(e) ISSN Online: 2321-9599

(p) ISSN Print: 2348-6805

ORIGINAL ARTICLE

Assessment of outcome of early preterm, late preterm and term infants

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ABSTRACT:

Background: Late preterm infants face more problems in the immediate newborn period compared with their full-term counterparts. The present study was conducted to assess outcome of early preterm, late pretermand term infants. **Materials & Methods:** 120 early preterm, late pretermand term infants of both genderswere classified into 3 groups of 40 each. Parameters such as increasedhospitalizations, multiple gestation, small forGA status, maternal age (adolescent [<20 years old] versus adult [≥20years old])etc. were recorded. **Results:** Out of 120 patients, boys were 70 and girls were 50. The mean gestation age was 32.1weeks in group I and 36.5weeks in group II and 39.4weeks in group III. Birth weight was 2045.6grams in group I, 2852.8grams in group II and 3486.2grams in group III. Multiple gestation was 17% in group I, 11.5% in group II and 2.4% in group III. Small for GA was 8.2% in group I, 11% in group II and 9% in group III. The difference was significant (P< 0.05). The mean birth hospitalization length was 13.2 days, 2.4 days and 2.1 days. Hospitalization within 14 days of birth discharge was seen in 3.4%, 3.3% and 3.0%. Hospitalization within 30 days of birth discharge was seen in 6.3%, 5.7% and 3.1%. Hospitalization within 90 days of birth discharge was seen in 10.2%, 8.4%and 5.3%. Hospitalization between birth discharge and day 365 of life was seen in 16.5%, 12.4% and 9.0% in group I, II and III respectively. The difference was significant (P< 0.05). **Conclusion:** There was high rate of hospitalization in early preterm infants.

Key words: Late preterm infants, Hospitalization, Outcome

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This article may be cited as: Sharma P. Assessment of outcome of early preterm, late preterm and term infants. J Adv Med Dent Scie Res 2016;4(6):434-437.

INTRODUCTION

Late preterm infants (LPIs), born between 34 0/7 and 36 6/7 weeks' gestational age (GA), account for >70% of preterm deliveries in the United States.[1] A growing body of literature raises concerns about increased morbidity and mortality in this population during birth hospitalization. Studies focusing on more long-term outcomes have identified an increased risk of hospitalization and increased associated costs for LPIs compared with term infants (TIs) within the first 14 days after discharge, 28 days after discharge and 1 year after discharge.[2,3]

Late preterm infants face more problems in the immediate newborn period compared with their full-term counterparts.[4] This excess morbidity extends beyond the initial birth hospitalization and the literature recognizes that readmission rates of late preterm infants are 1.5 to 3 times that of term infants.[5] In this group of infants, the overwhelming reasons for rehospitalisation are jaundice and feeding problems.[5]Some severe adverse outcomes, such as grade 3 or 4 intraventricular hemorrhage, culture proven sepsis, and necrotizing enterocolitis, were rare.[6] The most common adverse outcomes were respiratory distress, sepsis work-ups, and phototherapy for hyperbilirubinemia.[7,8]The present study was conducted to assess outcome of early preterm, late pretermand term infants.

MATERIALS & METHODS

The present study comprised of 120 early preterm, late pretermand term infantsof both genders. Parents gave their written consent for the participation in the study.

Data such as name, age, gender etc. was recorded. Patients were classified into 3 groups of 40 each. Group I was early preterm, group II was late pretermand group III was term infants. Parameters such as increasedhospitalizations, multiple gestation, small forGA status, maternal age (adolescent[<20 years old] versus adult [≥20years old]), maternal parity, maternalrace, trimester of prenatal care initiation, and birthyear etc. were recorded. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I: Distribution of patients

Total- 120		
Gender	**Boys**	**Girls**
Number	70	50

Table I shows that out of 120 patients, boys were 70 and girls were 50.

Table II: Baseline characteristics

Parameters	Group I	Group II	Group III	P value
Gestation age (weeks)	32.1	36.5	39.4	0.05
Birth weight (grams)	2045.6	2852.8	3486.2	0.03
Multiple gestation (%)	17%	11.5%	2.4	0.02
Small for GA(%)	8.2%	11%	9%	0.11

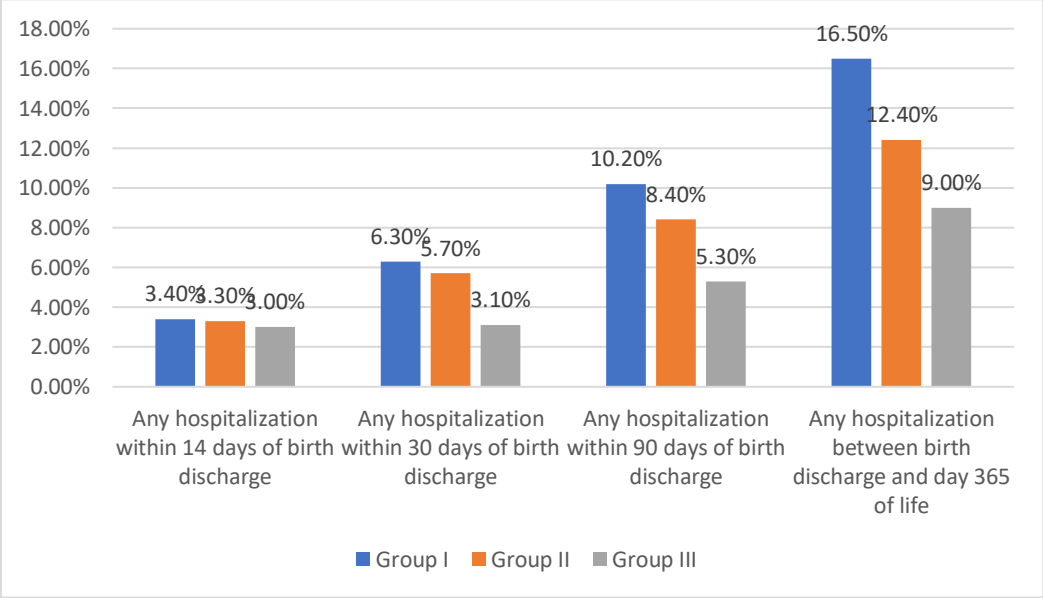
Table II shows that mean gestation age was 32.1weeksin group I and 36.5weeksin group II and 39.4weeks in group III. Birth weight was 2045.6gramsin group I, 2852.8gramsin group II and 3486.2grams in group III. Multiple gestation was 17% in group I, 11.5% in group II and 2.4% in group III. Small for GA was 8.2% in group I, 11% in group II and 9% in group III. The difference was significant (P< 0.05).

Table III: Assessment of hospitalization

Parameters	Group I	Group II	Group III	P value
Birth hospitalization length (days)	13.2	2.4	2.1	0.05
Any hospitalization within 14 days of birth discharge	3.4%	3.3%	3.0%	0.03
Any hospitalization within 30 days of birth discharge	6.3%	5.7%	3.1%	0.02
Any hospitalization within 90 days of birth discharge	10.2%	8.4%	5.3%	0.11
Any hospitalization between birth discharge and day 365 of life	16.5%	12.4%	9.0%	

Table III, graph I shows that mean birth hospitalization length was 13.2 days, 2.4 days and 2.1 days. Hospitalization within 14 days of birth discharge was seen in 3.4%, 3.3% and 3.0%. Hospitalization within 30 days of birth discharge was seen in 6.3%, 5.7% and 3.1%. Hospitalization within 90 days of birth discharge was seen in 10.2%, 8.4% and 5.3%. Hospitalization between birth discharge and day 365 of life was seen in 16.5%, 12.4% and 9.0% in group I, II and III respectively. The difference was significant (P< 0.05).

Graph I: Assessment of hospitalization



DISCUSSION

Many obstetric and neonatal management strategies have been developed during the last 40 years in efforts to improve the outcome of preterm births.[9,10] These strategies, to name but a few, have included regionalized maternal–neonatal transport systems, development of neonatal intensive care units, and interventions such as attempting to delay delivery using tocolytic drugs or enhancing fetal lung maturation by administration of corticosteroids to the mother.[11,12]The present study was conducted to assess outcome of early preterm, late pretermand term infants.

We found that out of 120 patients, boys were 70 and girls were 50. Ray et al[13]hypothesized that odds of any hospitalization would generally decrease with

increasing GA, with late preterm infants experiencing additional increased risk of specific hospitalizations, such as hyperbilirubinemia. Odds of any hospitalization within the first year of life decreased with advancing GA, but observed odds of any hospitalization exceeded expected odds for 35-, 36-, and 37-week GA infants for all time periods after discharge. Odds of any hospitalization for hyperbilirubinemia were greatest for infants 33 to 38 weeks' GA (peak odds ratio at 36 weeks' GA: 2.86 and a relative peak in odds of any hospitalization for specific infections was observed among infants 33 to 36 weeks' GA.

We found that mean gestation age was 32.1weeks in group I and 36.5weeks in group II and 39.4weeks in group III. Birth weight was 2045.6grams in group I, 2852.8grams in group II and 3486.2grams in group III. Multiple gestation was 17% in group I, 11.5% in group II and 2.4% in group III. Small for GA was 8.2% in group I, 11% in group II and 9% in group III. McIntire[14]analyzed neonatal mortality and morbidity rates at 34, 35, and 36 weeks of gestation compared with births at term over the past 18 years and to estimate the magnitude of increased risk associated with late preterm births compared with births later in gestation. Late preterm singleton live births constituted approximately 9% of all deliveries at our hospital and accounted for 76% of all preterm births. Late preterm neonatal mortality rates per 1,000 live births were 1.1, 1.5, and 0.5 at 34, 35, and 36 weeks, respectively, compared with 0.2 at 39 weeks (P<.001). Neonatal morbidity was significantly increased at 34, 35, and 36 weeks, including ventilator-treated respiratory distress, transient tachypnea, grades 1 or 2 intraventricular hemorrhage, sepsis work-ups, culture-proven sepsis, phototherapy for hyperbilirubinemia, and intubation in the delivery room. Approximately 80% of late preterm births were attributed to idiopathic preterm labor or ruptured membranes and 20% to obstetric complications.

We found that mean birth hospitalization length was 13.2 days, 2.4 days and 2.1 days. Hospitalization within 14 days of birth discharge was seen in 3.4%, 3.3% and 3.0%. Hospitalization within 30 days of birth discharge was seen in 6.3%, 5.7% and 3.1%. Hospitalization within 90 days of birth discharge was seen in 10.2%, 8.4% and 5.3%. Hospitalization between birth discharge and day 365 of life was seen in 16.5%, 12.4% and 9.0% in group I, II and III respectively. Shapiro-Mendoza et al[15]compared late-preterm and term (37-41 weeks' gestation) infants with and without selected maternal medical conditions and assessed the independent and joint effects of these exposures on newborn morbidity risk. This study population included 26,170 infants born late preterm and 377,638 born at term. Late-preterm infants were 7 times more likely to have newborn morbidity than term infants (22% vs 3%). The newborn morbidity rate doubled in infants for each gestational week earlier than 38 weeks. Late-preterm infants who were born to mothers with any of the maternal conditions assessed were at higher risk for newborn morbidity compared with similarly exposed term infants. Late-preterm infants who were exposed to antepartum hemorrhage and hypertensive disorders of pregnancy were especially vulnerable.

The limitation the study is small sample size.

CONCLUSION

Authors found that there was high rate of hospitalization in early preterm infants.

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