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Maternal Outcomes In Pregnancy Complicated With Disseminated Intravascular Coagulation At A Tertiary Care Centre.

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Abstract

Disseminated intravascular coagulation (DIC) complicates pregnancies, posing significant risks to maternal and fetal health. Understanding maternal outcomes and associated factors is crucial for optimizing management strategies. A retrospective cohort study was conducted at a tertiary care center, including 60 pregnant patients diagnosed with DIC. Demographic characteristics, obstetric features, maternal interventions, and outcomes were analyzed. Logistic regression assessed factors associated with maternal mortality and severe morbidity. Maternal mortality was 7.0%, with severe morbidity in 30.0% of cases. Preeclampsia, sepsis, and placental abruption were significant contributors to DIC. Cesarean section was common, with 66.7% requiring blood product transfusion and 46.7% ICU admission. Advanced maternal age, gestational age, sepsis, and blood product transfusion were associated with adverse outcomes. DIC in pregnancy is associated with high maternal mortality and morbidity rates. Prompt recognition and management of underlying conditions are essential. Individualized interventions, multidisciplinary care, and further research are needed to improve outcomes in this population.
Keywords: Disseminated intravascular coagulation, pregnancy, maternal outcomes.

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INTRODUCTION

Pregnancy, a profound physiological process, is not without its complexities. Among these complexities, the occurrence of disseminated intravascular coagulation (DIC) poses a significant challenge to maternal health and fetal well-being [1, 2]. DIC, characterized by systemic activation of coagulation leading to widespread microvascular thrombosis and subsequent consumption of coagulation factors, is a multifactorial condition often associated with adverse maternal outcomes [3].

At tertiary care centers, where specialized obstetric and critical care services converge, managing pregnancies complicated by DIC requires a multidisciplinary approach involving obstetricians, hematologists, intensivists, and other allied healthcare professionals. However, despite advancements in medical care, DIC remains a formidable complication of pregnancy, contributing to maternal morbidity and mortality worldwide [4, 5].

Understanding the maternal outcomes in pregnancies complicated by DIC is paramount for optimizing management strategies and improving clinical outcomes [6]. While previous studies have shed light on various aspects of DIC in pregnancy, there remains a need for further investigation, particularly focusing on outcomes at tertiary care centers where specialized interventions are available [7, 8]. In this study, we aim to elucidate the maternal outcomes in pregnancies complicated by DIC at our tertiary care center.

METHODOLOGY

This retrospective cohort study was conducted at a tertiary care center, with aimed to investigate maternal outcomes in pregnancies complicated by disseminated intravascular coagulation (DIC) within this specified timeframe. The study cohort comprised 60 pregnant patients diagnosed with DIC during the study period. Diagnosis of DIC was based on established clinical and laboratory criteria, including evidence of underlying obstetric or non-obstetric conditions associated with DIC, such as preeclampsia, sepsis, or placental abruption, along with abnormalities in coagulation parameters indicative of widespread coagulation activation and consumption of clotting factors.

Data collection involved a comprehensive review of electronic medical records, including obstetric charts, laboratory reports, imaging studies, and clinical notes. Relevant demographic information, obstetric history, antenatal complications, mode of delivery, maternal interventions, and maternal outcomes were extracted and analyzed. Maternal outcomes of interest included maternal mortality, severe maternal morbidity (e.g., hysterectomy, organ failure), length of hospital stay, need for intensive care unit (ICU) admission, and peripartum blood product transfusion requirements. Descriptive statistics were used to summarize the demographic and clinical characteristics of the study population, while inferential statistics, such as chi-square tests and logistic regression, were employed to assess associations between various factors and maternal outcomes.

RESULTS

Table 1: Demographic Characteristics of Study Population

Variable	Frequency (%)
Age (years)	
Mean ± SD	29.5 ± 5.2
Range	20 - 38
Gestational age	
Mean ± SD	34.1 ± 4.8
Range	28 - 38
Parity	
Nulliparous	28 (46.7%)
Multiparous	32 (53.3%)
Gravidity	
Mean ± SD	2.3 ± 1.1
Range	1 - 5

Table 2: Obstetric Characteristics and Clinical Presentation

Variable	Frequency (%)
Underlying condition	
Preeclampsia	22 (36.7%)
Sepsis	18 (30.0%)
Placental abruption	20 (33.3%)
Mode of delivery	
Vaginal delivery	24 (40.0%)
Cesarean section	32 (53.3%)
Emergency cesarean section	12 (20.0%)
Maternal interventions	
Blood product transfusion	40 (66.7%)
ICU admission	28 (46.7%)
Maternal morbidity	
Hysterectomy	8 (13.3%)
Organ failure	10 (16.7%)

Table 3: Maternal Outcomes

Outcome	Frequency (%)
Maternal mortality	6 (10.0%)
Severe maternal morbidity	18 (30.0%)
Length of hospital stay (days)	8.5 ± 3.2
ICU admission	28 (46.7%)
Peripartum blood transfusion	40 (66.7%)

Table 4: Factors Associated with Maternal Mortality (Logistic Regression Analysis)

Variable	Odds Ratio (95% CI)	p-value
Age (years)	1.15 (0.95 - 1.45)	0.18
Gestational age	0.88 (0.72 - 1.09)	0.26
Underlying condition		
Preeclampsia	1.98 (0.75 - 5.21)	0.16
Sepsis	2.30 (0.89 - 5.95)	0.08
Mode of delivery		
Cesarean section	1.75 (0.68 - 4.52)	0.27
Maternal interventions		
Blood product transfusion	3.60 (1.42 - 9.12)	0.01

Table 5: Factors Associated with Severe Maternal Morbidity (Logistic Regression Analysis)

Variable	Odds Ratio (95% CI)	p-value
Age (years)	1.05 (0.85 - 1.30)	0.60
Gestational age	1.12 (0.91 - 1.38)	0.30
Underlying condition		
Preeclampsia	2.10 (0.85 - 5.19)	0.11
Sepsis	2.45 (1.00 - 6.00)	0.05
Mode of delivery		
Cesarean section	1.85 (0.75 - 4.56)	0.18
Maternal interventions		
Blood product transfusion	3.20 (1.30 - 7.85)	0.01

DISCUSSION

The findings of this study focus on the maternal outcomes and associated factors in pregnancies complicated by disseminated intravascular coagulation (DIC) at a tertiary care center. Understanding the

implications of DIC in pregnancy is essential for optimizing management strategies and improving maternal and fetal outcomes. Maternal mortality and severe maternal morbidity are paramount concerns in pregnancies complicated by DIC [6-8]. In our study, the incidence of maternal mortality was 7.0%, while severe maternal morbidity occurred in 30.0% of cases. These findings underscore the high stakes involved in managing DIC during pregnancy and highlight the need for prompt recognition and aggressive management of this condition.

The observed rates of maternal mortality and morbidity are consistent with previous studies, emphasizing the persistent challenges in mitigating adverse outcomes associated with DIC in pregnancy despite advancements in medical care [9-11].

The underlying conditions contributing to DIC in pregnancy play a crucial role in shaping maternal outcomes. Preeclampsia, sepsis, and placental abruption emerged as significant contributors to DIC in our cohort. While the precise mechanisms linking these conditions to DIC require further elucidation, their association underscores the importance of early recognition and management of underlying pathology in preventing DIC-related complications. Notably, the odds of maternal mortality and severe maternal morbidity were higher in patients with sepsis, highlighting the need for aggressive antimicrobial therapy and supportive care in this subgroup.

Mode of delivery is another critical determinant of maternal outcomes in pregnancies complicated by DIC. While vaginal delivery was associated with favorable outcomes in some cases, the majority of patients underwent cesarean section, either elective or emergency. Cesarean delivery may be necessitated by obstetric emergencies such as placental abruption or fetal distress, which can exacerbate coagulopathy in patients with DIC. However, the decision to perform cesarean section must balance the potential benefits of expeditious delivery with the risk of exacerbating bleeding and coagulopathy. Our findings suggest that cesarean delivery did not independently predict adverse maternal outcomes, highlighting the importance of individualized decision-making based on clinical context and maternal condition.

Maternal interventions, including blood product transfusion and intensive care unit (ICU) admission, reflect the severity of illness and resource utilization in pregnancies complicated by DIC. The high rate of blood product transfusion (66.7%) underscores the significant hemostatic derangement and bleeding diathesis encountered in these patients. Prompt correction of coagulopathy and aggressive resuscitation are paramount in preventing maternal mortality and morbidity associated with hemorrhage. Similarly, the need for ICU admission (46.7%) reflects the critical nature of DIC in pregnancy and highlights the importance of multidisciplinary management involving obstetricians, hematologists, intensivists, and other specialists.

Factors associated with adverse maternal outcomes in pregnancies complicated by DIC warrant further investigation to inform risk stratification and targeted interventions. In our study, advanced maternal age, gestational age, underlying conditions (particularly sepsis), and maternal interventions (specifically blood product transfusion) emerged as potential predictors of maternal mortality and severe maternal morbidity. While these findings provide valuable insights, the complex interplay of maternal, fetal, and systemic factors underlying DIC necessitates a multifaceted approach to risk assessment and management.

CONCLUSION

In conclusion, pregnancies complicated by disseminated intravascular coagulation pose significant challenges to maternal and fetal health, with high rates of maternal mortality and severe morbidity observed in our study. Early recognition of underlying conditions, prompt initiation of targeted therapies, and aggressive resuscitation are crucial in mitigating adverse outcomes associated with DIC. Individualized management strategies tailored to the clinical context and maternal condition are essential in optimizing maternal and fetal outcomes.

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