



Original Research Article

Evaluation of clinical findings in severe preeclampsia and eclampsia: A study from North Indian tertiary health care institution

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Abstract

Introduction: Hypertensive disorders of pregnancy comprising of pre-eclampsia and eclampsia are a major cause of adverse pregnancy outcomes. Neurological manifestations of pregnancy induced hypertension are the most common cause of maternal and foetal morbidity and mortality.

Methods: The study was conducted among 65 antenatal women diagnosed with pre-eclampsia and eclampsia at gestational age >20 weeks in the Department of Obstetrics and Gynaecology, Kamla Nehru State Hospital for Mother and child IGMC Shimla. Clinical signs and symptoms were recorded for study purpose.

Results: Majority of patients were younger came from rural background having low socioeconomic status. Headache and visual complaints were most frequently recorded

Conclusion: We conclude that the target population should be of age 22-29 years who came from rural area belong to low economic group due to unbook status lack of awareness and health seeking behaviour. The subjects who are to be targeted should be primigravidae and should be observed in third trimester as they develop eclampsia in third trimester specifically having headache and significant proteinuria.

Keywords: Antenatal women, Pregnancy induced hypertension.

Introduction

Hypertensive disorders of pregnancy comprising of pre-eclampsia and eclampsia are a major cause of perinatal adverse outcomes both in terms of adverse maternal and foetal outcomes.¹ These are the most common medical complications of pregnancy, with a reported incidence ranging between 6% and 8%.² They are an important cause of severe morbidity and mortality among mothers and babies. In Africa and Asia,

hypertensive disorders of pregnancy, especially eclampsia, are associated with nearly one-tenth of all maternal deaths.³ Preeclampsia is a pregnancy-specific disorder clinically characterized by hypertension (blood pressure \geq 140/90 mm Hg) and proteinuria (\geq 300 mg in a 24-hour urine collection) occurring after 20 weeks of gestation in a previously normotensive patient.

Preeclampsia can be severe or nonsevere. Criteria for Severe Preeclampsia are Blood pressure of

≥ 160 mm Hg systolic or ≥ 110 mm Hg diastolic, recorded on at least two occasions at least 6 hours apart with patient at bed rest, proteinuria of ≥ 5 g in 24 hours, oliguria (< 400 ml in 24 hours), Cerebral & visual disturbances, epigastric pain, nausea, and vomiting, pulmonary edema. The seizures are generalized and may appear before, during, or after labor. Although most cases of postpartum eclampsia occur within the first 48 hrs of labour, some cases can occur beyond 48 hrs. Late postpartum eclampsia is defined as eclampsia that occur more than 48 hours but less than 4 weeks after delivery. Hypertension is considered the hallmark for the diagnosis of eclampsia. However, in 16 percent of the cases, hypertension may be absent. Almost all cases (91 percent) of eclampsia develop in the third trimester (≥ 28 weeks). The remaining cases occur between 21 to 27 weeks' gestation (7.5 percent), or at or before 20 weeks' gestation (1.5 percent)³.

Materials and Methods

Study Area and Population: The study was conducted among the pregnant women attending antenatal clinic in the Department of Obstetrics and Gynaecology, Kamla Nehru State Hospital for Mother and child IGMC Shimla.

Study Design: Descriptive observational study.

Study Period: One year from July 2016 to June 2017.

Study Sample: As it was a time bound study, a total of 65 subjects (preeclampsia and eclampsia patients) were included in study.

Inclusion Criteria: Pregnant women diagnosed with pre-eclampsia and eclampsia at gestational age > 20 weeks singleton pregnancy were included in the study.

Study Tool: A study proforma was designed to collect and record socio-demographic parameters, antenatal history, previous medical and reproductive history, clinical signs and symptoms, plan and mode of delivery and maternal/foetal outcomes were recorded on the proforma.

Methodology

Standard case definitions were utilized to identify study participants. Patients with severe preeclampsia/eclampsia at 20 weeks or beyond were enrolled for this study. On admission detailed history was taken including warning signs and symptoms i.e. headache, blurring of vision, visual field scotomas, blindness, nausea/vomiting, pain epigastrium swelling feet. Time of onset of seizure, duration & type of seizure: tonic clonic movement, uprolling of eyeballs, frothing from mouth, deviation of head, post seizure confusion, number of seizures and any focal neurological deficit were also noted. These patients were managed in the emergency set up in labour room. Sociodemographic variables were recorded on proforma, which was followed by general physical examination and obstetrical examination. Renal sonogram was done in subjects with chronic hypertension and decreased urinary output. All subjects enrolled for this study received antihypertensives and seizures prophylaxis with Magnesium Sulphate (Pritchards Regimen). Subjects at gestation < 34 weeks received antenatal glucocorticoids for fetal pulmonary maturity. Pelvic and cervical assessment was done after stabilizing the patient and mode of delivery was decided accordingly. Caesarean section was done for the obstetric and medical indications only. Labour was monitored partographically. Second stage was cut short by prophylactic outlet forceps/ventouse. Labour and Neonatal parameters were recorded according to the proforma.

Statistical Analysis: Data were entered into Microsoft Excel spreadsheet, cleaned and transferred to Epi Info version 7.2.2.6 software for analysis. Continuous variables were presented as mean scores \pm standard deviations while discrete variables as percentages and proportions of each. Pearson's Chi-squared was used to test the statistical significance of categorical data respectively. Mean of variables was compared using Independent *t*-test after checking normality of data. Two tailed *P* value < 0.05 was considered as statistically significant for all analysis.

Ethical Considerations: Prior permission was taken from Institute Ethical Committee. Personal identifiers were omitted in order to maintain confidentiality and anonymity. Potential harms and benefits were explained to the patient and guardian before taking consent. Patient was free to leave the study at any point of time and this didn't affect her clinical care. No financial expenditure was incurred by the patient for the sake of study.

Results

The mean age of subjects in the study was 25.03±5.6 yrs, majority of subjects were between 20-29 years.

Table I: Age

Age (in years)	Number(N=65)	Percentage
<20	3	4.61%
20-29	50	76.92%
30-39	10	15.38%
≥40	2	3.07%

89% subjects were from the rural area and the rest belonged to the urban background.

Table II: Residence

Status	Number	Percentage
Rural	58	89.23%
Urban	7	10.76%

Majority of subjects belonged to lower socio economic group (class III, IV and V) due to unbooked status, lack of awareness and health seeking behaviour.

Table III: Socioeconomic Status According To Modified Kuppuswamy Scale

Socio economic class	Status	Number (n=65)	Percentage %
Upper	Class I	0	0%
Upper middle	Class II	12	18.46%
Lower middle	Class III	3	4.61%
Upper lower	Class IV	45	69.23%
Lower	Class V	5	7.69%

75% subjects were booked and 25% were unbooked.

Table IV: Booking Status

Status	Number(n=65)	Percentage
Un booked	16	24.61%
Booked	49	75.38%

Majority (58%) of subjects were primigravidae and 40% were multigravidae, a single patient was admitted with postpartum eclampsia.

Table V: Gravidity

Gravidity	Number (n=65)	Percentage
Primigravida	38	58.46%
Multigravida	26	40%
G2	11	16.92%
G3	15	23.07%
Postpartum	1	1.54%

G: Gravida

58% subjects developed eclampsia in the third trimester.

Table VI: Gestational Age

Gestational age	Number (n=65)	Percentage
20-23 weeks 6 days	1	1.54%
24-27 weeks 6 days	6	9.23%
28-33 weeks 6 days	16	24.61%
34-36 weeks 6 days	28	43.07%
≥37 weeks	13	20%
Postpartum	1	1.54%

65% subjects had normal BMI, 46% were overweight and none were lean /obese.

Table VII: Body Mass Index

BMI(kg/m ²)	Number(n=65)	Percentage
<18.5	0	0%
18.5-24.9	35	53.84%
25-29.9	30	46.15%
≥30	0	0%

BMI: Body mass index

51(78.4%) subjects had severe preeclampsia and 14(21.5%) subjects had eclampsia.

Table VIII: Type of Hypertensive Disorder According To Severe Pre Eclampsia/ Eclampsia

Status	Number of subjects (n=65)	Percentage
Severe pre-eclampsia	51	78.46%
Eclampsia	14	21.54%

13.8% subjects had history of chronic hypertension, 7.69% had PIH in previous pregnancy and 46% subjects had family history of hypertension.

Table IX: Past Medical History

Past Medical History	Present
Chronic Hypertension	9 (13.85%)
PIH in previous Pregnancy	5(7.69%)
Family history of hypertension	30 (46.15%)

93.8% subjects had headache, 80% had blurring of vision, 17% had vomiting and 4.6% had decreased urine output.

Table X: Warning Symptoms

Warning symptoms	Number of subjects (n=65)	Percentage
Headache	61	93.84%
Blurring of vision	52	80%
Decreased urine output	3	4.61%
Vomiting	11	16.92%
Epigastric pain	0	0%

Majority of subjects (76.9%) had systolic blood pressure in the range 160-199 mm of Hg. 63% subjects had diastolic blood pressure in the range 90-110 mm of Hg and 64.61% subjects and mean arterial pressure >125 mm of Hg.

Table XI: Systolic, Diastolic and Mean Arterial Blood Pressure at Admission

Systolic Blood pressure (mm of Hg)	Number of subjects	Percentage
<140	5	7.69%
140-159	7	10.76%
160-199	50	76.92%
≥200	3	4.61%
Diastolic blood pressure (mm of Hg)	Number of subjects	Percentage
<90	1	1.54%
90-110	41	63.1%
111-130	22	33.84%
>130	1	1.54%
Mean arterial pressure (mm of Hg)	No.	Percentage
<105	2	3.07%
105-125	21	32.31%
>125	42	64.61%

Majority of subjects had significant proteinuria.

Table XII: Albuminuria at Admission

Urine albumin	Number of subjects (n=65)	Percentage
Nil	1	1.53%
Trace	1	1.53%
1+	5	7.69%
2+	34	52.30%
3+	24	36.92%

96.9% subjects had no evidence of hypertensive retinopathy on fundoscopy.

Table XIII: Fundoscopy

Fundoscopy	Number (n=65)	Percentage
Normal	63	96.92%
Hypertensive changes	2	3.07%

Discussion

A prospective study was conducted in department of Obstetrics and Gynaecology, Kamla Nehru State Hospital for Mother and Child, Indira Gandhi Medical College, Shimla on 65 subjects with severe pre-eclampsia and eclampsia admitted in the labour ward w.e.f. 1st July 2016 to 30th June 2017. Cranial MR imaging was done after stabilization and laboratory investigations. Out of 65 subjects 42 subjects had severe preeclampsia and 23 subjects had eclampsia.

The incidence of preeclampsia was 2.96% in the present study which is lower than the incidence quoted in India i.e. 8-10%. The incidence of eclampsia was 0.44% in the present study which is lower than the incidence quoted in India i.e. 1.56%^{3,4}. The disparity could be due to the fact that the present study was conducted in a tertiary care centre and eclamptic subjects referred to other tertiary care centre were not included. The incidence of eclampsia in the developed countries ranges from 1 in 2000 to 1 in 3448 which is much lower than that observed in the present study (0.44%)^{3,4}. Better health care facilities, diagnostic modalities, awareness and health seeking behavior in the developed countries account for less incidence in the developed world.

The maternal age range in majority (77%) of subjects with preeclampsia and eclampsia in the present study was 20-29 years. Only 5% were younger than 20 years. On the contrary in the study conducted by Patil MM et al⁵ majority (46%) of subjects were < 20 years. The difference could be due to higher literacy rate in our state i.e. 76.6% which is 2nd highest in the country^{3,5}.

In the present study antepartum subjects were 98.46% (64/65) and postpartum were 1.54% (1/65). Similarly in the study conducted by Patil MM et al⁵ antepartum subjects were 76% and

postpartum subjects were 23%. Almost 90% cases of eclampsia occur in third trimester³.

Conclusion

We conclude that the target population should be of age 22-29 years who came from rural area belong to low economic group due to unbook status lack of awareness and health seeking behaviour. The subjects who are to be targeted should be primigravidae and should be observed in third trimester as they develop eclampsia in third trimester specifically having headache and significant proteinuria. The therapeutic targets for SBP be included in the guidelines regarding antihypertensive therapy in pregnancy, particularly when associated with the premonitory signs of eclampsia. Eclampsia is a major cause of maternal mortality in India along with haemorrhage and infection. MgSO₄ treatment in Eclampsia have shown to reduce morbidity and mortality in many patients and has been proved by many studies

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Conflict of interest: None declared

Ethical approval: Study was approved by the Institutional Ethics Committee

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