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Prevalence of Abruptio Placentae Among Women with Preeclampsia in a Tertiary Care Institute and its Fetomaternal Outcomes

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ABSTRACT

Background: Preeclampsia (PE) remains a major cause of maternal and perinatal morbidity and mortality in developing countries. Abruptio placentae (AP), premature separation of the placenta, is a serious complication associated with preeclampsia. Coexistence of both conditions exacerbates fetomaternal risk.
Objective: To determine the prevalence of abruptio placentae among preeclampsia, identify risk factors, and evaluate fetomaternal outcomes in preeclampsia with and without abruption.
Materials and Methods: This cross-sectional observational study was conducted in the Department of Obstetrics and Gynaecology, from October 2023 to September 2024. Total 200 women diagnosed with preeclampsia beyond 20 weeks of gestation were included. Data were collected regarding demographic factors, clinical parameters, biochemical profiles, mode of delivery, and fetomaternal outcomes. Diagnosis of abruption was made clinically, ultrasonographically, and confirmed by retroplacental clots at delivery. Statistical analysis was performed using SPSS v21.0, with $p < 0.05$ considered significant.
Results: The mean age of participants was 25.89 ± 4.98 years, with 68% aged 21–30 years. The majority were unbooked (80%) and primigravida (45.5%). Severe preeclampsia was present in 49% of cases. The prevalence of abruptio placentae in preeclampsia was 19%. Significant risk factors included high systolic BP (>160 mmHg), severe proteinuria (≥2+), thrombocytopenia (<1 lakh/μL), and deranged liver and renal functions. Among abruption cases, maternal complications occurred in 53.5%, including postpartum hemorrhage (18.6%), eclampsia (15.8%), acute kidney injury (5.6%), and DIC (5.6%). There were 3 maternal deaths (1.5%). Perinatal mortality was 21.6%, with 7.3% stillbirths and 6.3% intrauterine deaths. Neonatal intensive care admissions occurred in 54.2% of live births, primarily due to prematurity and meconium aspiration.
Conclusion: Abruptio placentae complicating preeclampsia substantially increases maternal and perinatal morbidity and mortality. Early identification of high-risk women, timely referral and multidisciplinary management can reduce adverse outcomes. Routine antenatal screening and optimal control of hypertension remain essential preventive strategies.

Keywords: *Preeclampsia, Abruptio placentae, fetomaternal outcome, Hypertensive disorders of pregnancy.*

INTRODUCTION

Hypertensive disorders complicate approximately 10% of pregnancies worldwide and remain a leading cause of maternal and perinatal mortality, second to hemorrhage.[1] Preeclampsia (PE) is a multisystem disorder characterized by new-onset hypertension and proteinuria after 20 weeks of gestation. Its complications include eclampsia, HELLP syndrome, renal failure, DIC, and placental abruption.

Placental abruption, defined as premature separation of a normally implanted placenta, affects 0.4–1% of pregnancies and is associated with hypertension as the most consistent etiologic factor.[2,3] In preeclampsia, endothelial dysfunction and vasospasm cause placental ischemia, increasing the risk of separation. Combined risk of PE and abruption poses serious threats to both mother and fetus, leading to hemorrhage, shock, intrauterine death and prematurity.

Although numerous studies have addressed preeclampsia and its complications, few have specifically examined the prevalence and impact of abruptio placentae in preeclampsia women in the Indian context. This study aimed to estimate the prevalence, assess contributing risk factors, and evaluate fetomaternal outcomes in preeclampsia pregnancies complicated by abruption.

MATERIALS AND METHODS

Study Design and Setting: A cross-sectional observational study was conducted at the Department of Obstetrics and Gynaecology, J.K. Lon Hospital, Government Medical College, Kota from October 2023 to September 2024.

Study Population: 200 pregnant women diagnosed with preeclampsia (≥20 weeks gestation) were included after informed consent.

Inclusion Criteria

- Blood pressure ≥140/90 mmHg on two occasions ≥4 hours apart.
- Proteinuria ≥300 mg/24 hour urine or dipstick ≥2+.
- Cases with features of severe PE or organ dysfunction (thrombocytopenia, renal/liver impairment, pulmonary edema, or neurological symptoms).

Exclusion Criteria

- Gestational age <20 weeks.
- Chronic hypertension, diabetes, heart and renal disease (creatinine>3 mg/dL).
- Eclampsia
- History of trauma.

Data Collection: Clinical data including age, parity, booking status, gestational age, blood pressure, proteinuria, laboratory parameters (platelet counts, liver and renal function tests) were recorded. Fetal well-being was assessed by ultrasound and CTG. Abruptio placentae was diagnosed clinically, sonographically, and confirmed by retroplacental clot at delivery.

Statistical Analysis: Data were analyzed using SPSS version 21.0.Quantitative data were presented as mean ± SD, qualitative data as frequency and percentage. Chi-square test was applied for categorical variables, and $p < 0.05$ was considered significant.

RESULTS

Mean maternal age was 25.89 ± 4.98 years; 68% were aged 21–30 years. 80% were unbooked, 45.5% primigravida. Mean systolic BP was 153.05 ± 13.46 mmHg and diastolic 100.12 ± 10.0 mmHg ($p = 0.0001$). Severe PE was observed in 49%. Out of the total study participants, 40% had ≥2+ proteinuria; 21.5% had serum creatinine>1.1 mg/dL; 18.5% had SGOT >70 IU/L, and 16% had SGPT >70 IU/L. 51% had <37weeks of Period of Gestation & 8.5% were postdated. 19% of preeclampsia patients developed abruption (Table 1).

As per mode of delivery, 69.5% delivered by LSCS; fetal distress and poor Bishop score were leading indications. 53.5% developed maternal complications—postpartum hemorrhage (18.7%), eclampsia (15.9%), need for transfusion (21.4%), DIC (5.6%), AKI (5.6%). Three maternal deaths (1.5%) were recorded. Perinatal mortality was 21.6%. Stillbirths and IUDs accounted for 7.32% and 6.34%, respectively as shown in Figure 1. NICU admission rate was 54.2%, mainly due to prematurity (22%), meconium aspiration (13%), and IUGR (12%).

Table 1: Prevalence of AP in Pre-Eclampsia patients

Abruption(type)		**Frequency**	**Percentage (%)**
Absent		162	81.00%
Present	**Concealed**	22	11.00%
	Revealed	6	3.00%
	Mixed	10	5.00%
Total		**200**	**100.00%**

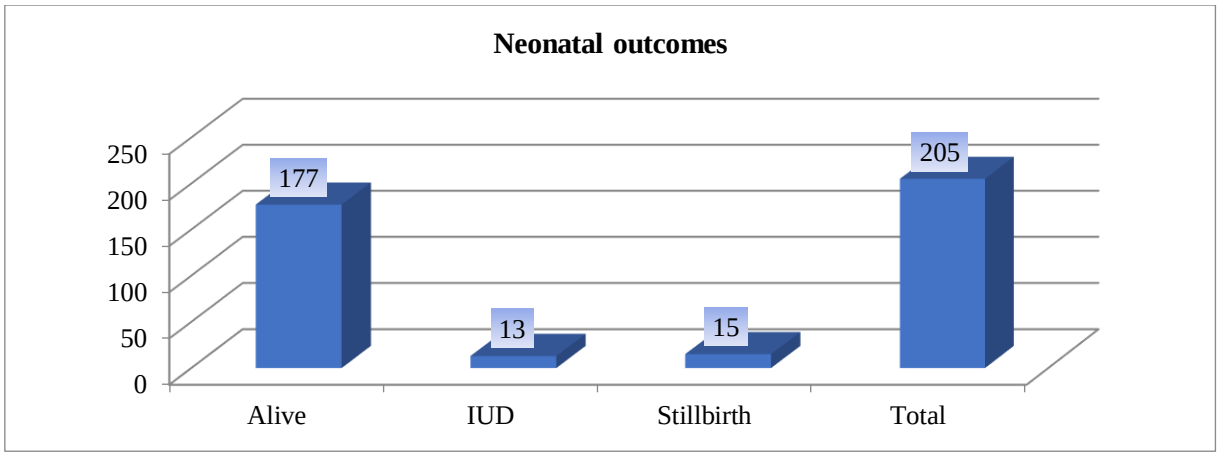

Figure 1: Neonatal outcomes among Pre-Eclampsia patients

DISCUSSION

The present study found a 19% prevalence of abruptio placentae among women with preeclampsia, aligning with findings by Tewari et al. (2020), who reported 16% incidence of abruption among 100 preeclamptic women.[4] Similarly, Shilpa Gupta et al. (2019) reported an incidence of 1.09% among all deliveries, with 39% associated with hypertensive disorders.[5] Gandotra et al. (2020) also found 45.9% of abruption cases associated with preeclampsia.[6]

The age distribution (21–30 years) and primigravida predominance (45.5%) observed in our study were consistent with findings of Chauhan et al. (2021) and Subburam et al. (2024), who reported similar demographic patterns in hypertensive pregnancies.[7,8]

The high proportion of unbooked patients(80%) underscores the persistent gap in antenatal surveillance, echoing findings from Devabhaktuni et al. (2020) and Aabidha et al. (2015), where late referrals were associated with increased abruption and poor outcomes.[9,10]

Maternal Complications: Maternal mortality refers to deaths due to complications from pregnancy, childbirth or within 42 days of termination.[11,12] The study revealed maternal complication rate of 53.5%, comparable to Saxena et al. (2016), who noted 59% maternal morbidity in severe PE/eclampsia due to renal failure, DIC, and HELLP.[13] PPH (18.6%) and eclampsia (15.8%) were leading complications, paralleling data from Pillai (2017) and Shandilya (2023).[14,15]

Perinatal Outcomes: Perinatal mortality refers to the death of a fetus or newborn around the time of birth, typically defined as stillbirths and early neonatal deaths.[16-21] Perinatal mortality of 21.6% in this study correlates with Tewari et al. (2020) (28.5%) and Nagaraj et al. (2024) (47.6%).[4,22] Major contributors were prematurity, IUGR, and perinatal asphyxia, similar to reports by Khan et al. (2022) and Jayashree et al. (2022).[23,24]

The higher rate of LSCS (69.5%) in this study is attributable to fetal distress and poor cervical scores, reflecting the emergency nature of management in severe PE with abruption. Comparable LSCS rates were documented by Mariam et al. (2017) and Chauhan et al. (2021).[25-27]

Pathophysiology: Endothelial dysfunction and abnormal placentation in preeclampsia predispose to uteroplacental ischemia, leading to vascular rupture and retroplacental clot formation.[28-30] The findings corroborate with the hypothesis that uncontrolled hypertension, coagulopathy, and vascular fragility synergistically increase abruption risk in preeclampsia women.

Overall, this study reinforces existing literature showing that preeclampsia-associated with abruption is preventable with early diagnosis, consistent antenatal monitoring and control of hypertension and coagulation parameters.

CONCLUSION

Abruptio placentae remains a devastating complication of preeclampsia, with significant maternal and perinatal morbidity and mortality. The 19% prevalence in this study emphasizes the need for vigilant antenatal screening, timely referral and comprehensive management. Early recognition of warning signs such as severe hypertension, heavy proteinuria, and laboratory derangements can help reduce abruption incidence. Improving rural antenatal outreach and emergency obstetric care is crucial to reducing adverse outcomes in developing settings.

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