

Comparative Study of Vaginal Delivery and Caesarean Section in Antepartum Eclampsia after 32 Weeks of Gestation

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Abstract

Background and Objective: To assess the mode of pregnancy termination in patients with antepartum eclampsia after 32 weeks of gestation. To compare the maternal and perinatal morbidity and mortality between vaginal delivery and caesarean section in antepartum eclampsia after 32 weeks of gestation.

Material & Methods: This comparative study was conducted in 100 IPD Patients by dividing into two groups for comparative analysis. The first group consisted of patients whom conservative obstetric management & delivery per vagina was carried and called the “VD group”.

The second group consisted of patients in whom lower segment cesarean section was conducted due to eclampsia & varied associated indications are called “CD group”.

Results: Most common mode of delivery was vaginal delivery of 57% and caesarean delivery of 43%. Most common age group was 21 -24 years in both caesarean group (49%) and >24 years are common in vaginal group(45%). Mean age was 22. 51 in caesarean group and 23. 19 in vaginal group. Most of patients 72% in vaginal group and 72% in caesarean group were of lower socioeconomic status, 16% cases in caesarean group and 26% cases in vaginal group were of middle socioeconomic class, 12% and 2% cases in caesarean group and vaginal group were of upper socioeconomic class. The incidence of antepartum eclampsia was most common in primigravida of 72%, multigravida of 28% in caesarean delivery group and primigravida of 63%, multigravida of 37% in vaginal delivery group.

Conclusion: Eclampsia is one of the major causes of maternal and perinatal mortality, particularly in developing countries. In our study most common mode of delivery was vaginal delivery than caesarean delivery.

Keywords: Antepartum Eclampsia, Vaginal Delivery, Caesarean Delivery, Mode Of Delivery, Primigravida, Multigravida.

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Introduction

The eclampsia term was derived from the Greek word with meaning "like a flash of lightning" [1]. The convulsions which cannot be described by other causes in a woman with pre-eclampsia was termed eclampsia [2]. Eclampsia was defined as development of Grand mal type of generalized convulsions described as in the background of pre-eclampsia and appearing before labour, during the labour or within 2 days after delivery, and/or coma not related to other conditions of cerebrum in women. Eclampsia is a life-threatening condition. The incidence of eclampsia in India ranges from 1 in 500 to 1 in 30. It was shown that 79% of preeclampsia patients develop into eclampsia [3]. Seizures usually appear in the second and third trimester of pregnancy to 10 days, can appear up to 6 weeks postpartum also. Preeclampsia which is a complex multisystem disorder, develops after the first 20 weeks of pregnancy characterized by development of proteinuria (>300mg/24h) or end organ damage and high blood pressure [4]. Management of complications and proper antenatal care would reduce the serious effects of eclampsia on mother and on her child in developed countries. The eclampsia usually occurs in primigravida of low socio economic status it is a product of neglect and ignorance. Eclampsia is preventable disease. The incidence is very high in unbooked cases. In world, eclampsia and preeclampsia accounts for 63,000 maternal deaths yearly. [5] The maternal death rate in developed countries was 0-1.8% but in developing countries the maternal mortality rate was as high as 14%. [6,7,8] In a study done by US Centers for Disease Control and Prevention (CDC) showed that a case-fatality rate of preeclampsia/ eclampsia 6.4 per 10,000 cases during time of delivery. Risk of maternal deaths were higher at 20-28 weeks of gestation was also observed in the same study. [9] Black women are twice at risk than White women in case of mortality related to eclampsia. Increased incidences among Black women were due

to genetic diseases associated with circulating anti phospholipids and less accessibility to prenatal care among Black women were main reasons reported. Higher incidence of preeclampsia and eclampsia has been proven in the patients with elevated levels of antiphospholipid. However, whether this is due to some other underlying process or the anti-phospholipids themselves is not clear.[10] The fetal mortality rate ranges from 13-30% and the main reasons were preterm delivery and complications related. Intrauterine growth retardation, abruptio placenta, placental infarcts, and fetal hypoxia may also contribute to fetal mortality. [11]Eclampsia is a disease of pregnancy and the only one cure is termination of pregnancy at any gestational age . The place of caesarean section has however remained controversial. It has been argued that its selective use may enhance only the fetal outcome while worsening the maternal outcome. It has also been suggested that a more liberal and early use of caesarean section in eclampsia improves fetal and maternal outcome. It is however known that caesarean section itself has an increased risk of mortality and morbidity to the mother. Eclampsia is designated as antepartum, intrapartum or postpartum depending on time of occurrence of convulsions before, during or after labour.

Objectives

- To assess the mode of pregnancy termination in patients with antepartum eclampsia after 32 weeks of gestation.
- To compare the maternal and perinatal morbidity and mortality between vaginal delivery and caesarean section in antepartum eclampsia after 32 weeks of gestation.

Materials and Methods

The study was conducted in the department of obstetrics and gynecology of Maharishi Markandeshwar Institute Of Medical Sciences and Research, Mullana, Ambala,

Haryana over a period of 18 months after taking proper approval from local ethics committee of our institute. Comparative study, Duration of Study - 18 Months (February 2021- July 2022), Total of 100 pregnant women with antepartum eclampsia at or beyond 32 weeks of gestational age.

Inclusion criteria

- Duration of gestation 32 weeks and above.
- Antepartum eclampsia.
- Patients with chronic hypertension with eclampsia.

Exclusion criteria

- Patients with pregnancy induced hypertension and without eclampsia,
- Patients with epilepsy or other causes of convulsions during pregnancy.
- Patients with connective tissue disorder with eclampsia.

100 IPD Patients were studied by delivering them divided into two groups for comparative analysis. The first group consisted of patients whom conservative obstetric management & delivery per vagina was carried and called the "VD group".

Criteria for selecting patients for VD group are

- Patients general condition.
- Parity.
- Bishops score.

The second group consisted of patients in whom lower segment cesarean section was conducted due to eclampsia & varied associated indications are called "CD group". Criteria for selected CD Group.

On admission a detailed history was taken: Name, age, socioeconomic profile of the patients. The duration of gestation in months of amenorrhoea. The time of onset of convulsion, number of convulsions, interval between convulsion, the time of last convulsion, duration of each convulsion, history of loss of consciousness

& history of frothing, uprolling of eyes, tongue bite, jerky movements of limbs, passing urine/stools during convulsion Symptoms like epigastric pain nausea, headache, vomiting and blurred vision.

H/O pain abdomen, trauma, leaking or bleeding per vaginum. The antenatal check-ups, Past history, family history, Obstetric, menstrual and personal history, Any treatment before hospitalization, Any history of hospitalization during pregnancy

A rapid general examination was done noting the grade of: Pulse rate, Consciousness, Blood pressure, Temperature, Presence of edema, Respiratory rate, Evidence of tongue bite, CVS, Chest, (A detailed, obstetrical examination noting the height of the uterus, lie and presentation of the fetus, the rate and regularity of the fetal heart rate. Duration, frequency and intensity of uterine contraction.), Vaginal Examination was done to evaluate: Condition of the cervix - position, dilatation, consistency, effacement, Bishop's score was noted.

Station of presenting part, presence of membrane and adequacy of pelvis noted.

Following conservative obstetric management either induction was done with misoprostal or dinoprostone gel or were taken up for cesarean section directly with an unfavourable cervix as the associated indication. patients who delivered per vaginum following successful induction (if not in labour), with prostaglandins patients who were in labour (augmented with ARM or pitocin or both) who also delivered per vaginum and those who were fully dilated and effaced on admission and went for spontaneous delivery/outlet forceps, were all included under the "VD group".

Caesarean section was also done in those cases where in induction failed or other varied associated obstetric indications were present. Thus, all the patients were in caesarean section was done were included in "CD group".

Results

Table 1: Age distribution among the patients

Age	Mode Delivery			P-value
	Caesarean Delivery	Vaginal Delivery	Total	
≤ 20 Years	12(28%)	13(23%)	25(25%)	0.06
21-24 Years	21(49%)	18(32%)	39(39%)	
> 24 Years	10(23%)	26(45%)	36(36%)	
Total	43(43%)	57(57%)	100(100%)	

P=0.06 statistically insignificant

Table 2: Mean age distribution among patients

Mode Of Delivery	Mean	SD	t-test	P-value
Caesarean Delivery	22.51	2.84	-1.09	0.09
Vaginal Delivery	23.19	3.23		

Most common age group is 21 -24 years in both caesarean [49%] group and >24 years are common in vaginal [45 %] group. Mean age is 22.51 in caesarean group and 23.19 in vaginal group. p value been 0.09, which is statistically insignificant.

Table 3: Distribution of socioeconomic status among patients

Socioeconomic status	Caesarean group	Vaginal group	Total
Upper class	5(12%)	1(2%)	72(72%)
Middle class	7(16%)	15(26%)	22(22%)
Lower class	31(72%)	41(72%)	6(6%)
Total	43(43%)	57(57%)	100(100%)

Table 4: Distribution of mode of delivery

Mode of delivery	Frequency	Percentage
Caesarean delivery	43	43
Vaginal delivery	57	57
Total	100	100

Table 5: Type of vaginal delivery

Vaginal delivery	Frequency	Percentage
Spontaneous	8	14%
Induced	49	86%
Total	57	100%

Table 6: Association of maternal complications in both groups

Maternal complications	Delivery		Total
	Caesarean	Vaginal	
Pulmonary edema	01 (2.4%)	02 (3.8%)	03 (03%)
Placental abruption/HELLP	01(2.4%)	02 (3.8%)	03 (03%)
Renal failure	01(2.4%)	02(3.8%)	03 (03%)
PPH	01 (2.4%)	03 (5.0%)	04 (04%)
Hematuria	01(2.4%)	02(3.8%)	03(03%)
PRES	01 (2.4%)	02 (3.8%)	03 (03%)
Cerebrovascular accident	0	01(1.7%)	01(01%)
Electrolyte imbalance	0	01(1.7%)	01(01%)
Nil	35 (85.3%)	44 (74.5%)	79(79%)
Total	41 (100%)	59 (100%)	100(10 0%)

Chi-square - 7.32 df-6 p value - 0.96.[not significant]

Maternal complications were encountered in 14.4% of the cases in the CD group and 25.5% of the cases in the V.D. group. Most common complication in vaginal group is PPH of 5%, In caesarean group, one case

has pulmonary edema, one case had Abruption placenta, other case had renal failure. Nil complications seen in 85% cases. These differences were not statistically significant.

Table 7: Distribution of maternal mortality in both groups

Maternal mortality	Caesarean group	Vaginal group	Total
Yes	0	01 (2%)	01
No	43 (100%)	56 (98%)	99
Total	43	57 (100%)	100

Discussion

The comparative study was conducted out in the department of obstetrics and gynecology, Maharishi Markandeshwar Institute of Health Sciences and Research, Mullana, Ambala, Haryana over a period of 18 months after taking proper approval from local ethics committee of our institute.

In the present study 100 pregnant women with more than 32 weeks of gestation with antepartum eclampsia were studied.

1. VD delivery where vaginal delivery was done.
2. CD group where caesarean section was performed.

Mode of Delivery: In my study most common mode of delivery is vaginal delivery of 57% and caesarean delivery of 43%. Majority of study population belong to age group is 21 -24 years in both caesarean [49%] group and >24 years were common in vaginal [45 %] group. Mean age is 22.51 in caesarean group and 23.19* in vaginal group. The differences were statistically significant. The incidence of eclampsia was highest in age group of 20-25 years, this was similar with studies by Vinita Banshal [12] study, Hakerwadi study, Renu Jain et al study. Most of patients belong to 20-30 years according to Abha Singh and Chandrashekar shrivastava [13] study. In the study of Khanam et al 82.7% of study population belong to the age group of 15--25 years. In the study by El-Nafaty et al showed teenage increase (66.9%) in the occurrence of eclampsia. Chuni and

Khanna found that the 36.89% patients were below 20 years of age. Rouf et al found in 76% of eclamptic patients belong to between 15--25 years. In a study by saeed G et al , 62.86 % patients were belong to 18-25 years of age and 37.14 % belong to 26-35 years of age.

Gestational Age and Mode Of Delivery:

Vaginal delivery (46%) was most common than caesarean section (37%) in the 34-37 weeks of gestation. But in gestational age of 37-40 weeks caesarean delivery (63%) was most common than vaginal delivery (54%). however the difference was statistically insignificant. Low JJ [14] found maximum incidence between 33-37 weeks (60%). Mundle S found maximum incidence between 29- 36 weeks (70%), which is contrast to our study. Out of 43 cases, most common indication of caesarean section was fetal distress (27.5%), followed by 12.5% cases had unfavourable cervix, failed induction and antepartum eclampsia then 10% cases had CPD and obstructed labor, 7.5% cases had malpresentation and cervical dystocia. cervical factors (unfavourable cervix, failed induction, cervical dystocia) in total were responsible for 34.08% cases in caesarean delivery group. In Mondal RN series, 41 out of 62 cases (66.12%) CD was a conscious decision made to only for shortening the exposure to delivery. Hakerwadi AV quoted fetal distress in 36.18% of section patients who were failed induction in 20.6%. Habebullah quoted fetal distress 34.7% of CD. Caesarean section was conducted in 54.54% cases and

the most common indication was unfavourable cervix in other study. Villiers and Slabber [15] (1970) who advocated an early termination by caesarean section and the rate of caesarean section in their series was 76%. The overall fetal mortality was 23.3% and the corrected PMR was 14.4%. Eclamptic patients recovered smoothly from caesarean section, more smoothly than after vaginal delivery in 24-48 hours after the last fit. MMR was 4.3% to 12.7% in the caesarean section to vaginal delivery group.

Bhawna M study (2017) studied 200 cases, among them caesarean section was carried out in 40% of the cases, and vaginal delivery was carried out in 60% of patients. 15% of the cases in the C.D group showed Maternal complications and 60% of the cases in the V.D. group showed complications. The incidences of still births, live births, and neonatal deaths in CD group were 2.43%, 87.8%, and 9.75% respectively. While it was 49.16%, 45.16% and 9.67% in the V.D group. The Corrected perinatal mortality was 9.75% in the C.D group and 43.55% in the V.D group. Maternal deaths were zero in the C.D group and it was 33% in the V.D group. NICU admissions were required in 30% of the cases in the C.D group and 76.47% of the cases in the V.D group required. Poli PA et a study (2019 -2020) studied 53 patients diagnosed with eclampsia, were treated and followed up to 6 weeks postpartum. Zero maternal mortality was observed however, perinatal mortality was 9.4%. Parity was significantly associated adverse perinatal outcomes and caesarean delivery. The induction of labour significantly decreased the development of adverse outcomes. The study shows that there was no difference in outcomes between the two deliveries. Chaudhuri S et al. study (2021) conducted a prospective observational study in the department of Obstetrics and Gynecology, Midnapore Medical College, West Bengal, India. In the study 182 eclamptic mothers with 34 weeks or more gestation were divided into either caesarean(CD) or

vaginal delivery (VD) group. 60 women (32.97%) had vaginal delivery and 122 (67.03%) had undergone caesarean delivery (CD). Adverse maternal outcome was common in VD group in comparison with CD group (72.5% vs 27.5%) and the difference were significant. Perinatal death was higher in VD group when compared with CD group (25.8%; vs. 8.33%) and the difference was significant. Alan Alexander [1966] [16] who obtained a low MMR of 4.2% and low PNM by rapid stabilisation of patients and early delivery of fetus. He found that those delivered by caesarean section after stabilisation, without any attempt to induce labour had no PNM and none those surviving babies showed neurological damage. Whereas 50 % of babies born by caesarean section after attempt at induction of labour had neurological damage. those delivered vaginally following successful induction had PNM of 33% and 33% of surviving infant. [17]

Conclusion

Eclampsia is one of the major causes of maternal and perinatal mortality, particularly in developing countries. In our study most common mode of delivery was vaginal delivery than caesarean delivery. A rational therapy for general management including management of hypertension and convulsion has been established in our setup, but the obstetric management is the area, where controversy still exists. Caesarean section is chosen in many cases considering that these patients and fetus may not tolerate the stress of labour. There is increasing trend of delivering the eclampsia mother at >34 weeks of gestation by caesarean section instead of inducing labour and delivered vaginally. However, there are studies showing that in selected patients vaginal delivery may be better than caesarean section. This study has reflected the fact that overall maternal and perinatal mortality and morbidity is better in caesarean section group. As this is a small sample study, study with larger sample is

recommended to make a definitive conclusion. But when caesarean section is chosen as method of delivery, it does not increase morbidity or mortality.

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