

# Evaluation of Perinatal outcomes of High Risk Pregnant Mothers who undergo Caesarean Section

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## ABSTRACT

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**Background:** Rising caesarean rates above the recommended 10% has shown to worsen the perinatal outcome, especially with reference to developing countries. Early detection of perinatal outcomes followed by special intensive care can significantly alter perinatal mortality rates. The study was undertaken with the objective of evaluating the perinatal outcomes of high risk cases undergoing caesarean section.

**Objective:** To evaluate perinatal outcome in high risk pregnant mother who undergo caesarean section

**Methods:** This is a prospective cohort study. The sample size was calculated to be 125 each in cohort and control. A total of 357 women from SAT Hospital, Thiruvananthapuram were interviewed which included those posted for elective caesarean and others. They were categorised according to Coopland's scoring system into high risk and low risk groups and 250 women who underwent caesarean section were followed up on the 4th day of their confinement and their perinatal outcomes assessed.

**Result:** The mean age of women who took part in the study was 26.45 years (SD- 4.693) and the mean gestational age was 261 days (SD-14.181). It was found that 39.2% of women had a history of previous caesarean section, 26.8% and 18% of women had gestational diabetes-mellitus and hypertension during their present pregnancy respectively. The relative risk for significant neonatal outcomes in high risk group when compared to low risk group are: respiratory-distress syndrome-11.965(CI 1.51-94.144, P=0.03), neonatal-hyperbilirubinemia -14.393(CI 1.853 to 111.795, P= 0.001), prematurity-2.042 (CI 1.101-3.785, P=0.022), neonatal hypoglycaemia-4.125(CI 1.329-12.805, P=0.009).

**Conclusion:** Our study found that neonates of high risk women had a greater risk of respiratory-distress syndrome, neonatal-hyperbilirubinemia, prematurity and neonatal-hypoglycaemia. We suggest a timely care and referral of high risk women and a targeted treatment plan for their neonates.

**Keywords:** Perinatal Outcomes, High Risk Pregnancies, Caesarean Sections

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## INTRODUCTION

The World Health Organisation recommends that the caesarean section rate should not be higher than 10-15%. A world wide based population ecological study showed that with rising CS rates above 10% the perinatal outcomes worsened, especially with reference to developing countries.<sup>1</sup> The rates of CS are increasing rapidly and in India it ranges from 20-34% in different cities.<sup>2-4</sup>

A high risk pregnancy may be identified by using a scoring system as developed by Coopland A T.<sup>5</sup> Risk scoring system may be defined as a formalized method of recognizing, documenting and cumulating antepartum, intrapartum and neonatal risk factors in order to predict complications for the fetus and new born.<sup>6</sup>

Perinatal mortality rate has often been an index of development of a population. Early detection of perinatal outcomes followed by interventional measures can significantly alter perinatal mortality rates. This study was undertaken with the objective of evaluating the perinatal outcomes of high risk cases undergoing caesarean section.

## MATERIALS AND METHODS

This prospective cohort study was conducted at the Sree Avittam Thirunal Hospital, Thiruvananthapuram over a period of 3 months. A total of 357 women posted for caesarean section and trial by labour were initially interviewed using a semi structure questionnaire. Risk scoring was applied using Coopland's scoring system (table 3). The

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total score determined whether the pregnancy was high risk or low risk and were categorised as:

Low risk with the score of 0 – 2

High risk with the score of  $\geq 3$

Of the total, 250 women who underwent caesarean section, 125 each in cohort and control group were followed up on the 4<sup>th</sup> day of their confinement and their perinatal outcomes assessed. The observations in both groups were compared using p values. Calculated P value of  $<0.5$  was taken as statistically significant.

### Ethical clearance

Ethical clearance was obtained from the Institutional Ethics Committee of Government Medical College, Trivandrum. Informed verbal consent was obtained from all the study subjects.

## RESULTS

Out of the 357 women interviewed, 250 who underwent caesarean section were taken up for the study- 125 each in low risk and high risk category.

In the present study 94% of cases in high risk group (study group) and 98% of cases in low risk group (control group) were between the age group of 18-35 (table 1). In the study group there were 39% primigravida and 62% multigravida, while in the control group respective figures were 52% and 48% (table 2).

## DISCUSSION

A total of 250 cases were studied of which maximum cases both in high risk group (94%) and low risk group (98%) were in the age group 18-35. This is comparable with findings observed by Vijayasree M.<sup>8</sup>

In our study we saw that maximum number of caesarean section in high risk group was done in multigravida while in the low risk group the numbers among primigravida were slightly higher. This was in contrast to previous study by Pooja Bansal et al where multigravida was common.<sup>6</sup>

In our study maternal complications were lower than expected (table 4). This was in contrast to observations by Pooja Bansal et al.<sup>7</sup>

However, we saw that neonatal outcomes were higher in high risk group (respiratory distress syndrome 9%, neonatal hyperbilirubinemia 10%,

**Table 1. Comparative analysis of age distribution in study group and control group**

Age distribution	High risk		Low risk	
	No	%	No	%
18-35	117	94	122	98
>35	8	6	3	2
Total	125	100	125	100

**Table 2. Comparative analysis of parity distribution in study and control groups**

Parity	High risk		Low risk	
	No	%	No	%
Primigravida	48	38	65	52
Multigravida	77	62	60	48
Total	125	100	125	100

**Table 3. Comparative analysis of significant Coopland's variables in study and control groups**

Coopland's variables	High risk		Low risk	
	No	%	No	%
Hypertension / PET in previous pregnancy	15	12	0	0
Previous CS	56	45	42	34
Gestational diabetes mellitus in present pregnancy	43	34	24	19
Hypertension in current pregnancy	36	29	9	7
PROM	11	9	0	0
Bleeding <20 weeks	9	7	0	0

**Table 4. Comparative analysis of postoperative morbidity in study and control groups**

Postoperative complications	High risk		Low risk		Relative risk (Confidence interval)	P value
	No	%	No	%		
Puerperal pyrexia	6	5	7	6		
UTI	9	7	4	3		
Chest infection	3	2	-	-		
Paralytic ileus	-	-	-	-		
Wound sepsis	1	1	-	-		
Spinal headache	-	-	-	-		
Pulmonary edema	-	-	-	-		
PPH	1	1	-	-		
DIC	1	1	-	-		
HELLP syndrome	-	-	-	-		
Hypoxia and dyspnoea	2	2	-	-		

prematurity 28%, neonatal hypoglycaemia 12) when compared to low risk group (respiratory distress syndrome 1%, neonatal hyperbilirubinemia 1%, prematurity 16%, neonatal hypoglycaemia 3%) (table 5).

**Table 5. Comparative analysis of neonatal outcomes in study and control groups**

Neonatal complications	High risk		Low risk		Relative risk (Confidence interval)	P value
	No	%	No	%		
Respiratory distress syndrome	11	9	1	1	11.965(1.521-94.144)	0.03
Birth asphyxia	1	1	-	-		0.316
Neonatal hyperbilirubinemia	13	10	1	1	14.393(1.853-111.795)	0.001
Prematurity	35	3	20	16	2.042(1.101-3.785)	0.022
Low birth weight	59	47	5	4	21.455(8.206-56.092)	0.000
Septicaemia	1	1	-	-		0.316
Meconium aspiration syndrome	5	4	-	-		0.024
Intracranial hemorrhage	1	1	-	-		0.316
Neonatal hypoglycemia	15	12	4	3	4.125(1.329-12.805)	0.009
Hypothermia	0-	-	1	1		0.316
Stay in nursery	54	43	13	10	6.553(3.38-12.864)	0.000
Use of antibiotics	16	13	-	-		0.000

## LIMITATIONS

Our study was conducted in a tertiary care hospital where the likelihood of encountering patients with risk is more and hence our data may not reflect the prevailing situation in our community.

## CONCLUSION

We suggest the use of scoring system like Copland to evaluate risk and a timely care and referral of high risk women so that appropriate measures to deal with possible adverse outcomes can be undertaken.

## END NOTE

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**Conflict of Interest:** None declared

**Editor's Remarks:** This original research was done in a tertiary centre by a team of medical students under guidance to answer the question of complication rates in high risk pregnant mothers undergoing caesarian sections. The data points the need for early referral and specialized care for these patients to improve outcomes. An article recommended for detailed analysis.

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