

Study of Maternal and Fetal Outcomes in High Risk Pregnancies

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Abstract

Background: Objectives of the current study were to detect high-risk-risk factors in pregnancy their presentations and to develop a simple scoring system to identify and categorize high-risk pregnancies and to predict the maternal and neonatal outcomes by comparing our results to previous studies. Methods: In this retrospective study, antepartum, intrapartum and neonatal parameters were integrated into the clinical records and the relationship of a risk score to the outcome was evaluated for 346 randomly selected pregnant patients over 7 months. Conclusions: The present study shows that we achieve comparative and better results in high-risk pregnancy, improving both maternal and fetal outcome at our institute. Methods: In this retrospective study, antepartum, intrapartum and neonatal parameters were integrated into the clinical records and the relationship of a risk score to the outcome was evaluated for 346 randomly selected pregnant patients over 7 months. Conclusions: The present study shows that we achieve comparative and better results in high-risk pregnancy, improving both maternal and fetal outcome at our institute.

Index terms— high-risk pregnancies, perinatal and maternal mortality, scoring system.

1 Introduction

High-risk pregnancy is defined as one which is complicated by a factor or factors that adversely affect the pregnancy outcome-maternal or perinatal or both. A high-risk pregnancy may be identified by using a scoring system such as the system developed by Hobel et al. Risk scoring system may be defined as a formalized method of recognizing, documenting and cumulating antepartum, intrapartum and neonatal risk factors to predict complications for the fetus and newborn. Among the mothers seen in the antenatal period, only 10-30% of mothers have been classified as high-risk. Out of those, 70-80% end up with perinatal mortality or morbidity. One of the most pressing public health issues in developing countries is perinatal mortality. Recent studies have shown that still perinatal mortality and morbidity is high-risk in India. It shows high-risk pregnancy is one of the leading causes of increasing perinatal morbidity and mortality. Early detection of high-risk pregnancy followed by special intensive care will show a significant change in the perinatal outcome. Treating high-risk pregnancies with extra attention and proper care will give a significant decrease in maternal morbidity and mortality.

A high-risk pregnancy is one of significant risk to the mother or her fetus than an uncomplicated pregnancy. Pregnancy places additional physical and emotional stress on a woman's body. Health problems that occur before a woman becomes pregnant or occurring during pregnancy may also increase the likelihood of a high-risk pregnancy. Any pregnancy can turn into a high-risk one anytime during its course. A pregnancy at risk needs to be identified at an earlier stage, often in the prenatal period to have an effective intervention strategy to deal with its complications. High-risk pregnancy requires sophisticated maternal and fetal surveillance to help in its management decisions to ensure optimal outcomes for both mother and her newborn. In this study, of all the patients who were a case of previous LSCS, 83.80% of them were previous 1 LSCS, and the rest were previous 2 LSCS. The majority of them were subjected to LSCS in their present conception, and only 9.52% delivered by VBAC (vaginal birth following caesarean section). In a study done by Nagamand et al. although a trial of labour was given, VBAC was successful only in 16%, and 84% women underwent LSCS.

2 About this Study

According to the study done in our hospital 6.66% of the babies were admitted in the NICU with fetal respiratory distress is the most common cause for the same accounting for 42.85% of the total, followed by PROM > 18 hrs (28.57%), ELBW + extreme preterm (14.28%) and for HGT monitoring (14.28%). 0.95% was the IUFD rate in the case of previous LSCS.

K Manga In this study, all the patients with GDM were found to be multigravidas, and all of them underwent LSCS. 40% of the babies born to GDM mothers were admitted to NICU for HGT monitoring. 60% of them went to term, and 20% of them were postdated and preterm each.

3 g) Anemia

4 Parity

Primigravida 10 The breech presentation was found to be prevalent among Primigravidas in our study, but contrary to it in the study done by Bushra et al. breech was more common in multigravida(75%) . The outcome of maximum pregnancies was uneventful, with only 13.63% of babies admitted in NICU of which LBW with preterm being the most common cause followed by the need for post-resuscitation care. 72.72% of the pregnancies went up to term, followed by preterm and postdated deliveries respectively, but in the study by Bushra et al. only 4.7 % breech were full-term , 14% between 29-32 wks and maximum were pre-term. LSCS was the most common mode of delivery (86.36%) in our institution, although in the comparative study vaginal delivery was more common, probably in view of, preterm breech presented in their study. The major cause of LSCS in their study was fetal distress followed by failure to progress. Term: 17% Preterm: 83% Antepartum hemorrhage was found to be equally prevalent among primigravidas and multigravidas in our institution, but in the study by Siddhartha Mujemdar it was high-risk-riskier in multigravidas in incidence (82%) Our study showed that there were no NICU admission and no IUFDs.

5 j) Antepartum Hemorrhage

Where in, the study by Mujemdar et al. showed Perinatal mortality of 12.1% in placenta previa and 44.1% in Abruptio placentae. At our institute LSCS was the most prevalent mode of delivery (75%) followed by FTND and PTVgD similar to the study done by Mujemdar et al. in which the LSCS rate was 85% although all of placenta previa cases were delivered by LSCS and 44.2%v of abruption placentae delivered vaginally. Contrary to our study in which Three-fourth of the pregnancies went up-to term and one-fourth had to be terminated at preterm, the other study showed the incidence of APH to be high-risk-riskier in preterm (83%). This study showed that multiple gestations were more prevalent among multigravidas, with 66.66% reaching term and the rest being terminated pre-term. Similarly, in the study done by Amiben Gajera et al. in 2015, Twin gestation was more in multigravidas, but contrary to our study only 26% reached full term while 64% delivered prematurely and a stand out of 10% were of <28 weeks of gestation. Regarding the perinatal outcome, 33.33% babies admitted in NICU, with respiratory distress being the most common cause followed by LBW for NICU admission. Mode of delivery was equally distributed among FTND, LSCS and, PTVgD in our study.

6 III. Summary

PIH: PIH was more prevalent in Primigravida, more common mode of delivery was LSCS and significant rate of PTVgD (11.76%) In our institution 15.68% of the babies born were admitted in the NICU for indications like Respiratory distress (87.5%) 5.88% of the pregnancies resulted in Intrauterine fetal demise in contrast to 9% IUFD and 2.72% obstetric hysterectomy in the study compared, 1 patient with a vaginally delivered IUFD underwent Obstetric hysterectomy i/v/o liver capsular hematoma. PROM: Premature rupture of membranes was found to be more prevalent among Primigravida (50.66%) and, 18.66% of the babies were admitted in the NICU with the indication of prolonged PROM (>18 hrs) being the most common, while FTND was found to be the common mode of delivery overall, and no neonatal mortality was associated with PROM.

Oligohydramnios: More prevalent among Multigravidas, 0.51% were postdated and, 17.94% were preterm. 87.17% of them underwent LSCS, whereas in the study compared termination by LSCS was done in 48.78% cases, Eventually 36.585% babies were admitted in NICU, with 9.76% perinatal mortality rate which wasn't the case in our institute with 10.25% NICU admissions and no neonatal mortality associated.

Polyhydramnios: It can be said that Polyhydramnios have been studied at a lower rate as high-risk compared to others. In our institute, it was seen more commonly in multigravidas, with equal incidence of term and preterm delivery (42% each). Polyhydramnios associated with IUFD was seen in 14% cases in our institute in contrast to 5% IUFD in the study compared.

GDM: At our institute, all mothers with GDM were Multigravida and, the choice of mode of delivery was LSCS in all of them with 40 % NICU admissions for HGT monitoring as compared to 76 5 NICU admissions in the study compared.

Anemia: As mentioned in literature, both the studies show anemia being prevalent in multigravidas and the choice of mode of delivery being Vaginal delivery. IUFD: In patients with IUFD Preterm Delivery rates were

high-risk at our centre with the rate of MSB almost double than that of FSB, which was equal in the study compared. LSCS was the least opted mode of delivery at the both places.

Breech presentation: AT our center, the breech presentation in a primigravida was more prevalent, resulting in delivery by LSCS in contrast to the study compared, which has more incidence of multigravida presenting with the breech in preterm labor and resulting into vaginal delivery.

7 Antepartum Heamorrhage:

APH incidence was equal in both multi and primigravida with the preferred mode of delivery being an emergency LSCS resulting in no NICU admissions at our center, whereas in the study compared mode of delivery was LSCS bu incidence was high-risk among multigravidas and resulted in increased NICU admissions and perinatal mortality & morbidity.

Multiple gestations is seen more commonly seen in multigravidas, with nn equal rate of delivery by FTVD, LSCS and Preterm delivery.

Hence it is evidently seen that the fetomaternal outcomes in various High-Risk Pregnancies were comparable and if can be said, were better at our institution, as compared to various individual studies done for the individual risk factors at different places.

8 Conclusion

Our study is a retrospective study done at a tertiary care hospital in Mumbai, Maharashtra inclusive of 346 cases to assess fetomaternal outcomes in various High-Risk Pregnancies enrolled at our hospital. High-risk pregnancies included hypertension in pregnancy, PROM, Amniotic fluid diseases, Gestational Diabetes Mellitus, Anemia, IUFD, breech presentation, Multiple gestation and, APH. It can be said that the results for each of the high-risk states at tertiary care institutions are equivalent with a freedom to choose the appropriate method of termination and medical and surgical expertise and NICU facilities aiding to improved fetomaternal outcomes, proving the importance and evident good outcomes at a tertiary care center.

Of all the high-risk cases observed in this study only one was associated with maternal mortality, which stands out the critical role played by the modular infrastructure, expertise and facilities offered at a tertiary care centre, such as continuous NST monitoring, monitoring of fetomaternal well being, availability of expert obstetricians and anaesthesia -medicine team, availability of emergency interventions and medicines, well equipped operation theatre and post-operative and post-delivery monitoring, NICU and ventilator availability. All these facilities account to safe delivery and good health of both mother and the neonate with adequate care.

At any concerned center to have a good fetomaternal outcome it is essential to have a keen eye to pick out high-risk cases at the earliest on the OPD basis, cater to the required investigations and close follow up or in-patient admissions if required and essential active medical management at the minimal. Lastly but not least, a very vigilant labor monitoring is required to decide on a mode of delivery, to assess fetal well being and, to provide to the required care.

9 Limitations

The primary limitation of the study was that, since it was conducted in a tertiary-care hospital set-up, the number of high-risk cases maybe more, and it may not truly reflect the prevailing situation in a community setting.

10 References Références Referencias

1

Types of High-Risk Pregnancies c) Oligohydramnios
a) Gestational Hypertension

At our institution:

Parity Primigravida

Multigravida

33.33%

66.66%

Parity Baby status

Primigravida 54.90% Baby with mother

Baby status Mode of delivery Baby with mother 12.82% FTND

Baby in NICU 15.68% LSCS

Period of

78.43% Postdated

Term

5.8%

Mode of gestation

FTND 40.55%

61.53%

PT

(delivery Period of gestation As per the observations made, gestational 39.21% 47.05% Postdated 19.60%

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f) Gestational Diabetes Mellitus

Parity	Primigravida	Multigravida		Primi 40.8%
		100%		Multi 59.1%
Baby status	Baby with mother	Baby in NICU	IUFD	Baby in NICU 76%
	60%	40%	-	
Mode of delivery	FTND	LSCS	PTVgD	VD 38%
	-	100%	-	LSCS 62%
Period of gestation	Postdated	Term	Pre-term	
	20%	60%	20%	

Figure 2:

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