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# Frequency of Eclampsia in Teenage Pregnancy Presenting to Khyber Teaching Hospital Peshawar

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**ABSTRACT**

Eclampsia is a known complication of preeclampsia during pregnancy and is associated with morbidity and mortality of both the mother and fetus if not properly diagnosed. Preeclampsia and eclampsia are one of the four categories associated with hypertensive disorders of pregnancy.To determine the frequency of eclampsia in teenage pregnancy presenting to Khyber Teaching Hospital Peshawar. Descriptive Case Series was used in the present study . The study was conducted at the Department of Obstetrics and Gynaecology, KTH, Peshawar, from 1st November 2021 to 1st May 2022. A total of 100 primigravida teenage patients with preeclampsia were included in the study. All patients were followed till delivery and postpartum period till one week and eclampsia was noted as per operational definition. Age range in this study was from 15 to 19 years with mean age of 17.710±0.92 years, mean gestational age 37.390±2.00 weeks and mean weight was 64.910±3.01 Kg. Eclampsia was observed in 4% patients. In this study, we identified an aggregate prevalence of eclampsia in teenage pregnancy of 4%.

**Keywords**: *Primigravida, Teenage, Eclampsia*

## 1. INTRODUCTION

Eclampsia, a severe complication of preeclampsia, poses significant risks to both maternal and fetal health if not promptly identified and managed. It is defined as the new onset of generalized tonic-clonic seizures in a woman with preeclampsia, which itself is characterized by new-onset hypertension (systolic ≥140 mmHg and/or diastolic ≥90 mmHg) after 20 weeks of gestation, accompanied by proteinuria and/or end-organ dysfunction such as renal or liver impairment, CNS disturbances, pulmonary edema, or thrombocytopenia (1,2). While the exact etiology of eclampsia is still not fully understood, it is hypothesized that increased permeability of the blood-brain barrier and impaired cerebral autoregulation play key roles in its pathogenesis (4). Abnormal placentation and poor maternal-placental interaction are also implicated (5). Risk factors for eclampsia include maternal obesity, prior history of eclampsia, and chronic conditions such as hypertension, diabetes, and heart disease, many of which are potentially modifiable before pregnancy (6,7).

Adolescent pregnancies are particularly vulnerable to hypertensive disorders of pregnancy. The prevalence of preeclampsia may be twice as high in teenagers, leading to increased maternal complications such as cesarean delivery, maternal near-miss events, and severe morbidity, as well as poor perinatal outcomes including intrauterine growth restriction (IUGR), low birth weight, preterm delivery, and neonatal ICU admissions (8). Reported frequencies of eclampsia in teenage pregnancies vary across studies; Macedo TCC et al. reported a frequency of 6.7% (9), while Alyamani AM et al. reported a rate of 2.1% (10). These variations emphasize the need for region-specific data to guide interventions. Therefore, it is crucial to assess the frequency of eclampsia among teenage pregnancies at local healthcare institutions such as Khyber Teaching Hospital, Peshawar, to facilitate early diagnosis, prevention, and targeted management in this high-risk population,

## 2. OBJECTIVE

To determine the frequency of eclampsia in teenage pregnancy presenting to Khyber Teaching Hospital (KTH), Peshawar.

## 3. MATERIAL AND METHODS:

This descriptive case series was conducted in the Department of Obstetrics and Gynaecology at Khyber Teaching Hospital, Peshawar, from 1st November 2021 to 1st May 2022. A total of 100 teenage pregnant women aged 15–19 years, with singleton pregnancies beyond 30 weeks of gestation and diagnosed with preeclampsia, were included through non-probability consecutive sampling. Women on medications affecting pregnancy were excluded. After ethical approval and informed consent, demographic data including age, gestational age, and weight were recorded. Patients were followed until one week postpartum to observe the occurrence of eclampsia based on the defined criteria. Data were analyzed using SPSS version 25. Mean and standard deviation were calculated for quantitative variables, while frequencies and percentages were reported for qualitative variables. Eclampsia was stratified by age, gestational age, and weight; the chi-square test was applied, and a p-value $\leq 0.05$ was considered statistically significant.

## 4. RESULTS:

Table I: Mean ± SD of Patients According to Age, Gestational Age, and Weight (n=100)

| **Demographic Variable** | **Mean ± SD** |
|---|---|
| Age (years) | 17.71 ± 0.92 |
| Gestational age (weeks) | 37.39 ± 2.00 |
| Weight (kg) | 64.91 ± 3.01 |

The age range in this study was 15 to 19 years with a mean age of 17.71 ± 0.92 years. The mean gestational age was 37.39 ± 2.00 weeks, indicating that most patients were near term. The average weight was 64.91 ± 3.01 kg, which is within the expected range for pregnant adolescents. These baseline characteristics provide a general overview of the study population.

**Table 2: Frequency and Percentage of Patients According to Eclampsia (n=100)**

| **Eclampsia** | **Frequency** | **Percentage (%)** |
|---|---|---|
| Yes | 4 | 4% |
| No | 96 | 96% |
| **Total** | **100** | **100%** |

Eclampsia was observed in 4% of the teenage pregnant patients. This finding is slightly lower than the expected frequency of 6.7% based on previous studies. Early detection and management of preeclampsia might have contributed to the lower incidence in this population.

**Table 3: Stratification of Eclampsia With Respect to Age**

| **Age (years)** | **Eclampsia Yes** | **Eclampsia No** | **p-value** |
|---|---|---|---|
| 15–17 | 0 (0%) | 33 (100%) | 0.152 |
| 18–19 | 4 (6%) | 63 (94%) | |
| **Total** | **4 (4%)** | **96 (96%)** | |

Although eclampsia was only reported among patients aged 18–19 years, the association between age and eclampsia was not statistically significant (p = 0.152). This suggests that within the teenage age group, age alone may not be a strong predictor of eclampsia risk.

**Table 4: Stratification of Eclampsia With Respect to Gestational Age**

| Gestational Age (weeks) | Eclampsia Yes | Eclampsia No | p-value |
|---|---|---|---|
| 30–39 | 3 (3.6%) | 80 (96.4%) | 0.664 |
| >39 | 1 (5.9%) | 16 (94.1%) | |
| **Total** | **4 (4%)** | **96 (96%)** | |

No significant association was found between gestational age and eclampsia (p = 0.664). While slightly more cases were observed in pregnancies beyond 39 weeks, the difference was not statistically meaningful.

**Table 5: Stratification of Eclampsia With Respect to Weight**

| Weight (kg) | Eclampsia Yes | Eclampsia No | p-value |
|---|---|---|---|
| ≤60 | 0 (0%) | 10 (100%) | 0.496 |
| >60 | 4 (4.4%) | 86 (95.6%) | |
| **Total** | **4 (4%)** | **96 (96%)** | |

All cases of eclampsia occurred in patients weighing more than 60 kg, but the association was not statistically significant (p = 0.496). This indicates that while higher weight may be a clinical consideration, it was not a significant factor in this study.

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## 5. DISCUSSION

In our study, the prevalence of eclampsia among teenage pregnancies was 4%. Nulliparous women, such as adolescents, are more susceptible to preeclampsia; however, they may have fewer comorbidities like chronic hypertension and gestational diabetes mellitus, offering some protection compared to older women [1,2].

A 2006 U.S. birth data study reported that mothers under 17 had a 70% higher risk of eclampsia compared to those aged 20–24 (RR 1.68, 95% CI: 1.09–2.58), suggesting a biological predisposition in younger maternal age despite uncontrolled confounding factors such as quality of care [3]. In comparison, Macedo TCC et al. reported a 6.7% frequency of eclampsia in teenage pregnancies [4], while Alyamani AM et al. found a lower rate of 2.1% [5].

Limited access to antenatal care and lack of preventive interventions may contribute to increased eclampsia risk in adolescents [6,7]. Studies indicate that maternal near-miss frequencies are eight times higher in women with preeclampsia and up to 60 times higher in those with eclampsia [1]. Additionally, inadequate prenatal care can lead to poor nutrition, insufficient weight gain, and untreated infections [2]. Micronutrient deficiencies, particularly calcium, have been strongly linked to hypertensive disorders in pregnancy.

A systematic review by Oh et al. (2020), involving 72 studies and 451,723 women, showed that calcium supplementation significantly reduced the risk of preeclampsia/eclampsia more effectively than multiple micronutrient interventions [8]. These findings emphasize the need for targeted nutritional strategies during adolescent pregnancy, considering their specific developmental needs.

Adolescent pregnancy is also influenced by social, economic, and educational factors. Literature indicates that early pregnancies are often associated with socioeconomic inequalities [9,10]. Since preeclampsia is not a reversible condition, early diagnosis and management are essential and largely depend on healthcare access and provider knowledge [6,11.12]. Meta-regression analyses have shown that eclampsia is more common in low-income countries, underscoring the critical role of healthcare infrastructure and antenatal care availability [1].

## 6. CONCLUSION

To our knowledge, this is one of the most recent local studies assessing the prevalence of eclampsia among teenage mothers. We identified a 4% prevalence rate, reinforcing the role of socioeconomic and demographic contexts in influencing pregnancy outcomes. These findings highlight the importance of strengthening antenatal care policies, improving healthcare access, and addressing underlying socioeconomic inequalities. Though progress has been made, adolescent pregnancy and its complications remain significant public health issues that require continued attention through education, healthcare reform, and social support systems

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