



Original Article

Perinatal Outcomes of High Risk Pregnancies: Experience of a Tertiary Care Hospital

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ABSTRACT

High Risk Pregnancy (HRP) denotes a condition where the mother, the fetus, or both are predisposed to complications during the gestation period, at birth, or postnatally, which is affected by several factors. **Objective:** To analyze the perinatal outcomes of high-risk pregnancies, focusing on the experience of a tertiary care hospital. **Methods:** A longitudinal study over two years, from October 1, 2020, to December 31, 2022, was conducted on 213 high-risk pregnant women, via purposive sampling, who attended the antenatal clinic Liaquat University Hospital, Hyderabad and Jamshoro. After obtaining informed written consent, interviews were conducted with the participants to collect data about their sociodemographic, obstetric, and gynecological histories. Perinatal outcomes were evaluated on the 8th day post-delivery, during which details concerning maternal and fetal complications in terms of morbidity and mortality, were documented. **Results:** Rh-negative pregnancy was found to be the most high-risk factor with 24.4% (52) of the cases, followed by teenage pregnancy at 12.2% (26), and short stature at 10.9% (23). Additionally, severe anemia was found in 21 women (9.8%), Pregnancy Induced Hypertension (PIH) in 18 women (8.6%), and obesity was also seen in 18 women (8.6%). Other noted risk factors included grand multigravida in 13 women (6.1%), thyroid disorder 4.9% (10), twin pregnancy 3.7% (8) and congenital fetal anomaly, polyhydramnios, oligohydramnios each with 2.4% (5). **Conclusions:** This study significantly contributes to the body of knowledge on high-risk pregnancies and their outcomes.

INTRODUCTION

High-risk pregnancy (HRP) denotes a condition where the mother, the fetus, or both are predisposed to complications during the gestation period, at birth, or postnatally. Factors such as maternal age, pre-existing medical conditions, multiple pregnancies, and issues identified during pregnancy often contribute to a high-risk categorization [1, 2]. Developing nations, including Pakistan, encounter exacerbated challenges pertaining to the management and outcomes of HRPs due to limited healthcare resources, lack of accessibility to quality healthcare, and socio-economic disparities [3]. Annually, Pakistan witnesses over five million women embarking on

the journey of pregnancy. Among these, a significant 15% (700,000) are likely to undergo obstetrical and medical complications. These complications, in turn, contribute to an alarming estimate of 30,000 pregnancy-related deaths each year. The Maternal Mortality Ratio (MMR) in the country is high at 276 deaths per 100,000 births each year [4]. This shows that there is a serious need for better care for pregnant women to improve the health of both mothers and babies. Hyderabad, a city with both city and rural areas, faces many healthcare problems like the rest of Pakistan. One big problem is that there isn't enough good information and plans to deal with high-risk pregnancies [6]. This

makes it hard for doctors and families to know what to do. A lot of babies in Hyderabad are born too early, with 21.64% being born prematurely [7]. This shows that we need to do more to help these babies and their mothers. Also, the number of babies who are born dead has gone up from 3.98% to 5.75% over five years [8]. This shows that it's really important to have better plans and data to deal with high-risk pregnancies. Pakistan's hospitals, especially the big ones, deal with a lot of complicated medical, social, and economic issues when it comes to high-risk pregnancies [9]. By looking at what happens to babies and mothers in these situations, we can learn a lot that can help make policies and practices better, so that pregnancies and births are safer in Pakistan.

METHODS

A longitudinal study over two years, from October 1, 2020, to December 31, 2022 was conducted upon 213 high-risk pregnant women, chosen via continent sampling who attended the antenatal clinic Liaquat University Hospital, Hyderabad and Jamshoro. All those women who had either past miscarriages or difficult delivery due to medical conditions and those conditions were still present among the women were included in the study while those who lost the antenatal follow up, were excluded from the study. These women were tracked on a monthly basis until their delivery to scrutinize the unfolding of their pregnancies and the resulting perinatal outcomes. The study was approved by Institutional Ethical Review Committee (ERC) vide letter no: REC/167, dated: 09-08-2020. The study specifically included pregnant women visiting the antenatal clinic at Liaquat University Hospital, Hyderabad and Jamshoro, who had either current or past high-risk factors associated with their pregnancies. We collected data by using a set of questions that had been checked and approved beforehand. Before asking these questions, we made sure to get written permission from the people taking part. Interviews were conducted with the participants to collect data about their sociodemographic, obstetric and gynecological histories. Every visit encompassed a through antenatal and physical examination and requisite laboratory tests. Perinatal outcomes were evaluated on the 8th day post-delivery, during which details concerning maternal and fetal complications in terms of morbidity and mortality, were documented. The data were analyzed using SPSS (V21.0). Chi-square test was utilized for the statistical analysis, with a p-value <0.05 considered significant at a confidence interval of 95%. The categorical variables such as age, sociodemographic details, obstetric details, present and past high-risk characteristics, and their outcomes were tabulated and expressed as percentages.

RESULTS

The study on high-risk pregnancies among 213 expectant mothers unveiled various risk factors prevalent in the current pregnancy, as well as past pregnancies. The exploration of high-risk factors during the current pregnancy revealed that Rh-negative pregnancy topped the list with 24.4% (52) of the cases, followed by teenage pregnancy at 12.2% (26) and short stature at 10.9% (23). Additionally, severe anemia was found in 21 women (9.8%), Pregnancy Induced Hypertension (PIH) in 18 women (8.6%), and obesity was also seen in 18 women (8.6%). Other noted risk factors included grand multigravida in 13 women (6.1%), thyroid disorder 4.9% (10), twin pregnancy 3.7% (8) and congenital fetal anomaly, polyhydramnios, oligohydramnios each with 2.4% (5). The least common factors were breeching presentation, antepartum hemorrhage, and elderly primigravida each accounting for 1.2% (3) of the sample size (Table 1).

Table 1: Type of High-Risk Pregnancy (Current Pregnancy)

| Characteristics | Frequency (%) |
|--------------------------------|---------------|
| Maternal Age Factors | |
| Elderly Primigravida | 3 (1.2%) |
| Teenage Pregnancy | 26 (12.2%) |
| Physiological Factors | |
| Severe Anemia | 21 (9.8%) |
| Pregnancy Induced Hypertension | 18 (8.6%) |
| Rh-Negative Pregnancy | 52 (24.4%) |
| Obesity | 18 (8.6%) |
| Thyroid Problems | 10 (4.9%) |
| Reproductive Factors | |
| Pregnancy with Twin | 8 (3.7%) |
| Grand Multigravida | 13 (6.1%) |
| Pregnancy Complications | |
| Short Stature | 23 (10.9%) |
| Polyhydramnios | 5 (2.4%) |
| Oligohydramnios | 5 (2.4%) |
| Congenital Fetal Anomaly | 5 (2.4%) |
| Abnormal Fetal Presentation | 3 (1.2%) |
| Antepartum Hemorrhage | 3 (1.2%) |
| Total | 213 (100%) |

When delving into the past pregnancy high-risk factors among the participants, the most common were previous caesarean with 29.4% (63), previous history of abortion with 24.5% (52), and previous history of neonatal or child death with 21.6% (46). Further, renal disorders, previous gynecological surgery, and Previous Pregnancy Induced Hypertension each were found in 2.9% (6) of the cases. The least common were known case of hyperthyroidism, heart disease, history of Sexual Transmitted Infection, previous twin pregnancy, previous malpresentation, thalassemia, lung disease, allergic illness, previous postpartum hemorrhage, and previous premature rupture of

membrane each with less than 4% cases (Table 2).

Table 2: Type of Previous Pregnancies with increased risk

| Characteristics | Frequency (%) |
|---|---------------|
| Past Reproductive History | |
| Past History of Caesarean | 63 (29.4%) |
| Past History of Abortion | 52 (24.5%) |
| Past History of Miscarriage or Fetal Death | 46 (21.6%) |
| Past History of Gynecological Surgery | 6 (2.9%) |
| Past History of Pregnancy -Induced Hypertension | 6 (2.9%) |
| Presence of Hypothyroidism | 6 (2.9%) |
| Presence of Hyperthyroidism | 2 (0.9%) |
| Past History of Fetal Congenital Anomaly | 4 (1.9%) |
| Past History of PPH | 2 (0.9%) |
| Past History of PROM | 2 (0.9%) |
| Past History of Pregnancy with Twins | 2 (0.9%) |
| Past History of Abnormal Presentation | 2 (0.9%) |
| Pre-Existing Medical Condition | |
| Renal Disorder | 8 (3.9%) |
| Heart Disease | 2 (0.9%) |
| H/o Sexual Transmitted Infection | 2 (0.9%) |
| Thalassemia | 2 (0.9%) |
| Lung disease | 2 (0.9%) |
| Allergic Illness | 2 (0.9%) |
| Total | 213 (100%) |

The evaluation of adverse fetal outcomes from the study presented a variety of challenges faced during the term of pregnancy. Low Birth Weight (LBW) was the most common adverse outcome, noted in 8 women (18.6%), followed by Neonatal Intensive Care Unit (NICU) admission in 7 cases (16.3%), and preterm birth in 6 cases (14.0%). Early neonatal death and abortion each were observed in 9.3% (4), similar to still birth and Intrauterine Death (IUD). Twins preterm was reported in 5 cases, accounting for 11.6% of the adverse outcomes. The total number of adverse fetal outcomes summed up to 43 (Table 3).

Table 3: Adverse Fetal Outcomes

| Adverse Fetal Outcomes | Frequency (%) |
|--------------------------|---------------|
| Low Birth Weight (LBW) | 8 (18.6%) |
| NICU Admission | 7 (16.3%) |
| Preterm Birth | 6 (14.0%) |
| Early Neonatal Death | 5 (11.6%) |
| AbortionS | 4 (9.3%) |
| till Birth | 4 (9.3%) |
| Intrauterine Death (IUD) | 4 (9.3%) |
| Twins Preterm | 5 (11.6%) |
| Total | 43 (100%) |

DISCUSSION

The results of this study provide a glimpse into the multifaceted challenges encountered in managing high-risk pregnancies, and it's evident that the circumstances surrounding such pregnancies are complex and require

multifaceted interventions. The prevalence of Rh-negative pregnancy, teenage pregnancy, and short stature as significant risk factors in the current pregnancy is consistent with literature from other regions. A study in Iran showed a significant correlation between maternal age, particularly teenage pregnancy, and adverse pregnancy outcomes, underscoring the global challenge posed by teenage pregnancies [10]. The finding on severe anemia resonates with a study conducted in Nigeria, which highlighted the impact of severe anemia on maternal and fetal outcomes, emphasizing the importance of early detection and management [11]. Similarly, Pregnancy-Induced Hypertension (PIH) has been a recurring theme in many studies as a significant high-risk factor. A study from Nepal affirmed the association between PIH and adverse perinatal outcomes [12]. The scenario of past pregnancy high-risk factors such as previous caesarean, history of abortion, and neonatal or child death mirrors the findings from a study in Bangladesh which showed that a history of cesarean section significantly increased the likelihood of adverse pregnancy outcomes [13]. A study published in the American Journal of Obstetrics and Gynecology, reported a history of abortion as a probable linked to preterm birth in succeeding pregnancies [14]. When we talk about problems with babies being born, like low birth weight, needing special care in the NICU, and being born too early, it's happening a lot around the world. A study in Taiwan showed that when babies are born too early or too small, they're more likely to have health problems and even die soon after birth [15]. The rates of babies dying soon after birth, having abortions, and being stillborn in this study show that we need to look more closely at how good and easy it is for pregnant women to get care before they give birth [16, 17]. High-risk pregnancies, where there's a greater chance of something going wrong, are a big problem all over the world. The problems we saw in this study with babies are part of bigger challenges in taking care of pregnant women and babies. We already know it's important to find out early if a pregnancy is high-risk and to take care of it right. A study in Ethiopia showed that getting care early in pregnancy can make a big difference in how well the pregnancy goes, especially if it's high-risk [18]. Taking care of high-risk pregnancies doesn't stop when the baby is born. A study in the UK showed that it's important to keep checking on the mom and giving her support, even after the baby is born, especially if she might get pregnant again [19]. When we look at different places in the world, we see that some things make pregnancy riskier. For example, in richer countries like China, being overweight or having problems with the thyroid gland is more common [20]. But in poorer countries like Bangladesh, severe anemia is more common because people don't get enough of the right food [21].

CONCLUSIONS

This study adds important information to what we already know about high-risk pregnancies and what happens to the babies. But we still need more research to understand better why these problems happen and how we can find them early, treat them, and stop them from happening in the first place. This will help make things better for moms and babies all over the world.

Authors Contribution

Conceptualization: SG,

Methodology: SC, SD, FL, HS

Formal analysis: SG

Writing-review and editing: SG, SC, SD, FL, HS

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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