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RESEARCH ARTICLE

EARLY NEONATAL MORBIDITIES AMONG TERM AND LATE PRETERM INFANTS IN A TERTIARY CARE CENTRE - A COMPARATIVE STUDY

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Abstract

Background: Late preterm infants are the largest subgroup of preterm infants but they are also a group that is seldom studied. The overall NICU admission rates of these group has been increasing worldwide. Only few studies have been conducted to assess the neonatal morbidity and mortality in late preterm infants [1-4]. Understanding morbidity risk among late preterm infants important for helping newborn care providers to anticipate and to manage morbidity during the birth and also possibly assist in guiding nonemergency obstetric intervention decisions. The present study is an attempt to obtain actual data on incidence, pattern of early neonatal morbidities, and to compare it with term infants.

Aims and Objectives: To compare early neonatal morbidity (within first 7 days of life) in late preterm infants with term infants.

Methodology: A hospital based prospective observational study conducted among 110 newborns in postnatal ward & Neonatal Intensive Care Unit (NICU) of Government medical college, Kannur during 1 year period (March 2022 – March 2023). Study population: All term & late preterm newborns of Government medical college, Kannur. We assessed morbidities like RDS, hypoglycemia, NEC, Jaundice, sepsis and HIE and compared the incidence between term and late preterm neonates during the study period. Results were analyzed using a statistical software package SPSS, version 20.0.

Results: Among 110 study population ,43% were late term infants while 56% were term infants. Morbidities like RDS (22.9%), sepsis (8%), hypoglycemia (3%), neonatal jaundice (33%), NEC (16%), HIE (2%) were found to be significantly higher in late preterm infants when compared to term infants.

Conclusion: Late preterm infants are at higher risk for a number of neonatal complications like respiratory distress syndrome, neonatal jaundice, sepsis, feeding problems, hypoglycemia and HIE. All these in turn leading to higher rates of NICU admission and late discharge from hospital during first seven days of life.

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Introduction:-

Late preterm infants (34 0/7 through 36 6/7 weeks of gestation) are physiologically less mature and have limited compensatory responses to the extra-uterine environment, compared with the term infants [1].

Although late preterm infants are the largest subgroup of preterm infants, they are also a group that is seldom studied. This is mainly because of looking at these group as being ‘almost mature’ with little need to be concerned. 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. They are often managed in newborn level 1 (basic) nurseries or remain with their mother after birth.

Late preterm infants are physiologically and metabolically immature. As a consequence, late preterm infants are at higher risk than are term infants of developing medical complications that result in higher rates of mortality and morbidity during the birth hospitalization. However recent studies have shown a contrary trend [13]. The late preterm group has 2 to 3 fold increased rates for mild to moderate morbidities, such as hypothermia, hypoglycemia, respiratory distress, poor feeding, jaundice, infection and readmission rates after initial hospital discharge [13]. As the late preterm subgroup accounts for nearly 10% of all births, even a modest increase in any morbidity will have a huge impact on the overall health care resources. As a result, the overall NICU admission rates of these group has been increasing worldwide[24].

A clearer understanding of the underlying risk factors, associated etiologies, and their relative effects on delivery at 34 – 36 weeks' gestation on the mother and fetus is needed to develop interventions to prevent unnecessary late-preterm births and to improve the management of 15 infants who are born late preterm [17-20]. 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. Only few studies have been conducted to assess the neonatal morbidity and mortality in late preterm infants [13-15]]. Understanding morbidity risk among late preterm infants is not only important for helping newborn care providers to anticipate and to manage morbidity during the birth and admission but may also possibly assist in guiding nonemergency obstetric intervention decisions [25-30]. The present study is an attempt to obtain actual data on incidence, pattern of early neonatal morbidities, and to compare it with term infants.

Methodology:-

Inclusion Criteria:

All term & late preterm newborns of GMC, Kannur. Those babies who can be followed up till 7days.

Exclusion Criteria

Babies with gross congenital anomalies Those with clinically diagnosed chromosomal syndromes 25

Methods of Data Collection:-

An approval of the study protocol was obtained from the ethical committee prior to the commencement of the study. Informed parental consent will be obtained prior to enrolment in the study. A suitable case reporting form (CRF) mentioning infant’s particulars, risk factors, and neonatal morbidity developed for the study. All infants enrolled in study will be followed daily till first 7 days of life for any morbidity by clinical evaluation and reviewing hospital records. Infants who will be discharged before 7 days will be called for mandatory follow up evaluation in the outpatient clinic on 7th day of life.

Any of the following predefined medical condition resulting in post delivery inpatient hospital observation, admission or readmission in first 7 days of life:

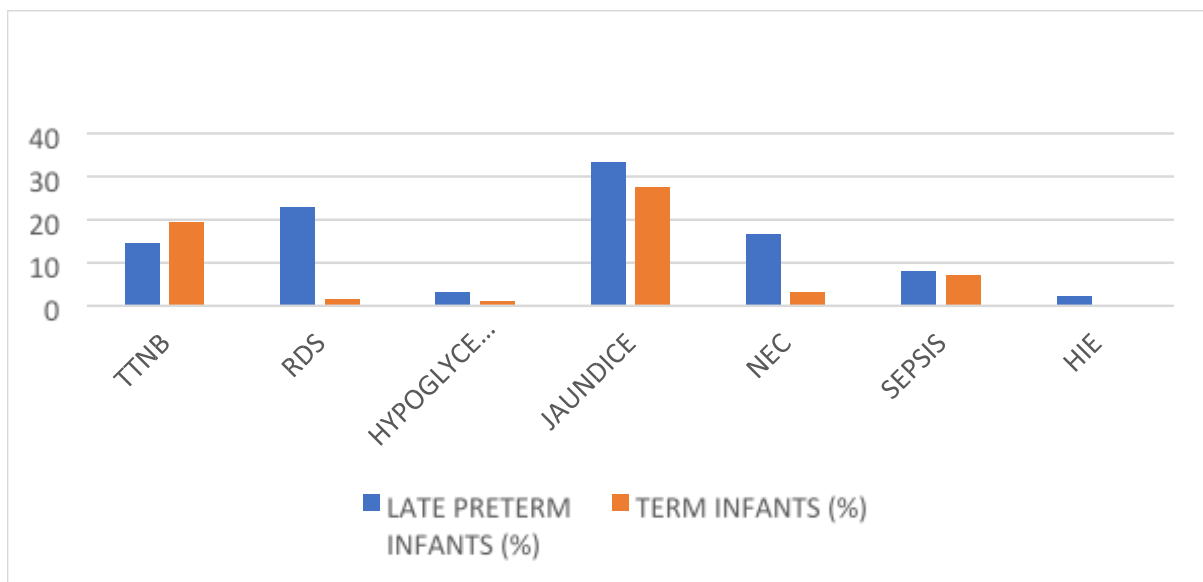
1. Post Resuscitation care: Requirement of post-resuscitation care as per NRP 2020 guidelines.
2. Hypoglycemia: Blood glucose of less than 40 mg/dL. Blood sugars were monitored at 12 hourly intervals in all late preterm, IUGR (intrauterine growth restriction), IDM (Infant of diabetic mother) and LGA (Large for gestation, birth weight >2SD) infants. Random blood sugar estimation was also done in all symptomatic infants as per the clinician’s discretion 26
3. Jaundice: Clinically visible jaundice requiring phototherapy/exchange transfusion as per hour specific total serum bilirubin (TSB) nomogram (AAP chart). Criteria for 35 weeks were used for infants with 34 weeks’ gestation.

4. Respiratory distress: Presence of at least 2 of the following criteria: Respiratory rate >60/min, Subcostal/intercostal recessions, Expiratory grunt/groaning, and requiring oxygen therapy.
5. Sepsis: Probable sepsis: Positive septic screen (two of the five parameters namely, TLC < 5000/mm³, band to total polymorph ratio of >0.2, absolute neutrophil count less than 1800/mm³, MicroESR > 15mmhg, C reactive protein >10mg/L,) /proven sepsis: isolation of pathogens from blood/ CSF / urine.
6. Necrotizing enterocolitis /feed intolerance : diagnosed as per modified Bells staging criteria.

Results:-

In our study population of 110 neonates we compared the incidence of morbidities like RDS, hypoglycemia, NEC, neonatal jaundice, sepsis and HIE in the first 7 days of life. It was found that all of the morbidities had higher incidence in late preterm infants as compared to term infants.

	LATE PRETERM INFANTS (%)	TERM INFANTS (%)
TTNB	14.6	19.4
RDS	22.9	1.6
HYPOGLYCEMIA	3.2	1
JAUNDICE	33.3	27.4
NEC	16.7	3.2
SEPSIS	8.1	7
HIE	2.1	0



Discussion:-

This observational study was done to compare the early neonatal morbidities among term and late preterm infants. The study population included 110 neonates born at Government medical college, Kannur during 1 year period.

There are various studies conducted with regards to neonatal morbidities in term and late preterm infants. In a study conducted by Haroon, Anila et al it was concluded that the late preterm group had greater morbidity, compared to term neonates. Prior awareness of the morbidities associated with late preterm babies is helpful for the health care providers to anticipate and manage potential complications in late preterm infants.

In our study population of 110 neonates we compared the incidence of morbidities like RDS, hypoglycemia, NEC, neonatal jaundice, sepsis and HIE in the first 7 days of life. It was found that all of the morbidities had higher incidence in late preterm infants as compared to term infants. Among the morbidities the incidence of RDS and NEC was significantly higher in late preterm infants.

In our study which included 110 neonates, 64% of late preterm infants had at least one morbidity requiring NICU admission and delayed discharge rates in the first seven days of life. This finding confirms that of Modi et al who also observed that while 42% of late preterm neonates required admission for 3 to 7 days only 28% of term infants needed the same duration of hospitalization.

This observation is also similar to Wang et al who noted that nearly 78% of near term infants compared with 45% of term infants had at least one clinical problem. In a retrospective study, Modi et al, found that the risk of morbidity was nearly 3 times higher in late preterm compared to term neonates, also accompanied by an increased NICU stay. Shapiro-Mendoza et al, too, observed that the risk of morbidity among LPT doubled with every week that the gestational age(GA) reduced. Thus, study revealed significantly increased morbidity in the late preterm population compared to the term.

Conclusion:-

Late preterm infants are at higher risk for a number of neonatal complications like respiratory distress syndrome, neonatal jaundice, sepsis, feeding problems, hypoglycemia and HIE. All these in turn leading to higher rates of NICU admission and late discharge from hospital during first seven days of life. Initiatives imparting special care to late preterm infants are required in order to lower the morbidities endured by this population. All these support the argument that late preterm should be monitored like any other preterm less than 34 weeks. There is a pressing need to document the health and economic impact of these initiatives and to take appropriate preventive and therapeutic measures for this condition.

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