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Original Research Article

## Evaluation of perinatal outcome in high-risk pregnancy at tertiary care centre

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### ABSTRACT

**Background:** A high risk pregnancy is one in which mother, fetus or neonate is at increased risk of morbidity or mortality before or after delivery. Hence a relatively small percentage of high risk obstetric population gives rise to a disproportionately high percentage of perinatal and maternal morbidity and mortality. The perinatal outcome can be changed significantly by early detection and special intensive care to high risk pregnancies. Hence Identification of women at risk for these complicated pregnancies with poor outcome is fundamental to antenatal check-up.

**Methods:** 86 high risk antenatal patients attending the outpatient department and labour room were recruited after informed consent. 70 normal pregnancy was taken as control group. Perinatal outcomes were compared between high risk and normal pregnancies.

**Results:** Adverse perinatal outcomes were more in high risk pregnancies as compared to normal pregnancies.

**Conclusions:** This study emphasizes on pregnancy related complication leading to adverse perinatal outcome so evaluating patients for high risk factors, early diagnosis, proper antenatal care, prompt treatment, regular follow up, and timely management thus can improve maternal and perinatal outcome.

**Keywords:** Adverse perinatal outcome, High risk pregnancy

### INTRODUCTION

A high risk pregnancy is one in which mother, fetus or neonate is at increased risk of morbidity or mortality before or after delivery.<sup>1</sup> Hence, a relatively small percentage of high risk obstetric population gives rise to a disproportionately high percentage of perinatal and maternal morbidity and mortality.<sup>2</sup> It contributes to 80% of maternal mortality due to severe bleeding /haemorrhage (25%), infections (15%), unsafe abortions (13%) eclampsia (12%) obstructed labour (8%) and other direct causes (8%). Indirect causes such as anaemia malaria, HIV/AIDS and cardiovascular diseases account for 20% of maternal mortality.<sup>3</sup> The risk factors which include high risk pregnancy are pre-existing medical conditions eg. Hypertension, diabetes mellitus, HIV, maternal

obesity, multiple births, pregnancy at both extremes of reproductive period and a number of biological and social factors such as age, parity, socioeconomic class, past obstetric history, occupation and psychosexual factors and nutritional status also influence the perinatal outcome.<sup>4</sup>

High-risk pregnancy accounts for 75% of perinatal morbidity such as IUGR, preterm and low birth weight babies, respiratory distress syndrome, neonatal complications such as still births and early neonatal mortality.<sup>3</sup> The perinatal mortality rate has often been used as an index of level of development of a country. Despite recent advances in modern obstetrics and neonatal care, India is still facing a high (46 /1000) live births perinatal mortality rate; the perinatal outcome can

be changed significantly by early detection and special intensive care to high risk pregnancies.<sup>5</sup>

Hence identification of patients at risk for these complicated pregnancies with poor outcome is fundamental to antenatal check-up.

**METHODS**

This is the prospective descriptive study from July 2017 to October 2017 conducted at Department of Obstetrics and Gynaecology L.L.R.M. Medical College, Meerut, Uttar Pradesh, India.

All antenatal patients attending the outpatient department and labour room were recruited after informed consent, those who fulfilled the inclusion criteria and were grouped in two categories.

- Group A: Included 86 High risk cases.
- Group B: Included 70 normal pregnancies with no associated risk factors The data comprised of two sections:
  - a) Demographic variables which included age, locality, educational status and socioeconomic status
  - b) Obstetric variables: Included gestational age, Parity, high risk conditions. Anemia, PIH, preterm labour, oligohydramnios, gestational diabetes mellitus, antepartum haemorrhage, previous LSCS.

Perinatal Outcome variables studied for the babies were birth weight, respiratory distress syndrome, Birth asphyxia, Neonatal hyperbilirubinemia. Prematurity, IUGR, Meconium Aspiration syndrome and neonatal hypoglycemia, neonatal death and Apgar score within 1 min and 5 minutes after birth.

**RESULTS**

A total 86 high-risk pregnancy as study group and 70 normal pregnancies as control group with perinatal outcome were studied.

Among 86 study population majority belonged to age group of 21-29 years i.e. 62(72.09%) with mean age being 25.1±4.5 years. In control group also majority belong to age group of 21-29 years i.e. 57 patients (81.42%), mean age being 24.6±4.2years.

Maximum number of women in both groups belonged to rural area i.e. 69.76% in study group and 68.57% in control group.

Patients belonging to high risk group and control group were mostly illiterate i.e. 58.13% and 57.14% respectively and most of the women in both groups belonged to low socioeconomic status 75.5% in high-risk group and 76.57% control group (Table 1).

**Table 1: Distribution of demographic variables.**

Sr. No.	Demographic variables	Years	Group A (n=86)	Group B (n=70)
1	Age	18-20	8 (9.3%)	4 (5.7%)
		21-29	62 (72.09%)	57 (81.4%)
		>30	16 (18.60%)	9 (12.9%)
2	Domicile	Rural	60 (69.76%)	48 (68.57%)
		Urban	26 (30.23%)	22 (31.42%)
3	Educational status	Illiterate	50 (58%)	40 (57.1%)
		Literate	36 (42%)	30 (42.9%)
4	Socioeconomic status	Middle	21 (24.41%)	15 (21.4%)
		Low	65 (75.5%)	55 (78.6%)

**Table 2: Distribution of obstetric variables.**

Sr. No.	Obstetric variables	Weeks	Group A (n=86)	Group B (n=70)	Mean ±SD
1	Gestational age (in weeks)	<37 weeks	13 15.1%	5 7.1%	
		37-40 weeks	62 72.1%	55 78.6%	38.20±0.79
		> 40 weeks	11 12.8%	10 14.3%	38.5±1.48
2	Gravida	Primi	48 55.8%	39 55.7%	38.20±0.79
		Multi	38 44.2%	31 44.3%	

Regarding gestational age majority of pregnancies belongs to 37-40 weeks of gestation with mean 38.2±0.79 weeks in high risk group and 38.5±1.48 weeks in control group. Maximum women were primigravida in both

groups 55.81% in study group and 55.71% in control group (Table 2).

The results compute that with regard to presence of high risk conditions in group A women. Majority of mothers

were anemic (55.81%), 13.95% had pregnancy induced hypertension, 2.32% had gestational diabetes mellitus (on diet control) and 2.32% had PIH. Preterm labour was present in 15.11% cases, 5.81% had oligohydramnios, 2.32% with antepartum haemorrhage and 2.32% were previous L.S.C.S (Table 3).

Regarding mode of delivery 37 women (43.02%) in group A delivered by caesarean section as compared to 18 (25.71%) in group B (Table 4).

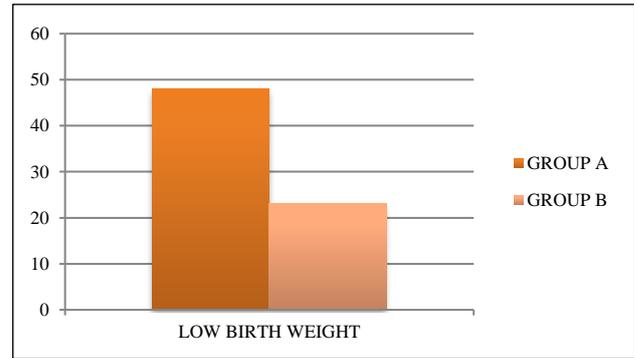
**Table 3: High-risk conditions in study group.**

High-risk condition	No of women (n=86)	%
Anaemia	48	55.81
Pregnancy induced hypertension	12	13.95
Pre term labour	13	15.11
Pre eclampsia	2	2.32
Oligohydramnios	5	5.81
Gestational diabetes on diet control	2	2.32
Ante partum haemorrhage	2	2.32
Previous LSCS	2	2.32

**Table 4: Mode of delivery.**

Mode of delivery	Group A, n (%)	Group B, n (%)
Caessarean section	37 (43.02%)	18 (25.71%)
Normal delivery	49 (56.97%)	52 (74.28%)

Regarding birth weight 48 (55.81%) and 23 (32.85%) newborn of study and control group respectively delivered low birth weight (< 2.5 kg) (Figure 1).



**Figure 1: Comparison of low birth weight between study and control group.**

**Table 5: Comparative analysis of perinatal outcome between study group and control group.**

Perinatal outcome	Study group A (86)		Control group B (70)		P value
	No.	%	No.	%	
Live birth	76	88.37	69	98.57	<0.01
Still birth	10	11.62	1	1.42	<0.05
Early Neonatal death	4	4.65	1	1.42	<0.05
Perinatal mortality	14	16.27	2	2.85	<0.01
Apgar score	Apgar score (1 min)		Apgar score (1 min)		
No depression (7-10)	58 (67.44%)	66 (76.74%)	62 (88.57%)	65 (92.85%)	
Mild depression (4-6)	15 (17.44%)	9 (10.46%)	5 (7.14%)	3 (4.28%)	<0.05
Severe depression (<4)	3 (3.48%)	2 (2.32%)	0	0	>0.05

**Table 6: Comparative analysis of perinatal morbidity between study group and control group.**

Sr. No.	Perinatal morbidity	Study group (86)		Control group (70)		p value
		No.	%	No.	%	
1	Respiratory distress syndrome	10	11.62	2	2.85	<0.01
2	Birth Asphyxia	4	4.65	2	2.85	>0.05
3	Neonatal hyperbilirubinemia	8	9.30	-	-	
4	Prematurity	12	13.95	4	5.71	<0.01
5	IUGR	2	2.32	1	1.42	>0.05
6	Meconium Aspiration syndrome	4	4.65	3	4.28	>0.05
7	Neonatal hypoglycemia	2	2	-	-	
	Total	42	48.8	12	17	<0.01

In the study group neonatal death occurred in 4 (4.65%) while only 1 (1.42%) neonatal death occurred in control group. Stillbirths were more in high risk group compared

to control group 10 (11.62%) vs. 1(1.42%). Regarding Apgar score at 1 min mild depression was found in 17.44% and 7.14% newborns in high risk and control

group respectively. 3 newborns in high risk group had severe depression (AS<4) while none of newborns in control group had severe depression. Regarding Apgar score at 5 min mild depression was found in 9 (10.46%) and 3 (4.28%) in high risk and control group respectively. 2 newborn in high risk group had severe depression while none in control group (Table 5).

A total 42 (48.8%) babies in high risk group had perinatal morbidity which was in the form of prematurity, IUGR, respiratory distress syndrome and birth asphyxia compared to only 12 (17%) neonate in control group (P value<0.01) (Table 6).

## DISCUSSION

In our study it is evident that the incidence of LBW was more in the study group as compared to low risk group. Near similar observations were reported by Dutta and Das, Samiya M, Bansal P.<sup>5-7</sup>

In our study it is seen that the incidence of perinatal morbidity was more in high risk group. Prematurity was the most common perinatal morbidity 13.95% followed by respiratory distress syndrome 11.62% and neonatal hyperbilirubinemia 9.3% while in control group most common causes of perinatal morbidity was prematurity 5.71%. Similar were findings of Jain et al where low risk group mothers had 50% lower incidence of high risk neonates 41.3% as compared to high risk group mothers who had 84.4% of high risk neonates.<sup>8</sup>

Maximum perinatal deaths 14 cases in the present study were in high risk group, with 2 in low risk group; this was in line with the findings observed by Jain S et al, where perinatal mortality rate was 198.8 and 614.5 in low and high risk groups respectively showing increased perinatal mortality with increased maternal high-risk score and also in the study by Bansal P, the perinatal mortality was 2% in the high risk group with no mortality in control group.<sup>7,8</sup>

Apgar score was better in control group, 62 cases were observed in with score more than 7 and no cases had scoreless man.<sup>4</sup> Similar results were observed by Bansal P and Vijayshree M, wherein better Apgar score were observed in low risk groups.<sup>8,9</sup> Similar results was observed by Jnaneswari K et al.<sup>10</sup>

## CONCLUSION

This study emphasizes on pregnancy related complication leading to adverse perinatal outcome so evaluating patients for high risk factors, early diagnosis, proper

antenatal care, prompt treatment, regular follow up, and timely management thus can improve maternal and perinatal outcome.

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