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Original Research Paper

Neonatology

INCIDENCE OF PERINATAL ASPHYXIA IN LATE PRETERMS IN A TERTIARY CARE HOSPITAL

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ABSTRACT **Objective:** The aim was to study incidence of perinatal asphyxia in late preterm born in the study period in our hospital. **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. Those requiring post resuscitation care were considered as the ones having perinatal asphyxia. **Results:** 28 newborns had perinatal asphyxia which constituted 4.72 % of the study population. **Conclusion:** The late pretem gestation is usually considered safe as compared to preterms born before 34 weeks but they do have a significant incidence of preterm complications like birth asphyxia and therefore should be considered as a separate entity and not see jointly with the term gestation.

KEYWORDS : Late preterm, perinatal asphyxia

I. INTRODUCTION

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.[1]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.[2] In 2005, an expert group was set up by the National Institute of Child Health and Human Development (United States) to search for the problems of late preterm newborns. This group suggested to give a name to the newborns born between 34–36+6 weeks gestation (between 239-259 days gestation) as "late preterm", instead of "near term" or "almost term" neonates, to prevent a lack of attention to problems connected with this group of neonates.[3] 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 ,including perinatal asphyxia. 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. Most often late preterm babies are managed same as that of term neonates.

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 for post resuscitation care 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 Ballad Scoring. They were enrolled after explaining all the details of the study to the parents. Amongst those who were admitted to NICU/SNCU were separately enrolled. A note was made of the interventions required by each baby and their outcome was also noted.

Statistical Analysis

Data was presented as frequency and percentages.

Ethical Issues

The study was conducted after getting approval of the 'Institutional ethics committee'. Parents of the late preterm newborns were explained about the study in which they were going to participate, in the language they understood. Enrollment was done only after taking informed written consent. Parents were explained the need for investigations. There was no drug trial or experiment involved. Investigators were aware of 'Ethics in Biomedical Research' guidelines by ICMR (2006) and 'Declaration of Helsinki (modified 2000)'. These were followed in letter and spirit. Every precaution was taken to respect the privacy of the patient, the confidentiality of the patient's information. The parents were given the right to abstain from participation in the study or to withdraw consent to participate at any time of the study without reprisal. Written informed consent was obtained from parents of all the late preterm newborns included in the study.

Financial Disclosure

No cost was charged from the parents for any investigation done under this study. We did not receive any financial benefit from any source for this study.

RESULTS

There were 10,096 deliveries at our institute during the study period. Out of these 604 (5.98 %) were born late preterm. A total of 592 late preterm infants were enrolled in our study, as

per the inclusion criteria. The average age of the mothers in our study was 26.12 (±3.46) years. Of these, 295 (49.83%) were primigravida. There were 452 (76.6%) vaginal deliveries and 138 (23.31%) caesarean deliveries.

28 babies had perinatal asphyxia constituting 4.72 % of the late preterms. The incidence of birth asphyxia decreased remarkably from 34 weeks to 35 weeks gestation but asphyxia rates were comparable in 35 weeks and 36 weeks gestations and differed by 0.7%. Six babies died due to birth asphyxia.

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.[3] 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[4], Jose Maria et al[5] , Xiaolu et al[6] and McIntire et al[7]. 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[8] The incidence of birth asphyxia was 4.72% which was comparable to a study by Manerkar et al[9] in Maharashtra (6.36%). Also, this incidence was comparable but lower than that found by Arunagirinathan et al37 in Puducherry (8.92%). In a study done at a hospital based in Dhaka, amongst 513 late preterm neonates a mere 1.2% had birth asphyxia. Another study done in Brazil, on 1025 late preterm babies by Jose Maria et al[5] , the incidence was 0.8%. Such variations are attributable to varying socio-demographic factors responsible for birth asphyxia.

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. 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. All late preterms delivery must be attended by a paediatrician or if that is not possible then the labor room staff must equip themselves with neonatal resuscitation. We must anticipate the need of neonatal resuscitation in this group.

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