



ETIOLOGICAL PROFILE OF LATE PRETERMS WITH RESPIRATORY DISTRESS.

Dr Ankit Jishtu

MD Radiodiagnosis CH Kandaghat

Dr Kanika Chauhan*

MD Pediatrics SR IGMC Shimla. *Corresponding Author

ABSTRACT **Objective:** The aim was to study etiological profile in late preterms with respiratory distress. **Methods:** The study was conducted at Department of pediatrics at Dr RPGMC, Tanda at Kangra, Himachal Pradesh. It was a one-year hospital based prospective study on late preterms (gestation 34 wk to 36+6 wk). A total of 592 late preterm infants were enrolled in our study, as per the inclusion criteria. These newborns were monitored for development of respiratory distress. **Results:** 65 newborns developed respiratory distress which constituted 10.97% of the study population. Amongst respiratory distress, transient tachypnea of newborn (24.61%) was the most common etiology. Pneumonia and hyaline membrane disease (HMD) were significantly important with 20% each. Respiratory distress secondary to birth asphyxia was present in 15.38% late preterm babies. Meconium aspiration syndrome (MAS) was present in 12% neonates of the study. **Conclusion:** The late preterm gestation is usually considered safe as compared to preterms born before 34 weeks but they do have a significant incidence of preterm complications and therefore should be considered as a separate entity and not see jointly with the term gestation.

KEYWORDS : Late preterm, respiratory distress.

I. INTRODUCTION

Preterm birth is one of the major clinical problems in obstetrics and neonatology, as it is associated with increased perinatal mortality and morbidity.¹ Preterm infants refer to those born before 37 weeks of gestation from the first day of last menstrual period. Late preterm infants refer to those born between 34 completed weeks (34+0/7) and less than 37 completed weeks (36+6/7). Late preterm newborns are the fastest growing subset of neonates, accounting for approximately 74% of all preterm births and about 8% of total births. This increase is due to various obstetric and neonatal causes. During the last 15 years, the proportion of all births in the United States (U.S.) that were late preterm increased from 7.3% in 1990 to 9.1% in 2005. In 2005, late preterm births accounted for more than 70% of all preterm births (< 37 weeks gestation). In a study done in south India, out of 13.5% preterm births 55% were late preterm.² Babies born at this gestation were considered as „near term“ babies and equivalent to term babies. It was believed that these babies will have fewer problems postnatal and will do well with routine newborn care meant for a term baby and therefore they never received the attention they deserved. These “late-preterm” infants are often the size and weight of some term infants. Because of this fact, late-preterm infants may be treated by parents, caregivers, and health care professionals as though they are developmentally mature and at low risk of morbidity. Late preterm infants are physiologically and metabolically immature. As a consequence, late preterm infants are at a higher risk than the term infants, of developing medical complications that result in higher rates of mortality and morbidity during the birth hospitalization. In addition, late-preterm infants have higher rates of hospital readmission during the neonatal period than do term infants.³ It is now realized that babies born at 34 to 36+6 weeks should not be considered as term babies as the magnitude of morbidities and mortality in these subset of babies is much higher compared to term neonates. Greater morbidities translate to increased use of intensive care units, increased length of stay, and higher hospital costs. Late preterm birth increases mortality risk when compared to term infants, with a range of two to six times the rate of death in term neonates. These babies should, therefore, be considered as “late preterm”. Much has been studied about the problems of early preterm babies (less than 34 weeks) but not much literature is available on babies above this gestation. The available literature is mainly from the western nations. The obstetric and newborn care in developed countries is different from developing countries. Most often late preterm babies are managed same as that of term neonates. This projects large burden of late preterm infants in low income countries like India. Studies done in developed countries proved that late preterm infants are at a higher risk of morbidities and mortality than term infants and most of them were retrospective in nature. Few Indian studies have been conducted on the late preterm infants. A clearer understanding of the underlying risk factors, associated etiologies, and the relative effects of delivery at 34+0/7 through 36+6 weeks gestation, on the mother and fetus is needed, to develop interventions for preventing unnecessary late preterm births and to improve the management of infants who are born late preterm. Thus, additional

research is needed to determine the gestational age at delivery that optimally balances the risk of fetal morbidity or death against risks associated with late preterm birth for both the mother and the fetus. Therefore, it was thought prudent to undertake a prospective study to determine the early neonatal morbidity and mortality among late preterm at Dr R.P.G.M.C Tanda, Himachal Pradesh.

II. MATERIAL AND METHODS

This prospective study was conducted in the department of paediatrics, Dr RPGMC, Tanda at Kangra, Himachal Pradesh. It was a 12 month long study, in which all the late preterms who got admitted in NICU and SNCU were enrolled after consent. Data was collected on a predesigned proforma during the hospital stay and outcome was recorded. The results were calculated and interpretation was done.

• Inclusion Criteria

- All live inborn late preterm neonates.

Exclusion Criteria

- Infants with major congenital anomalies.
- Multifetal births.
- Infants with inborn errors of metabolism.
- Infants whose parents are not willing to give consent.

METHODOLOGY

All the late preterm babies delivered in the hospital during the study period were identified and their gestational age was confirmed by using maternal last menstrual period or first trimester ultrasound scan. In case of unavailability of the first two or if there was any discordance amongst the first two, then the baby was subjected to gestational age assessment by New Ballard Scoring. They were enrolled after explaining all the details of the study to the parents. A note was made of the interventions required by each baby and their outcome was also noted. Those who were not admitted at NICU/SNCU and were discharged from the post natal wards, were followed up at day seven at the hospital or telephonically, if they did not come for a follow up. For a newborn to be labelled as having respiratory distress: Presence of at least two out of the following criteria: Respiratory rate >60/min. Subcostal/Intercostal retractions. Expiratory grunt. Requirement of oxygen therapy. Investigations were conducted as per requirement after thorough clinical examination. Blood investigations included: Random blood sugar (RBS) Complete blood count (CBC) C-Reactive Protein (CRP) Renal function tests (RFTs) Electrolytes Liver function tests (LFTs) Total Serum Bilirubin (TSB) Blood culture and sensitivity Serum Calcium Serum phosphorus Alkaline phosphatase Others: Chest X-ray- AP view, Cerebrospinal Fluid (CSF) analysis. Statistical analysis Data was presented as frequency and percentages.

RESULTS

Amongst respiratory distress, transient tachypnea of newborn (24.61%) was the most common etiology. Pneumonia and hyaline

membrane disease (HMD) were significantly important with 20% each. Respiratory distress secondary to birth asphyxia was present in 15.38% late preterm babies. Meconium aspiration syndrome (MAS) was present in 12% neonates of the study group.

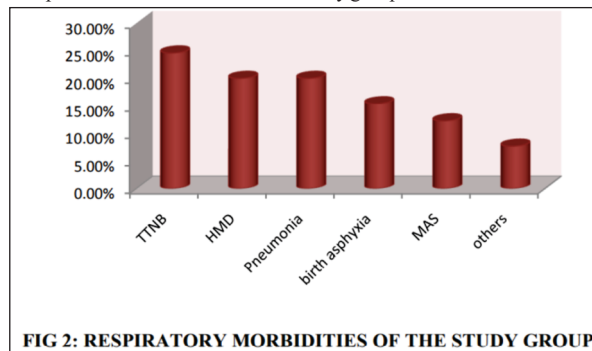
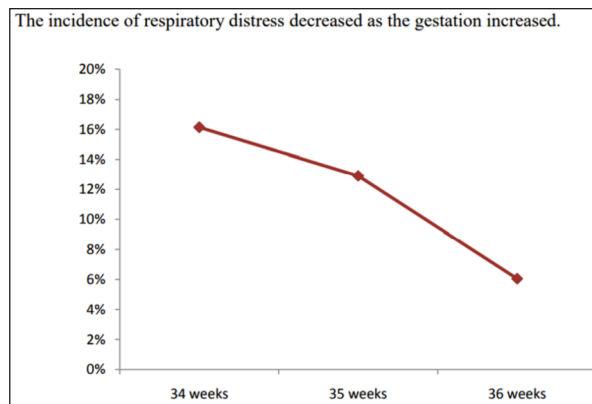


FIG 2: RESPIRATORY MORBIDITIES OF THE STUDY GROUP



IV. DISCUSSION

The frequency of preterm births is increasing in many countries and this increase is mainly due to rise in late preterm birth. Risk in late preterm population is under appreciated. The present study supports the fact that late preterm neonates suffer from significant morbidity and mortality, with an increasing trend as the gestation decreases. Late preterm constitute about 10% of total births. Amongst 10,096 babies born during the study period, 1114 were preterm. Out of these, 604 (54.2%) were late preterm. In our study late preterm babies constituted 5.9% of total births which was comparable to a prospective study done by Selvan et al, Jose Maria et al, Xiaolu et al and McIntire et al. The incidence of late preterm births in other studies varies from 11.2% to as high as 16.2% in a study by Mehta et al.

The incidence of respiratory distress was 10.97%, which included morbidities like transient tachypnea of newborn, hyaline membrane disease, pneumonia, birth asphyxia, meconium aspiration syndrome, hypoglycemia and sepsis. A study done in a Hyderabad based hospital by Jaiswal et al⁵ on 363 late preterm babies concluded that the incidence of respiratory morbidities was 10.5%, similar to our study. In all the studies respiratory morbidity was a leading or second leading morbidity of the late preterm neonates. Arunagirinathan et al documented an incidence as high as 51.7%. The incidence of respiratory distress too was found to be decreasing with increasing gestation. The incidence was 16.12%, 12.90% and 6.04% for 34 weeks, 35 weeks and 36 weeks respectively. Tsai et al and Wagh S Amarjeet et al had similar findings. Feeding difficulties were found in 9.29% which were lower than that found in a study by Pinar Binarbasi et al (19.1%), Sanjeet et al (18.06%) and Osama Abu Salah et al (15.8%). This may be due to adequate counselling of mothers for breast feeding as well as routine assessment of feeding by motivated healthcare providers at every contact with infant.

V. CONCLUSION

With all the results and discussion done so far, we have concluded that late preterms neonates constitute a considerable proportion of births in our institution. They cannot be regarded as equal to term neonates. They are at risk for all the morbidities that a preterm baby of gestation less than 34 week can have. After the study, we now have data to suggest that as compared to term babies, the incidence of morbidities is significantly higher in the late preterm population, and demands attention, if millennium development goal has to be achieved. We also conclude that late preterm infants should not be regarded as a

homogeneous group. Their morbidities have an inverse relation with increasing gestation. The rate of re-hospitalization is also high in the late preterm group. These differences are not only due to their physiological immaturity but also due to biological determinants of preterm birth acting through gestational age to produce poor outcomes.

The risks and benefits of spontaneous vaginal delivery, planned induction of labour, or elective caesarean section for mother and infant should be carefully considered by the attending doctors when determining the optimal timing and route of delivery. Once they are delivered, their discharge should be individualized and early discharge should be avoided. These neonates should be assessed and monitored in a hospital set up for first 72 hours of life. Apart from daily examinations and screening for various signs and symptoms pertaining to various morbidities that the late preterm babies have, routine blood glucose levels should be measured regularly up to 72 hours of life to detect and prevent hypoglycemia.

REFERENCES

1. Selvan T, Saravanan P, Nagaraj MS, Tudu MN. A study of short term outcome of late preterm babies. *Int J Contemp Pediatr* 2017;4:858-861
2. Femitha P, Bhat BV. Early neonatal outcome in late preterms. *Indian J Pediatr* 2012;79:1019-24
3. Raju T, Higgins R, Stark A, Leveno K. Optimizing care and outcome for latepreterm (near-term) infants: A summary of the workshop sponsored by the National Institute of Child Health and Human Development. *Pediatrics* 2006;118:1207-14
4. Raju T. Epidemiology of late preterm (near-term) births. *Clin Perinatol* 2006;33:751-63
5. Jaiswal A, Murki S, Gaddam P and Reddy A. Early Neonatal Morbidities in Late Preterm Infants. *Indian pediatrics* 2011; 48:607-611.