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Original Research Article

Maternal complications in eclampsia and pre-eclampsia: an institutional study

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ABSTRACT

Background: Preeclampsia and eclampsia are associated with higher rates of maternal, fetal, and infant mortality, and severe morbidity, especially in cases of severe preeclampsia, eclampsia, and HELLP syndrome. The aim of the study was to determine maternal outcomes in pregnant women with severe preeclampsia and eclampsia.

Methods: This was a retrospective descriptive study carried out at Vaatsalya Life Hospital, a tertiary hospital in Kalaburagi, Karnataka from January 2016 to June 2018. All patients admitted with preeclampsia and eclampsia were analysed for the maternal complications.

Results: A total of 100 deliveries were conducted during the study period of which 71 cases were severe preeclampsia and eclampsia. Most of the patients were primi parous with mean age of 26.5 years. There were 32 cases of severe preeclampsia and 39 cases of eclampsia. The most common complication was HELLP syndrome in 6 cases (2 with ARF). There was one case of maternal mortality.

Conclusions: We conclude that severe preeclampsia and eclampsia are associated with higher rates of maternal severe morbidity and that these two factors still remain the major contributors to maternal morbidity and mortality.

Keywords: ARDS, eclampsia, HELLP, Renal failure Pre-eclampsia

INTRODUCTION

Severe preeclampsia/eclampsia has grave consequences for both maternal and neonatal health, associated with 50,000-100,000 annual deaths globally, as well as serious fetal and neonatal morbidity and mortality.^{1,2} These disorders of pregnancy have a predominance in low- and middle-income countries.³ The biggest killers of pregnant women being hemorrhage, hypertensive disorders, and sepsis.⁴ Hypertensive disorders also indirectly contribute to maternal deaths by being a common risk associated with postpartum hemorrhage.⁵

Preeclampsia complications do arise in about 3 % of pregnancies, and all hypertensive disorders affect about 5-10 % of pregnancies. Hypertensive disorders are associated with higher rates of maternal, fetal, and infant

mortality, and severe morbidity, especially in cases of severe preeclampsia, eclampsia, and haemolysis, elevated liver enzymes, and low platelets syndrome.^{6,7} Globally, preeclampsia and eclampsia account for 10-15 % of maternal deaths. A majority of deaths in developing countries result from eclampsia, while in developed countries, complications of preeclampsia are more often the cause.⁸ The present retrospective, descriptive study was undertaken to determine maternal complications in severe preeclamptic and eclamptic women in Vaatsalya Life hospital, Kalaburagi, Karnataka.

METHODS

This was a retrospective descriptive cohort study carried out at Vaatsalya Life hospital, a tertiary care hospital from 2016 January to 2018 June. It is a tertiary hospital

with referral for high risk pregnancies. Data were obtained from the Case files, labour ward records, Operation theatre notes, discharge summaries and intensive care unit (ICU) of patients who had a diagnosis of severe preeclampsia or eclampsia.

Inclusion criteria

- Patients of severe preeclampsia and eclampsia.
- Severe preeclampsia was diagnosed in those patients with high blood pressure (systolic of \geq 160 and diastolic \geq 110 mmHg) and either severe headaches, epigastric pain, or deranged biochemical/hematological blood indices.
- Eclampsia was diagnosed in women who had a grand mal seizure with features of preeclampsia and no previous history of a seizure disorder such as epilepsy.

Exclusion criteria

- Women with chronic hypertension, renal failure, epilepsy and other medical illness unrelated to pregnancy.

Statistics in the form of mean, median and standard deviation of the data was analysed.

RESULTS

There were 100 deliveries at the institution during the period January 1, 2016, to December 31, 2016. There were 71 cases of severe preeclampsia/eclampsia. The incidence of severe preeclampsia/eclampsia was 71%. The mean age was 26.5 years (SD \pm 8.1) (Table 1) and the mean parity was 1.0 (SD \pm 1.0) (Table 2) for the studied group of patients.

Table 1: Age distribution of the patients.

Age (in years)	Number	Percentage
<19	4	5.6
19-24	28	39.4
25-30	29	40.8
>30	10	14.04

Table 2: Parity of patients.

Parity	Number	Percentage
Primi	50	70.4
Multi	21	29.6

The mean systolic blood pressure was 168 (SD \pm 16) and the mean diastolic blood pressure was 109 (SD \pm 18). About 68% of the cases had a proteinuria of \geq ++.

Being purely referral centre, all the cases were unbooked. The cases were predominantly of severe preeclampsia 32 cases (45 %) and 39 cases (55%) were eclamptic. 47

patients (66.2%) presented preterm while 24 patients (33.8%) came post 37 weeks of gestation (Table 3).

Table 3: Gestational age at presentation.

Gestational age (in weeks)	Number	Percentage
28-34	17	23.94
34-37	30	42.25
>37	24	33.80

Most of the cases were delivered by non-instrumental vaginal delivery in 28 cases (39.4%), vacuum assisted delivery in 15 cases (21.1%), Forceps delivery in 2 cases (2.8%) and caesarean section in 26 cases (36.6%) (Table 4).

Table 4: Mode of delivery.

Mode of delivery	Number	Percentage
Vaginal (non-instrumental)	28	39.4
Forceps delivery	02	2.8
Vacuum assisted delivery	15	21.1
Caesarean Section	26	36.6

The complications included HELLP syndrome 4 cases, HELLP syndrome with ARF in 2 case (2.8%), Placental abruption in 3 cases (4.2%), ARF in 3 cases (4.32%), PRES in 2 cases (2.8%), ARDS in 2 cases (2.8%) and DIC in one case (1.4%). There was 1 maternal mortality (1.4%) (Table 5).

Table 5: Maternal complications.

Complications	Number	Percentage
HELLP	04	5.6
HELLP with ARF	02	2.8
Placental abruption	03	4.2
DIC	01	1.4
ARDS	02	2.8
ARF	03	4.2
PRES	02	2.8
Maternal deaths	01	1.4

Other than the cases of acute renal failure who received levitracetam, rest of the patients received magnesium sulphate according to Pritchard regimen for the prevention and treatment of eclamptic seizures. All the cases were admitted to ICU.

The complications were accordingly managed in consultation with the intensivist and critical team doctors.

DISCUSSION

Vaatsalya Life hospital is a tertiary referral hospital for high risk pregnancies and hence an inherent referral bias leading to high incidence of pre-eclampsia and eclampsia. All the cases in the study were unbooked referred cases. The patients in present study presented with gross

disease, most of the time with proteinuria ($\geq++$), mean systolic blood pressure of 168 (SD ± 27), mean diastolic blood pressure of 113 (SD ± 18), or with eclampsia (21.5%). These were mostly very sick patients. At our hospital early onset preeclampsia constituted 23.94% of cases while in the developed world early onset preeclampsia represents 10% of preeclamptic cases. The predominance of early onset preeclampsia or late onset preeclampsia has huge geographical differences.^{9,10}

Maternal complications of severe preeclampsia/eclampsia can be serious, leading to maternal, fetal, and neonatal morbidity and mortality. These include HELLP syndrome, disseminated intravascular coagulopathy and acute renal failure.^{11,12} Severe preeclampsia was found to be associated with an 8.7-fold risk of composite maternal complication.¹³

The risk of a woman in the developing world dying from a maternal-related cause is 33 times higher than a woman in the developed world.¹⁴

Maternal mortality results from cerebral hemorrhage, pulmonary edema, acute renal failure, hepatic rupture, or DIC.^{15,16} Long-term effects may include chronic renal failure, cardiovascular disease, or cortical blindness.¹⁷ In present study the complications included HELLP syndrome 4 cases, HELLP syndrome with ARF in 2 case (2.8%), Placental abruption in 3 cases (4.2%), ARF in 3 cases (4.32%), PRES in 2 cases (2.8%), ARDS in 2 cases (2.8%) and DIC in one case (1.4%). There was 1 maternal mortality (1.4%). In present series most of the cases were delivered by normal vaginal deliveries in 39.4% cases followed by caesarean section in 36.6% of cases.

Assisted vaginal deliveries include vacuum assistance in 21.1% of cases and forceps in 2.8% of cases. Except patients in renal failure, all others were treated magnesium sulphate according to Pritchard regimen.¹⁸ Those with renal failure received levitracetam. Patients with ARF underwent dialysis in 3 cases (4.2%). Maternal mortality was 1.4%. The patient who succumbed had eclampsia with ARDS. One patient of eclampsia with HELLP and ARF refused treatment and was lost to follow-up.

CONCLUSION

We conclude that severe preeclampsia and eclampsia are associated with higher rates of maternal severe morbidity, and these two still remain major contributors of maternal morbidity in Iran. Early and timely intervention is a very crucial life-saving factor.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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