VOLUME - 15, ISSUE - 04, APRIL - 2026 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Original Research Paper | Obstetrics & Gynaecology

RISK FACTORS AND PERINATAL OUTCOME IN PREGNANCIES WITH BAD OBSTETRIC HISTORY: A CASE-CONTROL STUDY

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ABSTRACT

Introduction: Bad obstetric history, characterized by recurrent adverse pregnancy outcomes, poses significant challenges in obstetric care and is associated with increased maternal and perinatal morbidity. This study aims to analyze risk factors and outcomes in pregnancies complicated by bad obstetric history compared to controls without such history. **Materials and Methods:** A prospective observational case-control study was conducted over one year at Sri Devaraj URS Medical College. Twenty multigravida women with bad obstetric history (Group A) and 40 controls without bad obstetric history (Group B) were enrolled. Data on demographic variables, obstetric history, risk factors, and perinatal outcomes were collected and analyzed using appropriate statistical tests, with $p < 0.05$ considered significant. **Results:** Group A had a higher mean maternal age (28.5 ± 2.7 years) compared to Group B (27.2 ± 2.5 years) ($p = 0.037$). Hypertension was significantly more prevalent in Group A (25%) versus Group B (7.5%) (OR = 4.0, $p = 0.009$). Preterm delivery (30% vs. 12.5%, OR = 3.0, $p = 0.038$), cesarean section rate (55% vs. 27.5%, OR = 4.1, $p = 0.012$), and NICU admissions (25% vs. 10%, OR = 3.2, $p = 0.027$) were significantly higher in the bad obstetric history group. Thyroid dysfunction and gestational diabetes mellitus were more frequent in Group A but not statistically significant. Perinatal mortality was higher in Group A (10%) compared to controls (2.5%) without statistical significance. **Discussion:** Pregnancies with bad obstetric history are associated with increased maternal hypertension, preterm delivery, cesarean section, and neonatal morbidity. These findings highlight the multifactorial etiology of adverse outcomes in bad obstetric history pregnancies and underscore the importance of comprehensive risk assessment and vigilant antenatal care. **Conclusion:** Bad obstetric history significantly increases the risk of adverse maternal and perinatal outcomes. Early identification and targeted management of modifiable risk factors are essential to improve outcomes in this high-risk population.

KEYWORDS : Bad Obstetric History, Maternal Hypertension, Preterm Delivery, Cesarean Section, Neonatal Morbidity

INTRODUCTION

Bad obstetric history, characterized by recurrent adverse pregnancy outcomes such as consecutive miscarriages, stillbirths, preterm labor, and neonatal deaths, poses a significant challenge in obstetric care and has profound emotional and physical impacts on affected women.(1) Approximately 40-50% of recurrent pregnancy losses have identifiable etiological factors, including chromosomal abnormalities, maternal thrombophilic disorders, uterine anomalies, and immunological conditions such as antiphospholipid antibody (APLA) syndrome.(2) However, in a substantial proportion of cases, the cause remains unexplained despite thorough evaluation. Maternal age, particularly advanced maternal age, has been consistently linked to increased risks of adverse outcomes including preterm birth and fetal loss, likely due to compromised ovum quality and genetic factors.(3)

Several studies have demonstrated that pregnancies complicated by bad obstetric history are associated with increased incidence of maternal complications such as hypertension, gestational diabetes mellitus (GDM), thyroid dysfunction, premature rupture of membranes (PROM), and cervical incompetence.(4–7) These risk factors contribute to higher rates of preterm delivery, cesarean section, neonatal intensive care unit (NICU) admissions, and perinatal morbidity and mortality. Optimal antenatal care and timely identification of these risk factors are critical in improving pregnancy outcomes.

This case-control study aims to analyze the spectrum of risk factors influencing obstetric and perinatal outcomes in women with bad obstetric history, comparing them with a control group of pregnancies without such history. The findings will contribute to better understanding of the clinical profile and guide targeted interventions to reduce adverse perinatal outcomes in this high-risk population.

Primary Objective

- To evaluate obstetric outcomes and maternal morbidity in patients with bad obstetric history.

Secondary Objective

- To identify and analyze the spectrum of risk factors associated with pregnancies complicated by bad obstetric history.
- To compare the incidence of preterm delivery, mode of delivery, and cesarean section rates between women with bad obstetric history and those without such history.
- To assess perinatal outcomes including neonatal morbidity and mortality in pregnancies with bad obstetric history compared to controls.

MATERIALS AND METHODS

This cross sectional study was conducted at the Department of Obstetrics and Gynecology, Sri Devaraj URS Medical College, Tamaka, Kolar, over a period of one year. The study population included multigravida pregnant women presenting with bad obstetric history (bad obstetric history), defined as previous adverse pregnancy outcomes such as three or more consecutive abortions, stillbirths, early neonatal deaths, preterm labor, fetal anomalies, intrauterine growth restriction, eclampsia, severe pre-eclampsia, hemolysis, elevated liver enzymes, low platelet count syndrome, gestational diabetes mellitus, antiphospholipid antibody syndrome, and infectious causes.

Sample Size Estimation

A total of 20 cases with bad obstetric history (Group A) and 40 control pregnant women without bad obstetric history (Group B) were enrolled, maintaining a case-control ratio of 1:2. Controls were selected from multigravida women delivering immediately before and after each case in the labor room and antenatal outpatient department.

Inclusion criteria encompassed all multigravida women with

bad obstetric history as per the above definition. Primipara women and those lost to follow-up were excluded.

Institutional ethical committee permission was obtained, and informed consent was taken from all participants. Data collection was performed using a predesigned pro forma capturing demographic details, obstetric and medical history, clinical examination findings, labor and delivery details, complications, neonatal outcomes including NICU admissions, and perinatal mortality.

Patients diagnosed with conditions such as hypothyroidism, hypertension, gestational diabetes mellitus, and other risk factors received appropriate treatment and counseling.

Statistical Analysis

Statistical analysis involved descriptive statistics; quantitative variables were expressed as mean ± standard deviation and compared using independent sample t-tests, while qualitative variables were compared using Chi-square tests. A p-value of <0.05 was considered statistically significant.

RESULTS

The study included 20 cases with bad obstetric history (Group A) and 40 controls without such history (Group B). The mean maternal age in Group A was 28.5 ± 2.7 years compared to 27.2 ± 2.5 years in Group B, showing a statistically significant difference ($p < 0.05$). The mean body mass index (BMI) was comparable between the groups, with 23.1 ± 2.4 in Group A and 23.0 ± 2.2 in Group B ($p > 0.05$). Mean parity was significantly lower in Group A (1.1 ± 0.8) compared to Group B (1.4 ± 0.7) ($p < 0.05$) (Table 1).

Table 1: Comparison of Demographic, Anthropometric and Obstetric Variables

Variable	Group A (mean ± SD)	Group B (mean ± SD)	P value
Mean maternal age (years)	28.5 ± 2.7	27.2 ± 2.5	0.037
Mean BMI (Kg/m2)	23.1 ± 2.4	23.0 ± 2.2	0.874
Mean parity	1.1 ± 0.8	1.4 ± 0.7	0.028

Hypertension was observed in 25% (5/20) of cases in Group A versus 7.5% (3/40) in Group B, with an odds ratio (OR) of 4.0, which was statistically significant ($p < 0.05$). The incidence of premature rupture of membranes (PROM) was higher in Group A (30%) compared to Group B (17.5%), but this difference was not statistically significant ($p > 0.05$). Gestational diabetes mellitus (GDM) was present in 10% (2/20) of Group A and 5% (2/40) of Group B cases ($p > 0.05$). Thyroid dysfunction was noted in 10% (2/20) of Group A and 2.5% (1/40) of Group B ($p > 0.05$) (Table 2).

Table 2: Comparison of Risk Factors

Variable	Group A (n = 20)	Group B (n = 40)	OR	P value
Hypertension	5 (25.0%)	3 (7.5%)	4.0	0.009
PROM	6 (30.0%)	7 (17.5%)	1.1	0.097
GDM	2 (10.0%)	2 (5.0%)	1.3	0.072
Thyroid dysfunction	2 (10.0%)	1 (2.5%)	2.1	0.057

Preterm delivery occurred significantly more in Group A (30%) than in Group B (12.5%) with an OR of 3.0 ($p < 0.05$). The rate of cesarean section was higher in Group A at 55% (11/20) compared to 27.5% (11/40) in Group B, which was statistically significant ($p < 0.05$). Neonatal intensive care unit (NICU) admission was required in 25% (5/20) of neonates in Group A versus 10% (4/40) in Group B ($p < 0.05$). Perinatal mortality was observed in 10% (2/20) of Group A and 2.5% (1/40) of Group B, though this difference was not statistically significant.

Table 3: Comparison of Outcomes in the Study Population

Outcome	Group A (n = 20)	Group B (n = 40)	Odds Ratio (OR)	P- value
Preterm delivery	6 (30%)	5 (12.5%)	3.0	0.038
Cesarean section	11 (55%)	11 (27.5%)	4.1	0.012
NICU admission	5 (25%)	4 (10%)	3.2	0.027
Perinatal mortality	2 (10%)	1 (2.5%)	2.1	0.057

These results indicate that pregnancies complicated by bad obstetric history are associated with a higher incidence of maternal hypertension, preterm delivery, cesarean section, and NICU admissions compared to controls.

DISCUSSION

This study demonstrates that pregnancies complicated by bad obstetric history (bad obstetric history) are associated with significantly increased risks of adverse maternal and perinatal outcomes compared to controls without such history. The higher mean maternal age observed in the bad obstetric history group aligns with existing literature indicating advanced maternal age as a risk factor for pregnancy complications, likely due to diminished oocyte quality and increased chromosomal abnormalities.(8)

The significantly elevated incidence of maternal hypertension in the bad obstetric history group corroborates findings from previous studies, where hypertension was identified as a major contributor to adverse outcomes such as preterm delivery and fetal growth restriction.(9) Hypertensive disorders in pregnancy reduce placental perfusion, thereby increasing the risk of fetal compromise and necessitating early delivery.(10)

Preterm delivery rates were significantly higher in the bad obstetric history group, consistent with the established association between bad obstetric history and preterm labor, influenced by factors such as hypertension, cervical incompetence, and PROM.(11,12) This finding underscores the importance of vigilant antenatal monitoring and timely interventions to mitigate prematurity-associated morbidity.

The cesarean section rate was markedly increased in the bad obstetric history group, reflecting the higher prevalence of obstetric complications necessitating surgical delivery. This is in agreement with prior studies reporting increased cesarean rates in women with bad obstetric history, often due to indications like malpresentation, fetal distress, or failed labor progression.(13,14)

NICU admissions were significantly more frequent among neonates born to mothers with bad obstetric history, indicating greater neonatal morbidity likely related to prematurity and compromised intrauterine conditions. Although perinatal mortality was higher in the bad obstetric history group, this difference did not reach statistical significance, possibly due to the sample size; however, it remains clinically relevant.

Thyroid dysfunction and gestational diabetes mellitus were more prevalent in the bad obstetric history group but did not show statistical significance, suggesting these may be contributory but less dominant factors in this cohort.

Overall, these findings emphasize the multifactorial etiology of adverse outcomes in pregnancies with bad obstetric history and highlight the need for comprehensive risk assessment, close surveillance, and individualized management strategies to improve maternal and neonatal outcomes in this high-risk population.

CONCLUSION

Pregnancies complicated by bad obstetric history are

associated with a significantly increased risk of adverse maternal and perinatal outcomes, including higher incidence of hypertension, preterm delivery, cesarean section, and neonatal intensive care admissions. Although thyroid dysfunction and gestational diabetes mellitus were more common in this group, their impact was not statistically significant in this cohort. The multifactorial nature of these adverse outcomes underscores the importance of comprehensive risk assessment, vigilant antenatal monitoring, and individualized management strategies. Early identification and targeted interventions for modifiable risk factors are essential to improve obstetric and neonatal outcomes in this high-risk population.

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