

## Mode of Delivery and Perinatal Outcome in Early Term and Full Term Deliveries

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### Original Research Article

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**Abstract:** To determine effect of mode of deliveries and gestational age on perinatal outcome. This was Prospective Study at Department of Obstetrics & Gynaecology Zenana Hospital, SMS Medical College, and Jaipur from March 2015 to February 2016. Modes of delivery were categorized as caesarean section and vaginal deliveries. After excluding anomalies, rates of neonatal outcome by mode of deliveries were compared, correlated and statistically analyzed. Sample size was calculated to 300 subjects in each of the two groups (early term and full term neonates). Perinatal morbidities were slightly higher in neonates delivered by LSCS and in early term birth group. Respiratory distress was seen more in early term neonates (6.00%) and in LSCS group (54.54%). NICU admission was more in early term birth (21.33%) and in LSCS group (51.23%). No significant difference was noted between the 2 groups for APGAR scores at 1 and 5 minutes. This study demonstrates that neonatal morbidities were more in caesarean section group performed at early term period (37 weeks to 38 weeks 6days). So, gestational age and mode of delivery remains a predictor of neonatal morbidity. Despite the limitations of this study, it highlights the need for further research evaluating the effects of the rising cesarean delivery rates.

**Keywords:** caesarean section, neonatal morbidities, neonatal outcome.

### INTRODUCTION

Elective caesarean section rates have risen over the last decade worldwide because of obstetrical recommendations and maternal request have the potential for a significant impact on public health and health care costs because of the morbidity associated with this subgroup.

The increase in this rate is not associated with clear benefit for the baby or mother but proportionally associated with increased morbidity for both. Moreover, these increases in cesarean delivery rates which may not always be explained by clinical indications have led to efforts to reduce the number of cesarean deliveries [1]. Neonatal adverse outcomes in infants born before 39 weeks of gestation are increased and increase progressively as gestational age at birth declines. Infants born by cesarean section in comparison with those born vaginally are at increased risk for adverse respiratory outcomes, especially when delivery occurs before the onset of labor, even in infant who are delivered at or beyond 37 completed weeks of gestation, so it is very important to choose the correct timing for elective caesarean section to prevent unnecessary morbidities [1]. Tita *et al.* noticed those elective cesareans before 39 weeks of gestation are common and are associated with respiratory and other adverse neonatal outcome [2]. This study aims to study

the associations between mode of delivery and short-term perinatal outcomes.

### MATERIALS AND METHODS

#### Study design

Prospective study

#### Place of study

Department of obstetrics & gynaecology, zenana hospital, SMS medical college, Jaipur, Rajasthan

#### Duration of study

March 2015 to February 2016

#### Sample size

Sample size was calculated to 296 subjects in each of the Two groups at alpha error 0.05 & study power 80% assuming the Proportion of the low birth weight among full term & early term Pregnancy to be

0.8% & 5% respectively {as per seed article} hence for Study purpose 300 subjects were taken in each of two groups.

**Inclusion criteria**

- Regular menstrual cycle and sure of dates
- 37 wks to 40 wks 6 days- grouped into two-
  - Early term births-gestational age between 37 weeks to 38weeks 6days
  - Full term- gestational age between 39 weeks to 40weeks 6days
- Spontaneous labour
- Premature rupture of membrane
- Previous two caesarean
- No recorded indication
- Any planned caesarean, eg. Breech, transverse lie

**Exclusion criteria**

- Difficulty in determining gestational age
- Preterm, late term, post term pregnancy
- Aph
- Multiple pregnancy
- Iugr
- Congenital anomalies
- Medical illness
- Decreased fetal movements

**METHODOLOGY**

Prospective study of women admitting in labour room with gestational age between 37 wks to 40 wks and 6 days at zenana hospital, sms medical college, jaipur was conducted. Exclusion and inclusion

criteria applied. Gestational age estimated by LMP or first USG. Mode of deliveries identified. Data of early neonatal outcomes in early term and full term deliveries were compared, correlated and statistically analyzed. Chi-square test was used to assess statistical significance of association. P-value < 0.05 was considered as statistically significant.

**Clinical evaluation**

The recruited group were subjected to: -  
Detailed history  
Examination  
Investigation – routine anc investigations, USG

**RESULTS**

600 subjects were recruited on the basis of inclusion and exclusion criteria. A form was completed for each subjects, a detailed medical and obstetric history taken, clinical examination and routine antenatal investigations and USG done. Data of early neonatal outcomes in early term and full term deliveries were compared, correlated and statistically analyzed.

**Salient features of this study were**

Mean age of study population 24.12 3.61 years. The urban population constituted major part of study population (68.67%). Majority of study population belonged to middle class (71.67%) and maximum cases were Hindu (83%). Majority of cases could read and write (70%).

**OBSERVATIONS**

**Table-1: Distribution According to mode of Delivery of early term birth and full term birth**

Mode of delivery	early term birth		full term birth	
	No.	%	No.	%
LSCS	148	49.33	130	43.33
NVD	152	50.67	170	56.67
TOTAL	300	100.00	300	100.00
x <sup>2</sup> = 2.170 d.f. = 1 p > 0.05 NS				

**Table-2: Distribution of mode of Delivery According to RESPIRATORY DISTRESS (RD) of New Born Baby of early term birth and full term birth**

Mode of deliveries	early term birth			full term birth		
	RD PRESENT	RD ABSENT	TOTAL	RD PRESENT	RD ABSENT	TOTAL
LSCS	10 (3.33%)	138 (46%)	148 (49.33%)	8 (2.67%)	122 (40.67%)	130 (43.33%)
VD	8 (2.67%)	144 (48%)	152 (50.67%)	7 (2.33%)	163 (54.33%)	170 (56.67%)
TOTAL	18 (6.00%)	282 (94.00%)	300 (100.00%)	15 (5.00%)	285 (95.00%)	300 (100.00%)

LSCS: x<sup>2</sup> = 0.0415 d.f. = 1 p > 0.05 NS  
VD: x<sup>2</sup> = 0.2371 d.f. = 1 p > 0.05 NS

**Table-3: Distribution of MODE of Delivery According to NICU ADMISSION of New Born Baby of early term birth and full term birth**

Mode of deliveries	early term birth			full term birth		
	NICU admission		TOTAL	NICU admission		TOTAL
	PRESENT	ABSENT		PRESENT	ABSENT	
LSCS	33 (11%)	115 (38.33%)	148 (49.33%)	29 (9.67%)	101 (33.67%)	130 (43.33%)
VD	31 (10.33%)	121 (40.34%)	152 (50.67%)	28 (9.33%)	142 (47.33%)	170 (56.67%)
TOTAL	64(21.33%)	236 (78.67%)	300(100%)	57(19.00%)	243(81.00%)	300 (100%)

LSCS : $\chi^2 = 0.1724$  d.f. = 1  $p > 0.05$  NS  
 VD : $\chi^2 = 0.8257$  d.f. = 1  $p > 0.05$  NS

**Table-4: Distribution of MODE of Delivery According to APGAR SCORE AT one minute of New Born Baby of early term birth and full term birth**

Mode of deliveries	early term birth			full term birth		
	APGAR AT ONE MINUTE		TOTAL	APGAR AT ONE MINUTE		TOTAL
	<7/10	>7/10		<7/10	>7/10	
LSCS	50(16.66%)	98 (32.67%)	148 (49.33%)	43 (14.33%)	87 (29%)	130 (43.33%)
VD	44 (14.67%)	108 (36.00%)	152 (50.66%)	40 (13.34%)	130 (43%)	170 (56.67%)
TOTAL	94 (31.33%)	206 (68.67%)	300 (100.00%)	83 (27.67%)	217 (72.33%)	300 (100.00%)

LSCS: $\chi^2 = 0.0155$  d.f. = 1  $p > 0.05$  NS  
 VD: $\chi^2 = 1.2217$  d.f. = 1  $p > 0.05$  NS

**Table-5: Distribution of MODE of Delivery According to APGAR SCORE AT 5 minute of New Born Baby of early term birth and full term birth**

Mode of deliveries	early term birth			full term birth		
	APGAR AT 5 MINUTE		TOTAL	APGAR AT 5 MINUTE		TOTAL
	<7/10	>7/10		<7/10	>7/10	
LSCS	27(9.00%)	121 (40.33%)	148 (49.33%)	21 (7.00%)	109 (36.33%)	130 (43.33%)
VD	22 (7.33%)	130 (43.33%)	152 (50.67%)	17 (5.66%)	153 (51%)	170 (56.67%)
TOTAL	49 (16.33%)	251 (83.66%)	300 (100.00%)	38 (12.66%)	262 (87.33%)	300 (100.00%)

LSCS:  $\chi^2 = 0.2115$  d.f. = 1  $p > 0.05$  NS  
 VD:  $\chi^2 = 1.5088$  d.f. = 1  $p > 0.05$  NS

**DISCUSSION**

In our study, early term births were more in primi gravida subjects (43.33%). More early-term infants were delivered by cesarean section compared with term infants (49.33%). Sengupta S *et al.* also reported more early-term infants were delivered by cesarean section compared with term infants, which is a contributor to longer duration of hospital stay and more respiratory morbidity in this population [4]. Ramprakash MA *et al.* also reported 52.2% LSCS in cases [5].

Respiratory distress was seen more in early term neonates (6.00%) and in LSCS group (54.54%). Respiratory difficulties encountered in newborns delivered at term by caesarian section are known as

transient tachypnea of the newborn (TTN), probably result from a failure of the mechanisms to resorb fetal lung fluid that is typically triggered during vaginal birth.

NICU admission was more in early term birth (21.33%) and in LSCS group (51.23%). NICU admission was more in LSCS and early term group because respiratory morbidities more in LSCS group and due to physiological immaturity in early term group. According to Tracy SK (2007) reported that NICU admission rate of early term 19.57%[3]. No significant difference was noted between the 2 groups for APGAR scores at 1 and 5 minutes. Sengupta S *et al.* reported that no significant difference were noted between the 2 groups for APGAR scores of 5 or less at

1 and 5 minutes [4]. Cheng YW *et al.* reported that neonates delivered at 37 weeks had increase in risk of having a low 5 minute APGAR score (aOR 1.69 [95% CI, 1.59-1.79] for 5 minute APGAR less than 7 and aOR 1.87 [95%CI, 1.63-2.15] for 5 minute APGAR less than 4)[6].

## CONCLUSION

This study's finding that cesarean delivery is associated with more respiratory distress syndrome additionally, cesarean deliveries are more costly to the health care system. These risks and costs may be justified if cesarean delivery improves neonatal outcomes. However, in this study cesarean delivery compared with vaginal delivery was not associated with any statistically significant benefit for neonates. There is no doubt that, in addition to mode of delivery, gestational age also affects long-term respiratory function, but this study suggests that, like with full-term newborns, vaginal delivery (and probably labor in general) provides neonates with an early respiratory advantage compared with cesarean delivery.

This study focuses the light on a new dark corner of neonatal morbidities secondary to unjustified early ECS. Conversely a significant reduction in the neonatal morbidities maybe obtained if the timing of planned elective Cesareans postponed till or beyond 38 weeks of gestation. Despite the limitations of this study, it highlights the need for further research evaluating the effects of the rising cesarean delivery rates.

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