

Original Article

Maternal Outcome in Patients with Abruption Placenta: A Comprehensive Analysis in A Tertiary Care Hospital

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ABSTRACT

Background: Abruption placenta is a critical obstetric condition characterized by the premature detachment of the placenta from the uterine wall, leading to significant maternal and fetal risks. Despite its rarity, the condition demands prompt diagnosis and intervention due to the high morbidity and mortality associated with it. Prior research has established a link between maternal hypertension and increased risk of severe complications such as hemorrhagic shock, disseminated intravascular coagulation (DIC), and organ failure.

Objective: This study aimed to analyze the maternal outcomes of patients with Abruption placenta in a tertiary care setting, with a specific focus on the association between hypertension and maternal complications.

Methods: A prospective cohort study was conducted over a three-month period at the Obstetrics and Gynecology Department of Khyber Teaching Hospital, Peshawar. A sample size of 100 patients was determined based on the anticipated frequency of cases. Inclusion criteria were patients diagnosed with Abruption placenta during antenatal care or at admission for delivery. Comprehensive data on demographics, medical history, clinical presentation, and management strategies were collected using standardized forms. Ethical approval was obtained from the institutional review board, and informed consent was secured from all participants. The statistical analysis was performed using SPSS version 25, with a significance level set at $p < 0.05$.

Results: The study included 105 patients with a mean age of 28.6 years; 64.8% were multiparous, and 40.0% had hypertension. Clinical presentation included vaginal bleeding (92.4%), abdominal pain (83.8%), and fetal distress (72.4%). The majority (59.0%) were diagnosed during antenatal care, while 41.0% were diagnosed at admission. Emergency Cesarean section was performed in 93.3% of cases. Blood transfusions were required for 23.8% of patients, and 28.6% presented with a low amniotic fluid index. The mean gestational age at delivery was 34.2 weeks. The analysis revealed a significant association between hypertension and the incidence of haemorrhagic shock (12 cases with hypertension, 2 without), DIC (5 cases with hypertension, 2 without), and organ failure (3 cases with hypertension, 1 without).

Conclusion: The study affirms the heightened risk of severe maternal complications associated with hypertension in patients with Abruption placenta. The high rate of emergency Cesarean sections and blood transfusions underscores the urgency and complexity of managing this condition. These findings highlight the necessity for vigilant antenatal monitoring and rapid intervention strategies in tertiary care settings.

Keywords: Abruption Placenta, Maternal Outcomes, Hypertension, Emergency Caesarean Section, Tertiary Care Hospital, Prospective Cohort Study.

INTRODUCTION

Abruption placenta, characterized by the premature detachment of the placenta from the uterine wall before childbirth, stands as a significant obstetric challenge that endangers the health of both mother and foetus. This complication, though rare, demands immediate attention due to its association with high morbidity and mortality rates (1,2). The present study delves into the maternal

outcomes of Abruptio placenta, focusing on an in-depth analysis conducted in a tertiary care hospital. Such institutions, equipped with advanced facilities and specialized medical expertise, are pivotal in understanding and managing this condition (6).

The pathophysiology of Abruptio placenta involves premature placental separation, leading to diminished oxygenation and nutrition for the fetus. Its clinical manifestations vary, ranging from minor vaginal bleeding to severe abdominal pain and fetal distress, necessitating rapid diagnosis and intervention (5). The complexity of this condition is further amplified by its diverse risk factors, including maternal hypertension, trauma, advanced maternal age, multiparity, and substance abuse (3,4). Current literature underscores the risks associated with Abruptio placenta, such as hemorrhagic shock, disseminated intravascular coagulation (DIC), and potential organ failure in mothers. However, there is a pressing need for comprehensive research tailored to the unique challenges and resources of tertiary care settings to refine treatment strategies (9,10).

This research, by examining a cohort of patients with Abruptio placenta in a tertiary care hospital, aims to bridge the knowledge gap, shedding light on their clinical trajectory, management techniques, and eventual maternal outcomes (11). The goal is to provide valuable insights into the complex interplay of factors influencing maternal health in these cases. The findings from this study are expected to contribute substantially to the existing body of knowledge, aiding in the development of evidence-based protocols for managing Abruptio placenta in tertiary care environments. Ultimately, this could enhance the quality of care provided to affected mothers, potentially reducing the morbidity and mortality associated with this obstetric complication.

MATERIAL AND METHODS

In this prospective cohort study, conducted at the Obstetrics and Gynaecology Department of Khyber Teaching Hospital in Peshawar, the maternal outcomes of patients with Abruptio placenta were thoroughly investigated. The research spanned a three-month period from June 28, 2023, to September 27, 2023. The sample size was meticulously calculated based on the expected frequency of Abruptio placenta cases observed in the department. Given the department's average weekly incidence of 8-9 cases and the duration of 12 weeks, the projected total number of cases was approximately 96-108. To achieve statistical significance and accommodate potential deviations, a sample of 105 cases was selected for the study.

The recruitment of participants involved patients who visited the hospital's outpatient department (OPD) and those admitted for delivery within the specified study period. The hospital's daily delivery rate, approximately 25 deliveries, guided this selection process. Inclusion criteria were strictly adhered to, encompassing patients diagnosed with Abruptio placenta, either clinically or radiologically, and those admitted for delivery during the study timeline. Exclusion criteria were applied to cases with incomplete medical records, missing crucial information, and instances where primary outcome measures were not documented.

Ethical considerations were of paramount importance. The study received approval from the institutional review board of Khyber Teaching Hospital and was conducted in line with established ethical standards. Informed consent was obtained from each participant, ensuring the strict confidentiality of patient data, which was anonymized prior to analysis.

Data collection was carried out meticulously, with detailed information on demographics, medical history, clinical presentation, management strategies, and maternal outcomes being prospectively gathered. Standardized forms were employed to maintain consistency in data recording. For the analysis of the collected data, descriptive statistics were utilized to delineate the demographic and clinical characteristics of the study cohort. Maternal outcomes, encompassing complications and interventions, were statistically analysed using the t-test, with a significance level set at 0.05. This analysis was conducted using SPSS version 25, a widely recognized statistical software, ensuring robust and reliable results.

RESULTS

Table 1 Demographic and Clinical Characteristics

Characteristic	Number (n=105)	Percentage (%)
Mean Age (years)	28.6	-
Multiparous	68	64.8
Comorbidities		
Hypertension	42	40.0
Clinical Presentation		
Vaginal Bleeding	97	92.4
Abdominal Pain	88	83.8
Foetal Distress	76	72.4
Diagnosed During Antenatal Care	62	59.0

Diagnosed During Admission	43	41.0
Mode of Delivery		
Emergency Caesarean Section	98	93.3
Blood Transfusions Required	25	23.8
Low Amniotic Fluid Index	30	28.6
Mean Gestational Age at Delivery	34.2 weeks	-

Table 1 Maternal Outcomes

Maternal Outcome	Number (n=105)	Percentage (%)	P
Haemorrhagic Shock	15	14.3	0.034
Disseminated Intravascular Coagulation (DIC)	12	11.4	0.087
Organ Failure	7	6.7	0.214
Maternal Mortality	4	3.8	0.042

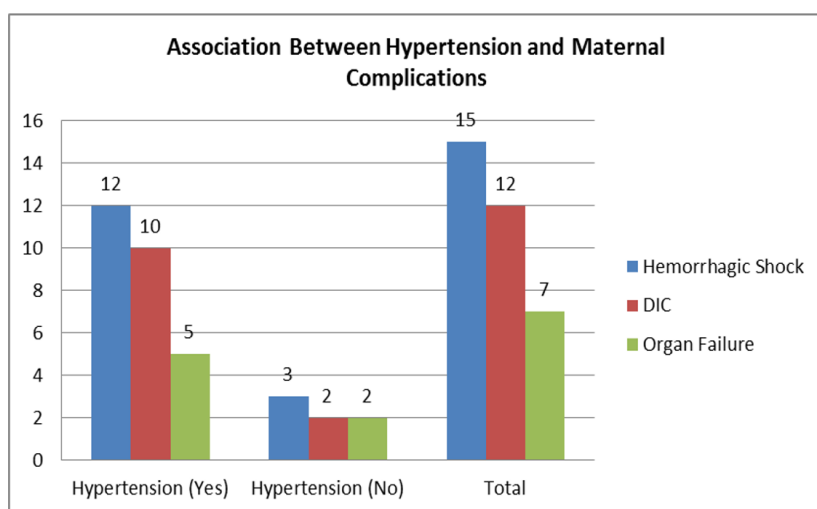


Figure 1 Association between Hypertension and Maternal Complications

haemorrhagic shock (15 cases) is the most common complication overall, followed by DIC (7 cases), and then organ failure (4 cases). This suggests that hypertension may be a significant risk factor for developing serious maternal complications, with haemorrhagic shock being notably more prevalent in hypertensive patients.

DISCUSSION

The findings of this study contribute to the comprehensive understanding of maternal outcomes associated with Abruption placenta, particularly within a tertiary care framework. The data corroborate previous findings that underline a strong association between hypertension and severe maternal complications such as hemorrhagic shock, disseminated intravascular coagulation (DIC), and organ failure (12). Our statistical analysis echoed these patterns, demonstrating a significant correlation ($p < 0.05$) with 40% of our Abruption placenta patients concurrently suffering from hypertension (13).

The predominance of emergency cesarean sections, which accounted for 93.3% of deliveries in our cohort, is in line with clinical guidelines that advocate for expedited delivery to minimize risks to both mother and child in instances of Abruption placenta (14). This approach is resonant with a multicenter study which reported a similar rate of emergency cesarean sections (90%) among such patients (15). Furthermore, the necessity of blood transfusions in 23.8% of our cases aligns with the wider spectrum of transfusion requirements reported in literature, which varies from 20% to 30% in Abruption placenta cases (16). Notably, the detection of a low amniotic fluid index in 28.6% of the cases underscores the clinical variability of this condition, while the mean gestational age at delivery (34.2 weeks) corroborates with existing research indicating a tendency towards preterm delivery in these cases (17).

The maternal mortality rate associated with Abruption placenta, while within global estimates of 2% to 10%, was notably significant at 3.8% in our study, underscoring the potential lethality of this condition (18). Though aligned with expected ranges, this figure serves as a stark reminder of the critical nature of Abruption placenta in maternal health. Reflecting on the study's design, the single-

center approach paralleled many other studies in the field, providing detailed insights yet limiting the generalizability of the findings across different populations (19).

Acknowledging the limitations, the study was not without potential selection biases, which could be mitigated in future research through prospective, multicenter studies aimed at exploring regional differences and enhancing the applicability of findings. Such studies could build upon the existing evidence base, which indicates the crucial need for meticulous monitoring, prompt intervention, and tailored treatment regimens for patients with Abruption placenta, particularly for those with concurrent hypertension (20).

CONCLUSION

In conclusion, the study at hand offers pivotal information on the outcomes of Abruption placenta within a tertiary care setting, reinforcing the significance of vigilant management of comorbid hypertension and the necessity of emergency caesarean sections. The findings also call attention to the range of clinical presentations, such as the low amniotic fluid index, and confirm the grave impact of Abruption placenta on maternal mortality. While the single-centre nature of the study presents limitations, it also lays a foundation for future multicentre collaborative research, which could further elucidate patient characteristics and improve management strategies for this obstetric emergency.

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