







Original Article

Determining the perinatal outcome among women with high risk pregnancies

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Abstract

Background: Pregnancy is a physiological process and should ideally yield no morbidity and mortality; however, in some instances, pregnancy becomes a high-risk. A high-risk pregnancy carries significant danger to the fetus and mother before, during and after delivery. The objective of the study was to determine the perinatal outcome among women with high-risk pregnancies.

Methodology: This cross-sectional study was conducted from June to December 2015, including 287 women with high-risk pregnancies scheduled to undergo delivery at Liaquat University Hospital in Karachi, Pakistan. Data pertaining to sociodemographic details, gestational, obstetric history, Apgar score and the perinatal outcome was recorded using a pre-structured questionnaire and analyzed using SPSS version 16.0..

Results: The mean age of the enrolled participants was 29.12 ± 5.46 years. The perinatal outcomes included stillbirths (8%), early neonatal deaths (4.2%), low birth weight (22.6%) and poor Apgar score i.e., < 7 at 1 minute (10.5%) and 5 minutes (3.8%). Stratification revealed a significant risk of poor perinatal outcome (low birth weight) among women aged above 30 years (p -value = 0.002).

Conclusion: It is concluded from the study results that high-risk pregnancies yield poor perinatal outcomes, including stillbirths, low birth weight, early neonatal death and poor Apgar scores.

Keywords

High-Risk Pregnancies, Perinatal Outcome, Low Birth Weight, Still-Birth & Early Neonatal Death.

Introduction

Being a developing country with limited resources, Pakistan faces many challenges, specifically with the healthcare sector. One of them includes providing maternal and child health services; its absence has led to the current scenario of high fetomaternal morbidity and mortality^{1,2}. As per recent estimates of the World Health Organization (WHO), perinatal deaths worldwide number at 7.6 million or higher, with developing countries reporting a vast majority (up to 98%) of these deaths. The rate of perinatal mortality in Pakistan stands to be 9.5%, according to reliable statistics³. A more recent national survey reports the perinatal mortality rate to be as high as 92 per 1000 births, with most deaths (72%) due to stillbirths⁴. These issues might be more critical in the rural areas, as we lack research concerning this particular locality².

Hence providing appropriate perinatal service is key to reducing perinatal mortality⁵. The first step towards achieving this goal is identifying the factors that entail additional complications that lead to poor perinatal outcomes, despite standard perinatal and intrapartum care. A high-risk pregnancy poses a significant danger to the mother and fetus/newborn before, during and after delivery⁶. Aggressive and timely intervention is increasingly important to ensure success in managing high-risk patients and yield good maternal and fetal outcome⁷. A detailed history is required to identify high-risk factors that can have an adverse effect on maternal or fetal outcomes^{7,8}. Maternal anemia, pregnancy-induced hypertension, and preterm labour are a few known obstetric problems that make a pregnancy high risk^{9,10}.

Since high-risk pregnancies are more likely to yield poor perinatal outcomes than normal pregnancies, thus we aimed to study the perinatal outcomes among women with high-risk pregnancies.

Methodology

This cross-sectional study was conducted from June to December 2015 over a sample of 287

women with high-risk pregnancies scheduled to undergo delivery at Liaquat University Hospital. While patients with stroke, renal impairment, chronic obstructive pulmonary disease, chronic liver disease, or any other chronic condition were excluded.

The patient's sociodemographic details, gestational, obstetric history, risk factors and the perinatal outcome were recorded using a structured questionnaire. The perinatal outcome included poor Apgar score, low birth weight, stillbirth, neonatal death. The Apgar score was measured once a minute after birth and then 5 minutes following the delivery.

The participants were enrolled after taking written informed consent, and ethical approval was obtained from College of Physician & Surgeon Pakistan (CPSP/REU/OBG-2008-164-3880; June 12, 2012). The data was analyzed using SPSS version 16.0; inferences were presented as frequencies and percentages. A chi-square test was used for significance testing where a p-value < 0.05 was considered statistically significant.

Results

A total of 287 women with high-risk pregnancies were included in this study; of them, 125(44%) were booked, and 162(56%) were un-booked. The enrolled participants' mean maternal and gestational age was 29.12 ± 5.46 years and 39.72 ± 2.35 weeks, respectively. Of the total, 89 (31%) were primipara, 152 (53%) had multiparty (parity 2-5) and 46 (16%) had grand multiparty (parity > 5). Anemia was determined as the major contributory factor for high-risk pregnancy, observed in 59.6% cases, followed by previous lower segment cesarean section (26.1%), previous history of miscarriages (19.9%) and history of hypertension in the current pregnancy (18.1%). The perinatal outcomes are given in table 1; poor Apgar score, i.e., < 7 after 1 minute of birth, was the most observed, i.e. 10.5%, followed by low birth weight, stillbirth, neonatal death, and Apgar score < 7 after 5 minutes of birth..

Table 1: Risk factors & perinatal outcomes among women with high-risk pregnancies.

Variables	n(%)	
Risk Factors	Previous history of stillbirth	40(13.9)
	Previous history of miscarriages	57(19.9)
	History of hypertension in the current pregnancy	52(18.1)
	History of diabetes mellitus in the current pregnancy	25(8.7)
	Anemia	171(59.6)
	Preterm labour	40(13.9)
	Antepartum hemorrhage	34(11.8)
	Previous lower segment cesarean section	75(26.1)
	Post maturity	17(5.9)
	Grand multipara	46(16.0)
Perinatal Outcomes	Apgar score < 7 after 1 minute of birth	30(10.5)
	Apgar score < 7 after 5 minutes of birth	11(3.8)
	Low birth weight baby (< 2500 grams)	65(22.6)
	Stillbirth	23(8.0)
	Neonatal death	12(4.2)

Stratification revealed that a low birth weight was significantly associated with higher age, i.e., 26 years and above ($p=0.002$).

Table 2: Comparison of maternal age according to perinatal outcome.

Prenatal Outcome	Age Groups			p-value
	20-25 years (n=81)	26-30 years (n=96)	>30 years (n=110)	
Apgar score < 7 (after 1 minute of birth)	8(9.9)	10(10.4)	12 (10.9)	0.970
Apgar score < 7 (after 5 minute of birth)	5(6.2)	4(4.2)	2 (1.8)	0.280
Low birth weight baby	9(11.1)	32(33.3)	24 (21.8)	0.002*
Still born	6(7.4)	8(8.3)	9 (8.2)	0.970
Neonatal death	4(4.9)	3(3.1)	5 (4.5)	0.810

Values are given as n(%)

* $p<0.05$ is considered significant

Discussion

The goals of providing effective antenatal care, including early identification of fetuses at risk of asphyxia, monitoring (during labour) of high-risk pregnancies, etc; are predominantly directed at achieving a good perinatal outcome which directly links to the provision of regular antenatal checkups⁴. Routine check-ups at predetermined intervals can identify conditions such as anemia pregnancy-induced hypertension, among other conditions that add undue risk to an otherwise normal pregnancy⁴.

This research was established in a multi-disciplinary (tertiary care) hospital that plays host to a wide sociodemographic diaspora, with a predominant faction belonging to a lower socioeconomic class. As is expected from people in this faction, most were nutritionally deficient and, more importantly, anemic; thus, belonging to the high-risk group. This finding is substantiated by published literature which reports that anemia is endemic in the underdeveloped world, with the female population being most affected⁸. When compounded with pregnancy (and a higher demand for iron and hemoglobin), anemia threatens the life of the fetus and the mother. The condition is most commonly linked to adverse outcomes such as prematurity and low birth weight¹¹.

In an in-depth analysis, Khan et al. revealed that among all the cases of pre-term labour, a vast majority (81.25%) occurred to anemic mothers¹². Bhargava et al. further substantiated this observation and reiterated that indeed the probability of encountering a premature birth was higher among anemic mothers. Both preterm labour and anemia are independent risk factors for the adverse neonatal outcome in terms of stillbirth and neonatal death¹³.

In this study, among 59.6% anemic patients, 22.5% cases of low birth weight and poor Apgar score of < 7 at 1 minute was observed in 10.5%, and 5 minutes was observed in 3.8%. This was synonymous with the findings of Umber et al., who reported an association between maternal anemia and increased incidence of low birth weight,

premature deliveries, intra-uterine deaths and sub-par Apgar scores (at 1 minute)¹¹. The incidence of preterm labour is recorded to be 28.2%, and the occurrence of pre-eclampsia is noted to be 31.2% (among anemic mothers) by Sharma et al¹⁴.

In addition to anemia, other factors such as previous lower segment cesarean section (26.1%), previous history of miscarriages (19.9%) and history of hypertension in the current pregnancy (18.1%). Ara et al. had also quoted the association of hypertensive disorders of pregnancy, with an increased incidence of preterm delivery of 61%⁴. Another important cause of the adverse neonatal outcome observed in the study was hypertensive disorders of pregnancy. Zareen et al. also reported that among hypertensive disorders of pregnancy, there were cases of neonatal death (8.33%) and stillbirth (16.7%)⁷.

In this study, rate of low birth weight was significantly high in 26-30 years and above 30 years of age. Similarly, the rate of low birth weight and stillbirth was significantly high in grant multiparty. In Zareen et al. study, the mean age observed in the high-risk group was higher than the low-risk group, with a statistically significant p-value < 0.001⁷. Among patients of age greater than 35 years, there were 11.11% delivered, low birth babies

Conclusion

High-risk pregnancies are associated with poor perinatal outcomes such as stillbirths, low birth weight, early neonatal death and poor Apgar scores. The rate of low birth weight was significantly high in 26-30 years and above 30 years of age.

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