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MATERNAL, FETAL AND NEONATAL OUTCOME IN PATIENTS WITH SEVERE PREECLAMPSIA, ECLAMPSIA AND HELLP SYNDROME.

Obstetrics & Gynaecology

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ABSTRACT

Objective: Aim of this study was to compare the feto-maternal out come in cases of severe preeclampsia, eclampsia and HELLP syndrome.
Methods: This is a retrospective observational study. It was conducted in Obstetrics and Gynaecology department in MGM Hospital, Kalamboli from January 2018 to January 2021.
Results: The incidence of HELLP syndrome was seen in multigravida and elderly age group compared to primigravida women in severe preeclampsia and eclampsia. Caeserean delivery was higher in eclampsia (84.21%) compared to severe preeclampsia and eclampsia. Intrauterine fetal death was higher in HELLP syndrome (8.69%) however, no significant difference in neonatal mortality was observed.
Conclusion: Early admission, prophylactic corticosteroids, antihypertensives and termination of pregnancy in a tertiary care with multidisciplinary approach helps to reduce the maternal and neonatal morbidity and mortality.

KEYWORDS

INTRODUCTION:

Pre-eclampsia is a multisystem disorder that complicates 3%–8% of pregnancies in Western countries and constitutes a major source of morbidity and mortality worldwide. [1] Overall, 10%–15% of maternal deaths are directly associated with pre-eclampsia and eclampsia. The HELLP syndrome occurs in about 0.5 to 0.9% of all pregnancies and in 10 to 20% of cases with severe preeclampsia [2]. The mean age of pregnant women with HELLP syndrome is usually higher than in women with preeclampsia. Objective behind managing patients with severe preeclampsia, eclampsia and HELLP syndrome is to decrease maternal and fetal morbidity and mortality.

MATERIAL AND METHOD:

This is a retrospective observational study. It was conducted in Obstetrics and Gynaecology department in MGM Hospital, Kalamboli from January 2018 to January 2021. The study included case records of 251 consecutive pregnancies complicated by severe preeclampsia (110) eclampsia (95) and HELLP syndrome (46). This study included all pregnant women of any parity, period of gestation more than 20 weeks with severe preeclampsia, eclampsia or with evidence of HELLP syndrome. Hospital medical records, birth records and case sheet of the patients were studied.

Criteria For Diagnosis:

A) Severe Preeeclampsia - The women had severe preeclampsia if they met one of the following criteria: systolic blood pressure >160mmhg or diastolic blood pressure >110mm Hg, headache, visual disturbances, epigastric pain, pulmonary edema and proteinuria (urinary protein level > 5g/24hr).

B) Eclampsia was defined as presence of tonic clonic seizure in association with syndrome of preeclampsia.

C) Hellp Syndrome is used to describe preclampsia in association with Haemolytic anemia, Elevated liver enzymes and Low Platelet count.

The records from case sheet include age of patient, fetal gestational age, gravida, registered/unregistered, complaints like headache, blurred vision, epigastric pain, nausea, vomiting, breathlessness or previous such episodes were noted.

Gestational age of most patients was determined by earliest scan available or by last menstrual period. Investigation on admission included: Complete blood count, liver function test, renal function test, prothrombin time, bleeding time and clotting time, Urine dipstick test for albumin and Urine-routine and microscopy. Fetal heart rate monitoring was done and nonstress test was performed daily. The termination of pregnancy was done depending on feto-maternal condition and gestational age of the fetus.

Preterm antenatal patients were given 2 doses of betamethasone. In cases of impending eclampsia, MgSo4 administration was done as per 'Pritchard regimen'.

Maternal indication for termination of pregnancy included persistently elevated blood pressure >160/110mmhg despite antihypertensive therapy, worsening of symptoms, eclampsia, deteriorating renal function test and liver function test, preterm labour, premature rupture of membranes, intrauterine fetal death, severe ascites and HELLP syndrome. Fetal indication for delivery included non-reassuring NST, fetal growth restriction (FGR was defined as birth weight below 10th percentile for gestational age), severe abnormal umbilical artery Doppler finding such as absent or reversal of end diastolic flow.

The maternal variables included age, parity, gestational age at delivery, timing of eclampsia and adverse fetal outcome. Maternal outcomes included Acute respiratory distress syndrome, Acute renal failure, Visual changes, Pulmonary edema, Ascites, Intracranial haemorrhage, Abruptio Placenta, Caesarean delivery and maternal death.

Neonatal records for following outcome was seen: fetal growth restriction , mode of delivery, neonatal and perinatal mortality, admission to ICU and duration of stay in NICU.

RESULT:

During the study period, 251 cases of severe preeclampsia, eclampsia, or HELLP syndrome were treated at our institute. Among these, 95 had eclampsia, 110 had severe preeclampsia, and 46 had HELLP syndrome.

Table 1

	Severe preeclampsia	Eclampsia	HELLP syndrome	P Value
Age	29 (20-38)	27 (18-35)	33 (27-39)	<0.0001 *
Gravidity	2 (1-3)	1 (1-2)	2 (1-3)	0.0003*
Parity	1 (0-3)	0 (0-1)	2 (0-3)	0.0010*

*According to the Kruskal–Wallis test (triple comparison) P<0.05

Maternal age, gravity, and parity were higher in patients with HELLP syndrome than in those with severe preeclampsia or eclampsia as seen in Table 1.

Table 2

Maternal Complication	Severe preeclampsia (n=110)	Eclampsia (n=95)	HELLP syndrome (n=46)	P* Value
ARDS	1(0.91%)	2(2.10%)	1(2.17%)	0.0320
Abruptio placentae	9(8.18%)	10(10.52%)	5(10.86%)	0.5080
Pulmonary edema	4(3.63%)	4(4.21%)	3(6.52%)	0.4330

Visual change	8(7.27%)	10(10.52%)	4(8.69%)	0.0007
Acute renal failure	2(1.81%)	5(5.26%)	8(17.39%)	0.0007
Severe ascites	5(4.54%)	1(1.05%)	4(8.69%)	0.7247
Intracranial haemorrhage	0	1(1.05%)	0	0.1123
Caesarean delivery	70(63.63%)	80(84.21%)	42(91.3%)	0.4977
Death	1(0.09%)	0	1(2.17%)	0.5315

*According to $\chi 2$ test for trend

Women with eclampsia were more likely to deliver by caesarean section than were those with HELLP syndrome or severe preeclampsia (p=0.4977) as seen in Table 2,

The rate of abruptio placentae tended to be higher among women with HELLP syndrome than among women with severe preeclampsia and eclampsia, but the difference was not significant (10.86% vs. 8.18% vs. 10.52%; p=0.5080). Two maternal deaths occurred, producing a case fatality rate of 0.2% (one in the HELLP syndrome group and another in the severe preeclampsia group). Death was related to intracranial haemorrhage in one case and to an ARDS complication in another case.

Table 3

	Severe Preeclampsia	Eclampsia	HELLP syndrome	P Value
Gestational age at delivery (weeks)	34 (29-39)	34.5 (30-39)	34 (31-36)	0.009*
Fetal growth retardation	56(50.90%)	40(42.1%)	26(56.52%)	0.00679[b]
Absent or reversal of end diastolic flow	10(9.09%)	7(7.36%)	5(10.86%)	0.68059[b]
5min. APGAR score <7	6(5.45%)	9(9.47%)	3(6.52%)	0.071112[b]
Fetal mortality (IUFD)	11(1%)	6(6.3%)	4(8.69%)	0.182264[b]

[b] According to $\chi 2$ test for trend

*According to the Kruskal–Wallis test (triple comparison) P<0.05

Absent or reversed end diastolic flow, and the 5-min Apgar score, except Fetal Growth Restriction, were not different among women with eclampsia, severe preeclampsia, or HELLP syndrome. Fetal Growth Restriction was higher in patients with HELLP syndrome than in those with eclampsia and severe pre/eclampsia (p=0.00679). A total of 21 intrauterine fetal deaths occurred, fetal mortality was lesser in severe preeclampsia compared to eclampsia and HELLP syndrome as in Table 3.

Neonatal Outcome:

	Preeclampsia	Eclampsia	HELLP syndrome	P Value
Admission	22(20%)	21(22.10%)	20(43.47%)	0.131
Duration of NICU stay	17 (4-30)	18 (4-32)	11 (9-33)	0.247
Neonatal mortality (<7days)	6(5.45%)	7(7.36%)	2(4.34%)	0.761

According to $\chi 2$ test for trend

Admission to NICU was significantly higher in HELLP syndrome (43.47%) compared to severe preeclampsia and eclampsia. However, no significant difference was seen in case of neonatal mortality and duration of ICU stay as in table 4.

DISCUSSION:

We examined maternal and perinatal outcomes for severe preeclampsia, eclampsia, and HELLP syndrome and found the following.

1) No significant differences were found for neonatal mortality in severe preeclampsia, eclampsia and HELLP syndrome.
2) Abruptio placentae tended to be higher among women with HELLP syndrome than in the other groups, but the difference was not significant.
3) Significantly higher maternal death rate was observed in the HELLP syndrome group than that in the other groups.
4) Duration of NICU stay was increased in eclampsia compared to the severe preclampsia and HELLP syndrome group.
5) Caeserean delivery was higher in eclampsia group compared to severe preeclampsia and HELLP syndrome group.

Primigravida young women with low socioeconomic status are the most typical preeclamptic and eclamptic cases. These patients had no regular antenatal visits. HELLP syndrome has classically been described as a disease process that occurs more often in older, multigravida women than in younger nulliparous women with typical preeclampsia (5, 6). In our study, maternal age, gravity, and parity were higher in patients in HELLP syndrome than in those with severe preeclampsia and eclampsia, which agreed with a previous study (4). Complications leading to maternal morbidity include severe bleeding from abruptio placentae, pulmonary edema, ARF, cerebrovascular haemorrhage. These complications are usually seen in women who develop severe preeclampsia, eclampsia, or HELLP syndrome before 32 weeks' gestation (6). Women with HELLP syndrome have an increased risk for adverse maternal outcome compared with those who have severe preeclampsia/eclampsia (3, 7).

ARF, the most common adverse outcome in our study, was noted in 5.97% of patients. HELLP syndrome is the most frequent cause leading to ARF during pregnancy (8, 9). As expected, we found that the most frequent cause of ARF during pregnancy was HELLP syndrome (17.39%) which agreed with previous studies (8, 9). Maternal deaths associated with hypertensive disorders of pregnancy assumed greater importance than etiologies that were previously more frequently encountered, such as infection and hemorrhage. In our study, maternal deaths were due to intracranial hemorrhage and ARDS.

The high number of patients in the study population who did not have regular prenatal follow-ups may explain the high neonatal mortality. Magann et al. determined that fetal morbidity and mortality are dependent on gestational age and reported similar and nonsignificant relationships between HELLP syndrome, severe preeclampsia, and eclampsia (10). Romero et al. showed that the majority of neonatal complications are due to prematurity (11).

Severe preeclampsia, eclampsia, or HELLP syndrome manifest on average between 32 and 34 weeks of gestation. It is common clinical practice that a 32–34-week pregnancy should be delivered immediately. Before 32–34 weeks, expectant management is generally possible for selected patients in a perinatal center (12). Steroids are administered to induce fetal lung maturity. We prefer aggressive management in cases involving HELLP syndrome and eclampsia. In our study, we determined a median gestational age of 34 weeks (range, 31.05–35.9 weeks) for the appearance of HELLP syndrome.

The only effective treatment for severe preeclampsia/eclampsia and HELLP syndrome is termination of pregnancy, but no randomized trial has been conducted to determine the optimal method of delivery. The rate of cesarean delivery increases with increased occurrence of hypertensive disorders during pregnancy (13). Vaginal delivery is recommended for severely preeclamptic cases in the absence of obstetric indications for a cesarean section. In our study, women with eclampsia were more likely to deliver by cesarean section than were those with HELLP syndrome or severe preeclampsia. Fetal distress was the most frequent indication for cesarean section.

In summary, as expected, this study demonstrated that pregnancies complicated by HELLP syndrome have significantly higher death rate. Outcomes of severe preeclampsia, eclampsia, and HELLP syndrome are dependent on the gestational age of delivery, early referral to tertiary care facilities and are not diagnosis dependent.

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