

Prospective Study of Eclampsia in a Tertiary Care Hospital**A. Sakthi Priya¹, D. Joycerani², Agnes Synthiah³, M Vijaya Lakshmi⁴**^{1,2,3,4}Senior Assistant Professor, Department of OG, Government Sivagangai Medical College Hospital

Received: 25-11-2023 / Revised: 23-12-2023 / Accepted: 26-01-2024

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Conflict of interest: Nil

Abstract:

Background: 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. The incidence of preeclampsia in hospital practice in India varies from 5% to 15%, and that of eclampsia is about 1.5%. In India, over the years, from 1976 to 2014, the risk of eclampsia ranges from 0.179 to 5%, with the average being 1.5%. This study aims to evaluate the incidence, maternal and perinatal morbidity and mortality, associated complications and treatment at our tertiary care hospital.

Methods: The prospective study was conducted over a period of 3 years in Obstetrics and Gynaecology department of Government Sivagangai Medical College Hospital. The study included deliveries from July 2020 to June 2023.

Results: The total number of eclampsia cases was 23. The incidence of Eclampsia at our centre was 0.15%. The incidence of AP eclampsia 0.06% and incidence of PP eclampsia 0.08%. Maternal deaths due to eclampsia were 2. There were 2 early neonatal deaths due to prematurity and 1 early pregnancy loss. Among AP eclampsia most common mode of delivery was by caesarean section.

Conclusions: The incidence of eclampsia in our study was 0.15% which is comparatively lesser than incidence recorded in other studies in our region. Effective mentoring, early referral and timely termination has reduced incidence of eclampsia in our institution. MgSO₄ regimen plays a major role. Effective blood pressure monitoring, thromboprophylaxis and early ambulation in postpartum period are mandatory.

Keywords: Pre eclampsia, Eclampsia, MgSO₄, convulsions, labetalol.

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Introduction

Globally 10% of all pregnancies are complicated by hypertension, with pre-eclampsia and eclampsia being the major causes of maternal and prenatal morbidity and mortality [1]. It is also estimated that pregnancy induced hypertension (PIH) affects about 5 – 8% of all pregnant women worldwide [2]. Pregnancy induced hypertension (PIH) is defined as BP \geq 140/90 mmHg, taken after a period of rest on two occasions or \geq 160/110 mmHg on one occasion in a previously normotensive woman [3]. Pre-eclampsia affects 5-7 % of all pregnancies. It is broadly defined by hypertension and proteinuria [4]. Eclampsia includes pre-eclampsia with the presence of convulsions not attributable to other neurologic disease. It is defined as the development of convulsion and/or unexplained coma during pregnancy or postpartum period. It is one of the leading causes of high maternal mortality and morbidity and also high perinatal mortality. According to WHO estimation, eclampsia is the cause of 12 % of all maternal death globally [5]. Eclampsia probably accounts for 50,000 maternal deaths a year worldwide [6]. In India, reported incidence of eclampsia varies from 0.179 to 3.7 % [7-9]. And ma-

ternal mortality varies from 2.2 to 23% of all eclamptic women [9-11]. The signs and symptoms of eclampsia include seizures, extreme agitation and unconsciousness. The majority of women experience the following preeclampsia symptoms before the seizure: nausea and vomiting, stomach aches, epigastric discomfort (due to stretching of the liver capsule), headaches, swelling of the hands and face, and difficulties with eyesight including loss of vision, double vision, blurry vision, and missing portions of the visual field [12].

Materials and Methods

The prospective study was conducted over a period of 3 years in the Obstetrics and Gynaecology department of Government Sivagangai Medical College Hospital, Sivagangai. The study included 15,117 deliveries from July 2020 to June 2023. During the period of study 23 patients satisfying inclusion criteria were added to the study.

Inclusion criteria:

1. All pregnant women presenting with antepartum, intrapartum and postpartum eclampsia.

- 2. Patients of all gestational age, postnatal period upto 42days of peurperium

Exclusion criteria:

- 1. Known seizure disorder
- 2. Seizure due to metabolic causes
- 3. Cerebral causes of seizures

Results

During the study period, a total of 15,117 deliveries were recorded and 23 cases of eclampsia were occurred, thus accounting for incidence of 0.15%. Total cases of gestational hypertension during this period were 1143. Incidence of GHT was 7.5%. Incidence of eclampsia in GHTN cases was 2%.

Table 1: Incidence of Eclampsia and GHT

		Eclampsia	Incidence
Total deliveries	15,117	23	0.15%
GHTN	1,143	23	2%
	GHTN incidence 7.5%		

Eclampsia is mainly seen in age group of 18-25 yrs (69.5%)

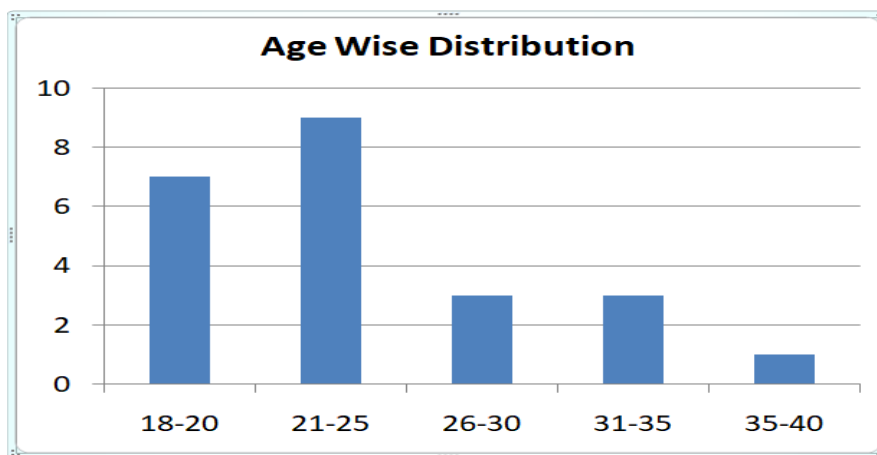


Figure 1: Age Wise Distribution

Antepartum eclampsia mainly occurred in gestational age of 33-40 weeks (70%).

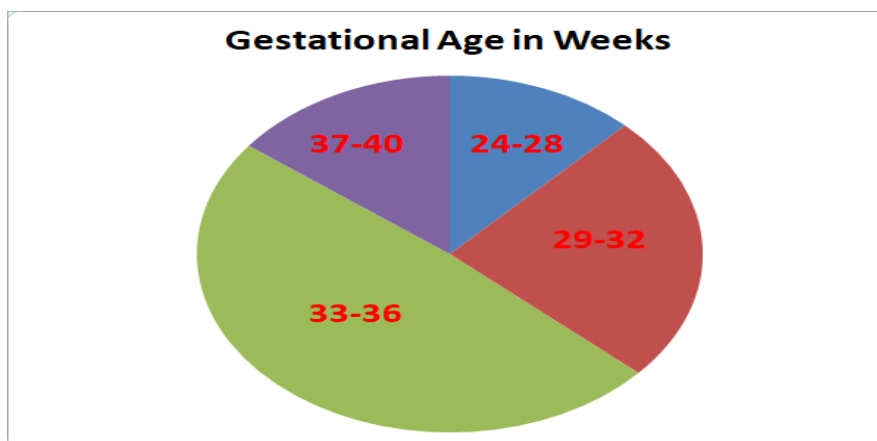


Figure 2: Gestational Age in Weeks

There were 10 cases of AP eclampsia (43.47%) and 13 cases of PP eclampsia (56.52%).

Table 2: AP eclampsia and PP eclampsia

Types	No. of Pts	Percentage
Antepartum	10	43.47%
Intrapartum	0	0
Postpartum	13	56.52%

Among AP eclampsia incidence was more in Primigravida (60%) than in Multigravida (40%)



Figure 3: Primigravida 60%, Multigravida 40%

Most of the Eclampsia patients threw fits in the blood pressure range of systolic BP 140-159mmHg (52.17%) and diastolic BP 100-109mmHg (34.78%)

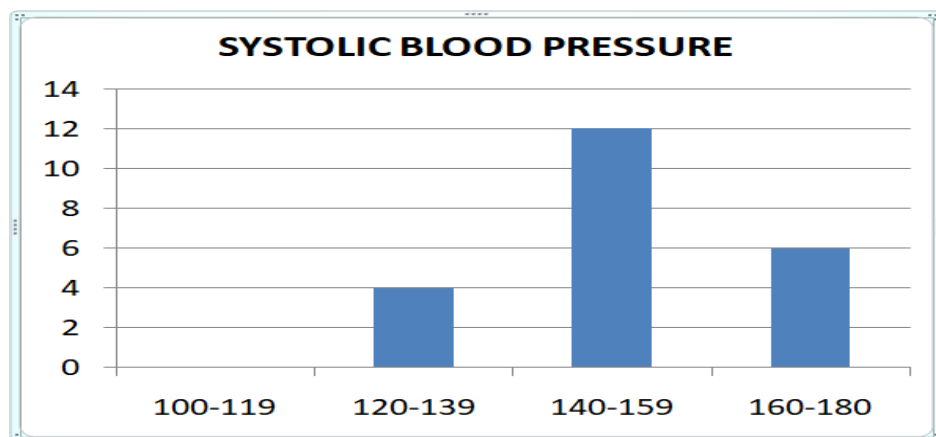


Figure 4: Systolic Blood Pressure

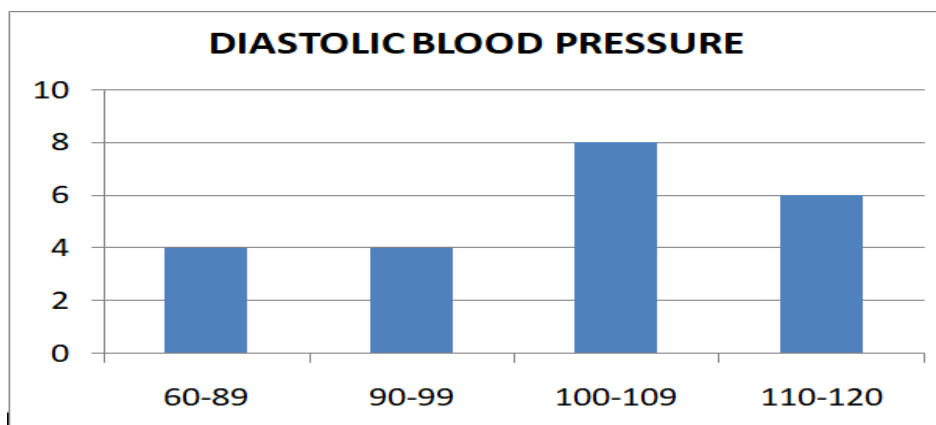


Figure 5: Diastolic Blood Pressure

All 23 patients had proteinuria. 9 patients(39%) had urine albumin 1+, 10 patients(43.5%) had urine albumin 2+, 2 patients(8.6%) had urine albumin 3+ and 1 patient(4.3%) had urine albumin 4+.

Table 3: Proteinuria

Urine albumin	No. of Patients	Percentage
1+	9	39%
2+	10	43.5%
3+	2	8.6%
4+	1	4.3%

Out of 13 PP eclampsia patients, 8 patients(61.5%) had convulsions in the first week after delivery, 4 patients(30.7%) had convulsions in 2nd week and 1 patient(7.7%) had convulsions at 18th postnatal day. 16 patients presented with 1 episode of convulsion, 4 patients had 2 episodes, 1 patient had 3 episodes and 2 patients had 4 episodes.

Table 4: Period of Convulsion

Period of Convulsion	No of Pts	Percentage
1 st Week	8	61.5%
2 nd Week	4	30.7%
3 rd Week	1	7.7%

About 15 patients(65%) of patients had 1 episode of convulsion before intervention. 4 patients(17%) had 2 episodes, 1 patient(4%) had 3 episodes, 2 patients(8%) had 4 episodes of convulsion and 1 patient had status eclampticus resulting in maternal death. Patients intervened after 1 episode of convulsion had lesser complications than patients with 2 or more episodes of convulsions.

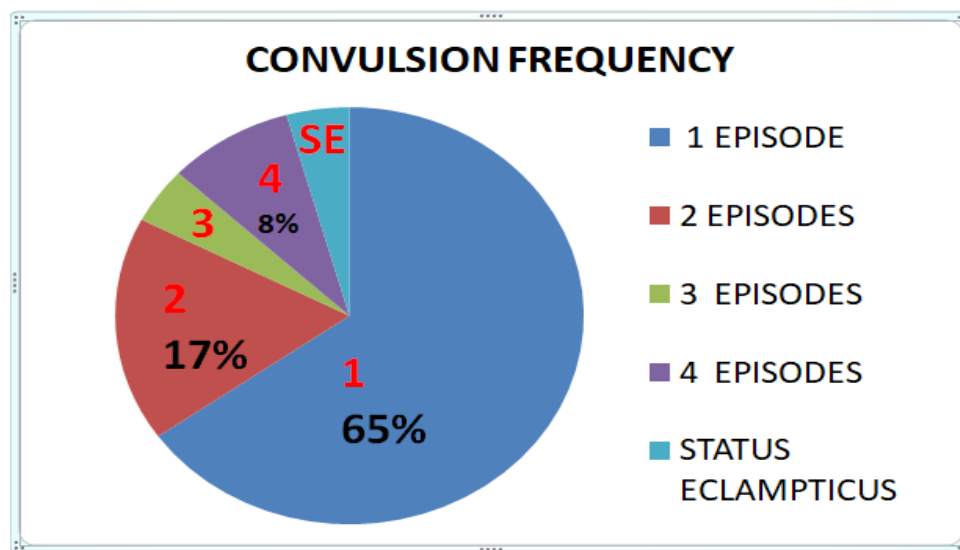


Figure 6: Convulsion Frequency

In this study fetal complications were early pregnancy fetal loss, still birth, prematurity and low birth weight. 3 term patients had IUGR/ low birth weight babies (<2.5kg). 4 patients had preterm delivery/ low birth weight babies(<2.5kg). 1 early pregnancy loss at 26wks (400gms baby) and 2 intrauterine deaths among 10 of the AP eclampsia patients. Caesarean was the most common mode of delivery in 9 out of 10 patients. Out of the 13 PP eclampsia cases, 9 were post caesarean (69.2%).

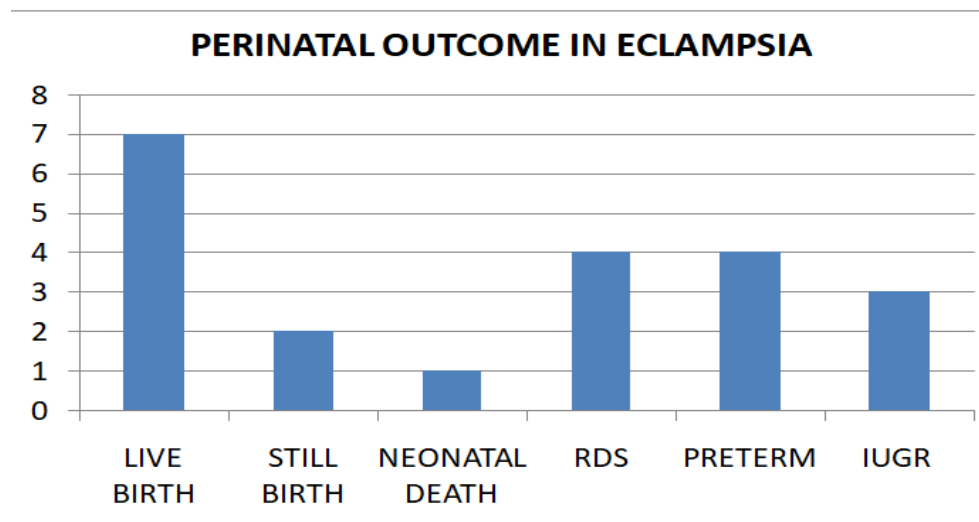
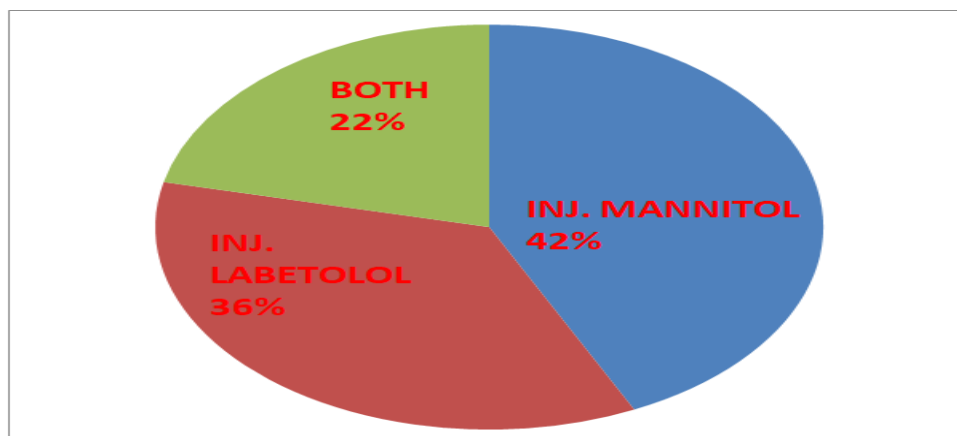


Figure 7: Perinatal Outcome in Eclampsia

Table 5: Mode of Delivery

Mode	Number	%	Alive	%	Dead	%
AP ECLAMPSIA	10	43.5%	10	100%	0	0
NVD	1	4.3%	1		0	
LSCS	9	39%	9		0	
PP ECLAMPSIA	13	56.5%	11	84.6%	2	15.4%
NVD	4	17.4%	4		-	
LSCS	9	39%	7		2	

Inj Mannitol used in 6 patients (26%), inj Labetolol used in 5 patients (21.7%) and combination of both used in 3 patients (13%). Magnesium sulphate was used in all 23 patients.

**Figure 8: Inj Mannitol and Inj Labetolol**

Post recovery MRI brain showed PRES in 7 patients (30.4%). No maternal death occurred in AP eclampsia patients. There were 2 maternal deaths in PP eclampsia patients.

Table 6: Complications in Eclampsia

Complications	No of Pts	Percentage
Abruption	1	4%
DIC	3	13%
Hepatorenal failure	1	4%
Ventilator support	6	26%
Hypoxic encephalopathy	2	9%
CVA	2	9%
PRES	6	26%
RETINAL DETACHMENT	1	4%
PPCM	2	9%

Discussion

In the present study incidence of eclampsia is 0.14%. This is lesser than incidence shown in other Indian studies like Rajashri et al (1.82%), Sunitha TH (0.7%) [13,14] and similar to Vanawalla NY et al(0.179%) [15]. this is because of the effective mentoring done in Tamilnadu government medical institutions.

This was followed vigorously during COVID breakout. Effective identification of antenatal mothers with hypertension, early referral, MgSO4 regimen and timely termination reduced incidence of eclampsia. But the incidence is higher than in developed countries (0.056%). Incidence of GHT was 7.5% which was similar to Charu Sharma et al

(6.92%) [16] and Prakash et al (5.8%) [17]. Incidence of eclampsia in GHTN cases was 2%. Majority of cases in our study group belonged to age group of 18-25 years i.e 69.5%. This is comparable with other studies 68.9% [18]. Primigravida were more affected (60%) than multigravida. This is similar to previous studies which show higher prevalence of eclampsia in primigravida. [19,20] In our study eclampsia commonly occurred in gestational age of 33-40 weeks (70%). Relatively more cases occurred before 37 completed weeks in the study from UK (44%)(21). In our study incidence of postpartum eclampsia (56.52%) was more common than antepartum eclampsia which is similar to the study of Raksha Arora et al, Mahji et al [22, 23]. In the

postpartum cases 1st week postpartum was the most common period for eclampsia (61.5%). Out of the 13 PP eclampsia cases, 9 were post caesarean (69.2%). This is similar to the existing studies which showed caesarean delivery is a risk factor for developing postpartum preeclampsia and eclampsia [24,25]. The highest blood pressure measured in our study group was 160/120. All patients had proteinuria. Major complications of eclampsia include need for ventilation support (26%), PRES (26%), DIC (13%), Hypoxic encephalopathy (9%), CVA (9%), PPCM (9%), abruption (4%), hepatorenal failure (4%) and retinal detachment (4%). There were 2 maternal deaths.

Both were in postpartum eclampsia. Incidence of maternal mortality in eclampsia patients was 8.7% in our study similar to Chukwuma et al 10%. [26] In this study fetal complications were early pregnancy fetal loss, still birth, prematurity and low birth weight. NICU admission was 71.4%. Perinatal mortality was 22.2% which is similar to Ndaboine et al 20.7%. Caesarean was the most common mode of delivery (90%) which is similar to study done by Sibai BM et al [27]. MgSO₄ was used in all 23 cases and role of Inj. Labetolol and Inj. Mannitol was nearly equal in management of eclampsia. Incidence of Posterior reversible encephalopathy (PRES) in our study was 30.4%.

Conclusion:

The incidence of eclampsia in our study was 0.14% which is comparatively lesser than incidence recorded in other studies in our region. Effective mentoring, early referral and timely termination has reduced incidence of eclampsia in our institution. Incidence of eclampsia is higher in primigravida. Prevention of teenage pregnancy, early detection and correction of anemia in teenage pregnancy will help in reducing incidence of GHT in primi mothers and inturn reduce incidence of eclampsia.

Both maternal and perinatal morbidity and mortality is high due to eclampsia. Key to better prognosis in eclampsia is effective resuscitation of the patient at primary health care level before referral and early decision and adequate hypertension control at tertiary health care centre. MgSO₄ regimen plays a major role. In our study 2 maternal deaths and both in postpartum eclampsia have been recorded. This shows the need for effective blood pressure monitoring in postpartum period, thromboprophylaxis and early ambulation.

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