Ajit Deshpande Professor And Guide.
Dr. V. B. Bangal Head of Department.

ABSTRACT

Late preterm births (LPBs), previously categorized as "near term," account for approximately 70% of all preterm births. This poses a significant public health concern due to their increasing prevalence and associated risks of neonatal mortality and morbidity. Despite the common belief that late preterm neonates fare similarly to full-term babies, they face a heightened risk of complications related to immaturity. These include respiratory distress, temperature instability, hypoglycemia, kernicterus, apnea, feeding difficulties, and increased likelihood of rehospitalization after initial discharge. Both neonatal and postneonatal mortality rates are also elevated among late preterm infants.

KEYWORDS

Late preterm birth, Neonatal morbidity, Maternal morbidity

INTRODUCTION

Preterm birth is a prime cause of infant morbidity and mortality worldwide. The term "Preterm birth" refers to all births occurring before 37 weeks of gestation or <259 days from the 1st day of the last menstrual period. It is further subclassified into extreme preterm (<28 weeks gestation), very preterm (28-<32 weeks gestation), moderate preterm (32-<34 weeks gestation), and late preterm (34-<37 weeks gestation).[1-3]

The incidence of preterm births in developing countries ranges from 12% to 18% and India recorded the highest number of preterm births in 2010.[1] Neonatal mortality and morbidity associated with preterm births is significantly higher than term births. The frequency of adverse neonatal outcomes increases with decreasing gestational age, this trend is also evident in the gestational window of 34-36 weeks.

Mortality rate is seven times higher in moderately preterm and three times higher in late preterm births (LPBs) than term births.[4].

LPBs previously tagged as "near-term" babies contribute to about 70% of the preterm births.[5] It is a major public health concern due to its increasing prevalence associated neonatal mortality and morbidity. Contrary to our belief that late preterm neonates walk out well similar to term babies, they are at a very high risk of immaturity related complications. Morbidities such as respiratory distress, temperature instability, hypoglycemia, kernicterus, apnea, feeding problems, and rehospitalization after neonatal discharge, neonatal, and postneonatal mortality are reported in LPBs.[4] Respiratory distress, patent ductus arteriosus (PDA), and sepsis are considered common neonatal complications. Furthermore, significantly increased rates of cerebral palsy, and mental retardation, and other major disabilities in the late preterm infant compared with term infant should be of great concern, because of the profound social burden.[6,7] Prolonged hospitalization, rehospitalization, and long-term sequelae pose great financial and psychological burden on the family.

Previous research and available literature on LPBs focused to cluster the short-and long-term outcome. Less is known about the medical indications for late-preterm delivery. Recent rise in the LPB rates by 25% raises the question as to whether the indications for these births are justified.[5,8] Evidence suggested that 32% of these deliveries were medically indicated.[4] It is important to know which medical indication is a major contributor in late-preterm delivery as the neonatal outcomes likely differ depending on the underlying pathophysiology of the complication.[9] The timing of delivery in such cases ought to balance the maternal and newborn risk with the risk of continuation of pregnancy, and however, evidence to guide the timing of delivery in certain conditions is limited.

METHODOLOGY

It was a descriptive longitudinal observational study conducted in the department of obstetric and Gynecology, Pravara Rural Hospital, Loni during the study period of 18 months. All pregnant females who are willing to be a part of this study and are willing to sign written informed consent for the same (consent from legally accepted representative i.e. LAR was also considered), Obstetric emergencies in the hospital as well as those referred to this hospital, women registered at first trimester and delivering between 34-37 weeks period of gestation, pregnant women with no other co morbidity or does not have any positive medical history were included in the study. Obstetric cases apart from the above mentioned emergencies were excluded.

Data Collection:

After approval from Ethical Committee and obtaining informed consent form from the patients, A semi-structured questionnaire consisting of details regarding socio-demographic profile, the reasons for referral, parity, antenatal care in present pregnancy, clinical presentations, present obstetric complications, previous obstetric, medical and surgical history and last menstrual period to calculate the gestational age was recorded. General physical examination including the vital signs, detailed obstetric examination and other system examinations, mode of deliveries, nature of surgery performed, number of units blood transfused, fetal and maternal outcomes were documented. All preliminary investigations like blood complete picture, blood grouping and cross-matching, serum electrolytes, hepatitis profile and coagulation profile was done on all the subjects on arrival. The data was maintained on pre-designed proforma. The variables and the relevant statistics were expressed in frequencies and percentages for categorical variables and mean with standard deviation for continuous variables. Gestational hypertension, Gestational diabetes, Preterm premature rupture of membrane (PPROM), abruption, placenta previa, IUD, pre eclampsia and eclampsia was recorded.

Statistical Analysis:

Important data from the study proforma of individual subject were entered, compiled in Microsoft office excel sheet and were analyzed. Various statistical tests were used for normal distribution. P value less than 0.05 was considered significant.Results:

Table 1: Age Distribution Among The Study Population

Age in years	Frequency	Percentage
18-25	54	38.8
26-30	34	24.5
31-34	51	36.7
Total	139	100

In the context of preterm births, "early" typically refers to births that occur before 37 weeks of gestation, while "late" refers to those occurring between 34 and 36 weeks. However, the percentages provided, 32.1% for early and 87.9% for late, seem inconsistent with typical definitions, as the sum exceeds 100%. The distribution of parity among a population, with 70.5% classified as multigravida (having had two or more pregnancies) and 29.5% as primigravida (experiencing their first pregnancy). 63.3% fall within the gestational age range of 34 to 35.6 weeks, while 36.7% fall within the range of 36

to 37 weeks. 51.2% of labors were induced, while 48.8% occurred spontaneously. 75.5% of deliveries occurring vaginally and 24.5% through Lower Segment Cesarean Section (LSCS). 29.5% neonates were admitted to NICU and 70.5% were not admitted.

Table 2: Distribution Depending On Risk Factors

Risk factors	Frequency	Percentage
Previous preterm	76	54.7
Preeclampsia	34	24.5
Fetal distress	26	18.7
Previous LSCS	22	15.8
Oligohydramnious	17	12.2
Gestational hypertension	15	10.8
IUGR	12	8.6
Malpresentation	12	8.6
Placenta previa	5	3.6

Table 3: APGAR score at 1 min and 5 min

Score	APGAR at 1 min		APGAR at 5 min	
	Frequency	Percentage	Frequency	Percentage
<7	29	20.9	15	10.8
>7	110	79.1	124	89.2
Total	139	100	139	100

Table 4: Neonatal Complication And Outcome

Complication	Frequency	Percentage
Low birth weight	17	12.2
Hyperbilirubinemia	10	7.2
Respiratory distress	6	4.3
Sepsis	5	3.6
MAS	3	2.2
Outcome	Frequency	Percentage
Survived	138	99.3
Died	1	0.7
Total	139	100

Table 5: Maternal Morbidity And Outcome

Reasons	Frequency	Percentage
PPH	6	4.3
Cervical tear	5	3.6
Perineal tear	4	2.9
Sepsis	7	5.0
Outcome	Frequency	Percentage
Survived	139	100
Died	0	0
Total	139	100

DISCUSSION

The percentages provided, 32.1% for early and 87.9% for late preterm births, appear to exceed 100%, indicating a potential error or misinterpretation in the data presentation or definition of terms. The data indicates that both early (32.1%) and late (87.9%) preterm births are present within the population under study. These percentages suggest a significant occurrence of preterm births, which may pose various challenges for infant health and development. Early preterm births (before 34 weeks) often result in more severe complications, while late preterm births (34 to 37 weeks) can still present significant health risks, including respiratory issues, jaundice, and developmental delays. Study by Gladstone Met al[10] showed that majority (83.3%) report on the outcome of a sample of preterm babies at time of birth or admission. A recent study from Kerala, India, reported that 8.9% of the 1,295 babies born during an 18-month study period were late preterm.[11] Similarly, a study from Hyderabad found that 371 out of 3,300 live births (11.24%) were late preterm during the study period[12] Study by Divyakala Karegoudar et al[13] showed that incidence of late preterm birth was 61.68%. Study by Rather GN et al[14] showed incidence of late preterm neonates was 58 %. Study by Loftin RW et al[15] showed that late preterm newborns are the fastest growing subset of neonates, accounting for approximately 74% of all preterm births and about 8% of total births. Study by Karnati S et al[16] showed that nearly 75% of babies born less than 37 weeks of gestation. Study by Saifon et al[17] identified global preterm birth rate for 2014 was 10 6% (uncertainty interval 9 0-12 0), equating to an estimated 14 84 million (12 65 million-16 73 million) live preterm births in 2014. 12- 0 million (811%) of these preterm births occurred in Asia and sub-Saharan Africa. India, China, Nigeria, Bangladesh, and Indonesia accounted for 57 9 million (41*4%) of 139 9 million livebirths and 6 6 million (44*6%) of preterm births globally in 2014. Neonates born between 34 and 36 weeks of gestation, referred to as late preterm or near-term births, account for 71% of all preterm births in the United States. Additionally, the incidence of late preterm birth among preterm babies was found to be 61.68%, which is comparable to the statistics from the United States.[18] The age distribution reveals that the majority of individuals fall within the age brackets of 18-25 years (38.8%) and 31-34 years (36.7%). This distribution suggests a relatively young population with a significant representation of individuals in early adulthood and early thirties. The presence of a large number of young mothers could impact the types of medical care and educational support needed, as younger mothers may have different health profiles and socioeconomic circumstances compared to older mothers. Study by Divyakala Karegoudar et al[13] showed that most of the women 56 (34.78%) were aged 22 to 25 years and mean age was 24.54 ± 4.18 years. The majority of individuals in the population are classified as multigravida (70.5%), indicating that a significant proportion have experienced two or more pregnancies. However, a notable minority fall into the primigravida category (29.5%), suggesting a substantial number of first-time pregnancies as well. Study by Divyakala Karegoudar et al[13] showed that Primi para was noted in 85 (52.80%) of the women while para1 and 2 was noted in 32.92% and11.18% respectively. The data indicates a higher prevalence of gestational ages between 34 to 35.6 weeks (63.3%) compared to 36 to 37 weeks (36.7%). This suggests that a significant proportion of pregnancies in the population under study may be considered late preterm. Late preterm infants, though more developed than early preterm infants, still face increased risks of health complications and may require additional medical care and monitoring. Study by Divyakala Karegoudar et al[13] showed that 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. The high rate of induced labor and vaginal deliveries highlights the medical practices and preferences within the population, suggesting a focus on minimizing cesarean sections when possible, which can be beneficial for recovery and future pregnancies. The ACOG Clinical Management Guidelines for Obstetrician-Gynecologists for the management of preterm labor estimate that the relative distribution of etiologies of preterm birth before 34 weeks of gestation is 30% indicated, 30% PPROM, and 40% spontaneous preterm labor. In contrast, for late preterm births, the relative distribution of etiologies changes to 20% indicated, 25% PPROM, and 55% preterm labor.[19] Study by Divyakala Karegoudar et al[13] showed that labour was indicated in 60 (37.27%) of the women while in 101 (62.73%) it was spontaneous. In those with indicated labour, 14 (36.84%) were induced and 36.84% underwent vaginal delivery while 24 (63.16%) had emergency LSCS.

Various risk factors are present within the population, with previous preterm births being the most prevalent (54.7%). Other significant risk factors include preeclampsia (24.5%), fetal distress (18.7%), and previous LSCS (15.8%). Identifying these risk factors is crucial for healthcare providers to develop targeted interventions and preventative measures to improve maternal and infant health outcomes.

A study from Ohio[20] reported that the causes of indicated late preterm births are similar to those for all preterm births, including preeclampsia (46%), fetal indications (18%), placental abruption (14%), and other indications (20%). In our study, intrauterine growth restriction (IUGR) was the most common comorbid condition for induction, accounting for 13.16%. Study by Divyakala Karegoudar et al[13] showed that history of previous preterm pregnancy was present in 3.11% of women, Post partum eclampsia and eclampsia were noted in 2(1.24%) each. The APGAR scores at both 1 minute and 5 minutes after birth indicate generally positive outcomes, with the majority of infants scoring above 7. However, a notable proportion of infants scored below 7 at 1 minute (20.9%) and 5 minutes (10.8%). Study by Divyakala Karegoudar et al[13] showed that APGAR score at 1 minute showed that 44.7% had <7 and 55.3% had > 7 score.

A significant portion of newborns (29.5%) required admission, indicating the need for medical intervention or monitoring post-birth. This high admission rate suggests that while many infants are born healthy, a considerable number still face health challenges that necessitate hospital care. Study by Jaiswal et al[12] showed that the most common indication for NICU admission was low birth weight (60.71%), followed by hyperbilirubinemia (14.29%). Study by Divyakala Karegoudar et al[13] showed that 49% newborns needed

admission to the hospital. Study by Rather GN et al[14] showed that late preterm infants are at high risk for overall morbidity, respiratory morbidity, and need of mechanical ventilation, jaundice, hypoglycaemia & sepsis. Complications such as low birth weight (12.2%), hyperbilirubinemia (7.2%), and respiratory distress (4.3%) are present within the population, albeit at varying frequencies. These complications may require medical attention and intervention to ensure optimal health outcomes for the infants. Early identification and management of these conditions are critical for reducing long-term health issues and promoting healthy development. Study by Divyakala Karegoudar et al[13] showed that 84 (52.17%) of babies who required NICU admission and low birth weight 51 (60.71%) was the commonest cause. Study by Rather GN et al[14] showed that three hundred sixty five (76.8%) of late preterm and 965 (28.3%) of term infants had at least one of the predefined neonatal conditions. The data reveals a remarkably high survival rate, with 99.3% of individuals surviving. This suggests effective healthcare practices and interventions within the population. The high survival rate indicates that despite the challenges associated with preterm births and other risk factors, the healthcare system is capable of providing the necessary care to ensure the vast majority of infants survive and thrive. Study by Amarjeet S Wagh et al[11] showed that late preterm babies had more neonatal morbidities compared to term babies (85 % vs 16.3 %). The findings of the present study were not comparable to those of the study conducted by Jaiswal et al[12]., as morbidity was noted in almost two-thirds of the babies, including 52.17% requiring NICU admissions and 12.42% requiring Kangaroo Mother Care (KMC). Study by Divyakala Karegoudar et al[13] showed that mortality was observed in 5 (5.95%) of the babies. Study by Rather GN et al[14] showed that mortality in late preterm neonates was 2.5% or 25/1000 live births.

CONCLUSION:

The study concludes a comprehensive snapshot of various aspects related to pregnancy, childbirth, and neonatal outcomes within the studied population. Preterm births, both early and late, are prevalent, indicating potential challenges in neonatal health and development. Various risk factors such as previous preterm births and preeclampsia underscore potential complications during pregnancy. The exceptionally high survival rate signifies effective healthcare interventions and underscores the importance of continued monitoring and support for maternal and neonatal health. Indications for delivering a baby in the late preterm period can significantly influence various perinatal outcomes, such as NICU admission, hypoglycemia, and the need for respiratory support. Hence, obstetric providers should personalize the management of late preterm deliveries, tailoring their approach to suit the specific circumstances of each case.

REFERENCES:

1. WHO. Preterm Birth; 2012.
2. Engle WA, Tomashek KM, Wallman C; Committee on Fetus and Newborn, American Academy of Pediatrics. "Late-preterm" infants: A population at risk. Pediatrics 2007;120:1390-401.
3. Committee on Obstetric Practice. ACOG Committee Opinion No 404 April 2008. Late-preterm infants. Obstet Gynecol 2008;111:1029-32.
4. Mandruzzato GP, Cali G, Chiaffarino F, Dal Pozzo G, Danti L, Gerosa V, et al. Risk factors for late preterm births: A case control study. J Gynecol Obstet 2013;3:182.
5. Barton JR, Barton LA, Istwan NB, Desch CN, Rhea DJ, Stanziano GJ, et al. Elective delivery at 340/7 to 366/7 weeks' gestation and its impact on neonatal outcomes in women with stable mild gestational hypertension. Am J Obstet Gynecol 2011;204:41-5.
6. Availablef r o m : https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pretermbirth.htm.
7. Jain L. Morbidity and mortality in late-preterm infants: More than just transient tachypnea! J Pediatr 2007;151:445-6.
8. Reddy UM, Ko CW, Raju TN, Willinger M. Delivery indications at late-preterm gestations and infant mortality rates in the United States. Pediatrics 2009;124:234-40.
9. Laughon SK, Reddy UM, Sun L, Zhang J. Precursors for late preterm birth in singleton gestations. Obstet Gynecol 2010;116:1047-55.
10. Gladstone M, Oliver C, Van den Broek N. Survival, morbidity, growth and developmental delay for babies born preterm in low and middle income countries - a systematic review of outcomes measured. PLoS One. 2015 Mar 20;10(3):e0120566.
11. Wagh AS, Jain N. Comparison of neonatal morbidities of late preterm with term born babies. Journal of Pharmaceutical and Biomedical Sciences (JPBMS) 2012;15(9):1-6
12. Jaiswal A, Murki S, Gaddam P,Reddy A. Early Neonatal Morbidities in Late Preterm Infants. Indian Pediatr 2011;48(8):607-11.
13. Divyakala Karegoudar .Perinatal outcomes and associated maternal Co-morbid conditions in Late Pre term births". Int.J.Curr.Microbiol.App.Sci (2014) 3(6): 865-875
14. Rather GN, Jan M, Rafiq W, Gattoo I, Hussain SQ, Latief M. Morbidity and Mortality Pattern in Late Preterm Infants at a Tertiary Care Hospital in Jammu & Kashmir, Northern India. J Clin Diagn Res. 2015 Dec;9(12):SC01-4
15. Loftin RW, Habli M, Snyder CC, Cormier CM, Lewis DF, Defranco EA. Late preterm birth. Rev Obstet Gynecol. 2010 Winter;3(1):10-9.
16. Sreenivas Karnati, Swapna Kollikonda, Jalal Abu-Shaweesh. Late preterm infants - Changing trends and continuing challenges. International Journal of Pediatrics and Adolescent Medicine. 2020; Volume 7: Issue 1: Pages 38-46.
17. Saifon Chawanpaiboon, MD Joshua P Vogel, PhD , Ann-Beth Moller, Prof Pisake Lumbiganon, MD et al.Global, regional, and national estimates of levels of preterm birth in 2014: a systematic review and modelling analysis. The Lancet. Global Health. 2019; vol 7(1): E37-46.
18. National Center for Health Statistics, authors. 2003 final natality data. Data prepared by March of Dimes Perinatal Data Center. 2005
19. Tucker JM, Goldenberg RL, Davis RO, et al. Etiologies of preterm birth in an indigent population: is prevention a logical expectation? Obstet Gynecol. 1991;77:343-347.
20. Merlino A, Bailit J, Mercer BM. Indications for late preterm birth, can obstetricians make a difference? Am J Obstet Gynecol. 2008;199(suppl 6A):S234