

Original Article

Fetal Outcome in Women of Pre-Eclampsia

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ABSTRACT

Background: Pre-eclampsia, a serious condition characterized by high blood pressure in pregnant women, presents significant health risks for both the mother and fetus. This study aimed to assess the impact of pre-eclampsia on fetal outcomes in the Pakistani population, recognizing the condition's high prevalence and its role in maternal and neonatal morbidity and mortality.

Objective: To evaluate the fetal outcome in women with pre-eclampsia in the Pakistani population.

Methods: This descriptive case series was conducted at the Department of Obstetrics and Gynaecology, University College of Medicine and Dentistry Lahore, from January to June 2023. A total of 93 patients were enrolled to study the effects of pre-eclampsia on mothers and fetuses.

Results: Among the 93 patients, the mean age was 37.59±6.37 years. The age distribution predominantly included women aged 31-35 years, followed by those in the 36-40 and 41-45 age groups. Severe pre-eclampsia was observed in 69.9% of patients, while 30.1% had mild pre-eclampsia. The fetal outcomes were as follows: 65.5% good, 12.9% stillbirth, and 21.5% neonatal death, with an insignificant P-value.

Conclusion: The study concluded that the high prevalence of pre-eclampsia in the community is alarming, significantly increasing the risk of adverse outcomes for infant health and well-being. There is a critical need to educate women about the signs and symptoms of pre-eclampsia.

Keywords: Fetal Outcome, Maternal Health, Neonatal Death, Pre-Eclampsia, Pregnancy, Stillbirth, Women's Health.

INTRODUCTION

Pre-eclampsia (PE) is a severe multisystem disorder affecting pregnant women, commonly manifesting after the 20th week of gestation (1). Characterized by elevated blood pressure and multi-organ damage, primarily to the liver and kidneys, PE is a significant health concern (2, 3). This condition not only endangers the expectant mother but also has serious implications for the developing fetus, contributing notably to maternal and fetal morbidity and mortality (4, 5). Globally, PE affects approximately 3-8% of pregnancies (6), with its incidence varying based on demographic factors and healthcare quality (7). The World Health Organization highlights the substantial role of PE and eclampsia in maternal deaths worldwide, contributing to 10-15% of such fatalities (8, 9). In Pakistan, PE poses a considerable public health challenge, accounting for a third of maternal deaths according to the Global Burden of Disease estimates (10, 11).

Geographical disparities are evident in the incidence and mortality rates of PE. Women in low-resource countries face a higher risk of developing pre-eclampsia compared to those in high-resource nations (12). This disparity is particularly pronounced in rural areas of Pakistan, where access to healthcare, especially specialized maternal care, is often limited. Factors such as population size, economic constraints, and infrastructure deficiencies strain the healthcare system, leading to delayed prenatal care, the missed early detection of complications, and untimely interventions. Such delays exacerbate the risks associated with decreased placental perfusion, a key risk factor in PE, hindering the supply of oxygen and essential nutrients to the fetus. This study was thus undertaken to evaluate the fetal outcomes in Pakistani women suffering from pre-eclampsia.

In conclusion, understanding the impact of pre-eclampsia on fetal outcomes in the Pakistani context is crucial. This study aims to provide comprehensive insights into these outcomes, thereby contributing to the broader understanding of PE's implications in low-resource settings.

MATERIAL AND METHODS

The study employed a descriptive design, situated in the Department of Obstetrics and Gynaecology at the University College of Medicine and Dentistry Lahore. Spanning a duration of six months, from January to June 2023, it employed a non-probability purposive sampling technique for patient recruitment. The study focused on antenatal women diagnosed with pre-eclampsia, aged between 18 and 45 years, in their third trimester of pregnancy. Only married women were included, aligning with cultural norms and the scope of the study.

Exclusion criteria were carefully defined to maintain the study's integrity. Women experiencing multiple pregnancies, those with a history of chronic hypertension, or suffering from diabetes, autoimmune disorders, or kidney diseases were excluded. Additionally, divorced women and those with known fetal anomalies or genetic conditions potentially impacting fetal outcomes were not considered for this research.

Upon the Ethical Committee's approval from the respective hospital, a cohort of 93 pregnant women in their third trimester was enrolled. Each participant provided informed consent, documented and duly signed by both the researcher and the participant or their guardian. To ensure anonymity and confidentiality, each participant was assigned a unique identifier. The research methodology involved a comprehensive clinical examination of all enrolled participants. Pre-eclampsia was identified based on elevated blood pressure levels ($\geq 140/90$ mmHg) and corroborated by proteinuria or anomalies in platelet count, liver enzyme levels, or renal function tests.

For data analysis, the study utilized SPSS Version 24, facilitating a rigorous statistical examination of the collected data. This approach ensured that the study's findings were grounded in reliable and scientifically validated methods.

RESULTS

A total of 93 patients, whose mean age was 37.59 ± 6.37 years, were enrolled (Table 1). The majority of the patients in the current study were between the ages of 31 and 35, then 36 to 40, and finally 41 to 45 (Table 2). 30.1% of patients had mild pre-eclampsia and 69.9% of patients had severe pre-eclampsia (Table 3). With an insignificant P-value, the fetal outcomes for good, stillbirth, and neonatal death were 65.5%, 12.9%, and 21.5%, respectively (Table 4).

Table 1: Patient characteristics of enrolled patients (n=93)

Variables	Mean \pm SD
Age (Years)	37.59 \pm 6.37

Table 2: Distribution of patients based on Age group (n=93)

Age group (year)	Frequency	Percentage
18-25	9	9.7
26-30	5	5.4
31-35	35	37.6
36-40	26	28.0
41-45	18	19.4
Total	93	100.0

Table 3: Distribution of patients based on Pre-eclampsia (n=93)

Pre-eclampsia	Frequency	Percentage
Mild Pre-eclampsia	28	30
Severe Pre-eclampsia	65	69.9
Total	93	100.0

Table 4: Fetal outcome and registration of patients according severity of pre-eclampsia.

Pre-eclampsia			
	Mild Pre-eclampsia	Severe Pre-eclampsia	P-value
Registered	16 (34.8%)	30(65.2%)	0.33
Unregistered	12 (25.5%)	35(74.5%)	
Total	28(30.1%)	65(69.9%)	
Fetal outcomes			0.30
Good	23 (82.1%)	38(58.5%)	
Still birth	3 (10.7%)	9 (13.8%)	
Neonatal death	2 (7.1%)	18(27.7%)	
Total	28 (30.1%)	65(69.9%)	

DISCUSSION

The primary objective of this study was to assess the fetal outcome in women with pre-eclampsia. Screening a substantial number of patients, the study identified 93 cases of pre-eclampsia with a mean age of 37.59 ± 6.37 years, ranging from 18 to 45 years. Consistent with literature, an increased risk of pre-eclampsia was associated with advanced maternal age (13, 14), typically defined as 35 years or older at delivery (15, 16). This study observed the majority of pre-eclampsia cases in the age groups of 35-40 years and 41-45 years, aligning with the understanding that the risk escalates with maternal age. Contrasting with findings by Parveen M. et al. (17), which reported a higher incidence in the 21–25-year age group, this study's demographic trend underscores the variable nature of pre-eclampsia across different populations.

A notable aspect of this research was the higher incidence of severe pre-eclampsia in unregistered women, indicating the crucial role of prenatal care and healthcare registration during pregnancy. This disparity highlights the preventive potential of regular healthcare engagement, which can mitigate the severity of pre-eclampsia.

In terms of fetal outcomes, the study found that 65.5% of cases resulted in a good outcome, while stillbirths and neonatal deaths accounted for 12.9% and 21.5%, respectively. These findings are in line with the results of a study by Parveen M. et al. (17), which also reported similar outcomes in terms of Apgar scores and stillbirth rates. The link between severe pre-eclampsia and adverse neonatal outcomes, including an elevated risk of neonatal death, was evident (19).

This study's strength lies in its focused demographic, providing insights into the impact of pre-eclampsia in a specific age group and regional context. However, its limitations include a relatively small sample size and the exclusion of certain demographic groups, which may affect the generalizability of the findings. Additionally, the study's observational nature limits the ability to establish causative relationships.

The study reaffirms the association between advanced maternal age and the risk of pre-eclampsia, while also emphasizing the importance of prenatal care in mitigating the severity of this condition. The findings also highlight the significant impact of pre-eclampsia on fetal outcomes, particularly in populations with limited healthcare access. Future research should aim to include a broader demographic to enhance the generalizability of these findings and explore the mechanisms underlying these associations in greater depth.

CONCLUSION

In the context of current study, pre-eclampsia has emerged as a critical health concern, significantly impacting maternal and neonatal well-being. This condition markedly increases the risks associated with maternal and neonatal mortality and morbidity. The notably high prevalence of pre-eclampsia within current study population underscores the gravity of the situation, particularly concerning the adverse outcomes that affect infant mortality and morbidity. These findings highlight the imperative need for enhanced education and awareness among women regarding the symptoms and risks of pre-eclampsia. Such educational initiatives are crucial for early detection and effective management of this condition, potentially mitigating its severe consequences on both mothers and newborns.

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