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INCIDENCE OF HYPOGLYCEMIA IN LATE PRETERMS IN A TERTIARY CARE HOSPITAL

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ABSTRACT **OBJECTIVE:** To determine the incidence of hypoglycemia in a subset of preterm newborns that is late preterms and how the incidence is surprisingly greater than their term counterparts. **METHODS:** It was a hospital based prospective study, wherein every late preterm born in the hospital during one year of the study period was enrolled. These late preterms were evaluated by clinical examination and blood sugar levels done as per hospital protocols. The ones developing hypoglycemia were enrolled and followed up. **RESULTS:** 19 (3.20%) of late preterms developed hypoglycemia. **CONCLUSION:** We often make a mistake of comparing late preterms to their term counterparts. As incidence of hypoglycemia is more in late preterms than terms, they must undergo blood sugar monitoring after birth, meticulously even if their weight is more than 2.5 kg.

KEYWORDS : hypoglycemia, late preterm.

I.INTRODUCTION

Hypoglycemia may affect fasting newborn infants of all gestational ages because of insufficient metabolic responses to the abrupt loss of the maternal glucose supply after birth. The incidence of hypoglycemia is inversely proportional to gestational age. Within first 12 to 24 hours after birth, concentrations of enzymes that are essential for hepatic gluconeogenesis and hepatic ketogenesis rapidly increase. Thereafter, hypoglycemia typically resolves. In a prospective study by Selvan et al the incidence of hypoglycemia was 27.4%. Late preterm babies are at increased risk of developing hypoglycemia after birth, because they have immature hepatic glycogenolysis and adipose tissue lipolysis, hormonal dysregulation, and deficient hepatic gluconeogenesis and ketogenesis. Blood concentrations among preterm infants typically decrease to a nadir 1 to 2 hours after birth and remain low until metabolic pathways can compensate or exogenous sources of glucose are provided[1,2]. Carbohydrate metabolism among late preterm infants is not well understood. However, immature glucose regulation likely occurs in late preterm infants, because hypoglycemia that requires glucose infusion during the initial birth hospitalization occurs more frequently than in term infants.[3]

II. MATERIALAND METHODS

It was a hospital based prospective study with a study period of 12 months at Neonatal intensive care unit (NICU) / special newborn care unit (SNCU) and postnatal wards, Department of Pediatrics, Dr. Rajendra Prasad Government Medical College, Tanda at Kangra (Himachal Pradesh).

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. Blood sugar less than 45 mg/dl was considered as hypoglycemia. All the relevant details of the mother and the baby were noted down in a proforma. Thereafter, all the late preterms were screened for hypoglycemia by glucose monitoring at birth, 1hr, 2 hr, 3 hr and 6 hr of life and then 6 hrly upto 48 hrs of life. Data was collected for the ones with hypoglycemia.

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. I did not receive any financial benefit from any source for this study.

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. Late preterm babies born at a gestation of 36 weeks or more predominated the study group. They constituted more than half (55.91 %) of the study group. Those born between 35 weeks and 35+6 weeks constituted one fourth (26.18 %) of the study group. The most immature of them all were those born between gestation of 34 weeks to 34+6 weeks and they constituted 17.9% of the study group. 19 late preterms developed hypoglycemia and 12 amongst those required a continuous glucose infusion for management. The incidence of hypoglycemia in our study was 3.20 %.

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.[4] The incidence of hypoglycemia was 3.20%, which was lower than most of the studies by A Leone et al[5], Jaiswal et al[6], Margreet J. Teune et al[7], Ezhilvannan et al[8] and Wang et al[9]. In a descriptive study of 326 late preterms in Karachi, Haroon et al[10] found the incidence of hypoglycemia amongst late preterm neonates to be 5.2%. Studies by Selvan et al[11] and Mehta et al[12] had incidence as high as 27.4% and 24.4%, respectively. The incidence had inverse relation with increasing gestation as demonstrated by Tsai et al[13].

V. CONCLUSION

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.

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