ORIGINAL ARTICLE

A STUDY OF FETOMATERNAL OUTCOME IN ECLAMPSIA - A CASE CONTROL STUDY

Priyanka Chandrakant Patel[1], Krina Krunal Kathawadia[1], Hardevsingh Bachittarsingh Saini[2]

Author's Affiliations: [1]Assistant Professor, Dept. of Obstetrics & Gynecology, SMIMER, Surat, Gujarat; [2]Professor Obstetrics & Gynecology SBKS MI & RC Sumandeep Vidyapeeth, Wagodia, Vadodara.
Correspondence: Dr. Priyanka C. Patel Email: priyankaog1101@gmail.com

ABSTRACT

Introduction: India the perinatal and maternal outcome in eclampsia cases is still poor due to inadequate antenatal care in rural areas, financial restraints and non-availability of transportation facilities, and social taboos causing delay in management resulting in poor maternal and neonatal outcome.

Methodology: The current Case control study was done among cases of Eclampsia admitted to the labour room of SSSH, Baroda in Gujarat. Total 70 patients of Eclampsia presented in this institution during the study period. Accordingly 140 women not having Eclampsia were included as control. Fetomaternal outcome of all Cases and Control were compared and analysed.

Results: Out of 70 cases 56 (80%) were of Antepartum eclampsia and 46 (65.7%) were full term delivery. Out of total 46 live births among cases and 106 live births among controls, 40 (86.9%) Cases and 87(82.1%) Controls were fullterm (>37 weeks). Out of total 24 Still birth in cases and 34 still birth in controls, 18(75.0) Cases and 24(70.6%) Controls were preterm (<37 weeks). Among the cases, 34(48.6%) babies had birth weight between 1000-2000 grams against 53(37.8%) controls who belong to the same category. The incidence of low birth weight in eclampsia is attributed to prematurity & IUGR. The maternal mortality was high in the Case group i.e. 8.57%. There was no maternal mortality in the Control group. Causes of mortality include Cerebrovascular haemorrage, DIC with renal failure, HELLP Syndrome with Cerebral malaria, Hepatic encephalopathy and Pulmonary edema sec. to aspiration.

Conclusion: The maternal and infant mortality was high in the eclamptic patients. Causes of mortality include Cerebro-vascular haemorrage, DIC with renal failure, HELLP Syndrome with Cerebral malaria, Hepatic encephalopathy and Pulmonary edema sec. to aspiration.

Keywords: Hypertensive disorders of pregnancy, **Eclampsia,** HELLP Syndrome, Infant Mortality

INTRODUCTION

Hypertensive disorders of pregnancy continue to be one of the leading cause of maternal and fetal morbidity and mortality. Eclampsia is a disorder unique to pregnancy and early puerperium, recognised as a clinical entity since the time of Hippocrates.

The term Eclampsia is derived from a Greek word meaning like a "flash of light". It may occur abruptly, without any warning manifestations. Preeclampsia when complicated with convulsion and or coma is called eclampsia.

In India, reported incidence of eclampsia varies from 0.179 to 3.7 %.[1,2,3] And maternal mortality varies from 2.2 to 23 % of all eclamptic women.[3,4,5] The estimated incidence of eclampsia in Western countries is 1 in 2000–3448 deliveries.[6]

There needs to be an initial placental trigger but it is maternal response that probably modifies the disease presentation and progression, management of the affected women can become clearer and the outcomes more predictable.

In developed countries, good antenatal care, awareness regarding pregnancy complications and most important, early recognition of PIH with timely management results in better maternal and perinatal outcome. However, in India the perinatal and maternal outcome is still poor due to inadequate antenatal care in rural areas, financial restraints and non-availability of transportation facilities, and social taboos causing delay in management resulting in poor maternal and neonatal outcome.

Majority of mothers to whom our hospital belong, are from rural or tribal areas, who are ignorant of the outcomes related to PIH and lag behind in knowledge related to pregnancy, physiology and complications and hence are the sufferers. This stimulated to carry out this study, the maternal and neonatal outcome in mothers with eclampsia and compare it with the normal patients.

METHODOLOGY

The current study was a Case control study, done among cases of Eclampsia admitted to the labour room of SSSH, Baroda in Gujarat.

Case: Patients of Eclampsia who fulfilled all of the following criteria were included as cases in the study: a) Patient convulsing first time during present pregnancy; b)Patients BP ≥ 140/90 mmHg; c)Presence of proteinuria; d)Gestational age between 28-42 weeks; and e)Agree to give informed written consent.

Control: Patient immediately preceding each case and patient immediately succeeding each case not having Eclampsia having similar Parity and Gestational age were included as controls. Permission to conduct the study was obtained from Ethical Committee of Institute.

After quick diagnosis by talking the vital signs and blood pressure, all the patients of eclampsia were first admitted to the labour room which had the following facilities- mouth gag, electric suction, oxygen cylinder, cot, veinflon for taking I.V. line, tray containing drugs like magnesium sulfate, antihypertensives. One attendant was allowed to remain with the patient. An I.V. line was secured and blood samples were taken for blood grouping and cross matching, and other investigation.

Simultaneously, a detailed history in relation to convulsion was obtained from the patient's relatives. This included the periods of amenorrhoea, headache, complaints of visual disturbance, excessive weight gain, nausea, vomiting and epigastric pain, abnormal swelling of legs, puffiness of face and fever. Total number of convulsions, place of first fit (whether occurred at home or hospital) and whether it was followed by unconsciousness or not was enquired. The time interval between the onset of fits and arrival to the hospital was noted. Enquiry was made into the antenatal care taken, the number of visits according to the trimester and whether pre-eclampsia was detected or not. Detailed obstetric history, personal history, family history was taken as mentioned in proforma.

The patient then underwent the thorough clinical examination to rule out convulsion due to other medical disorders and in the event of doubt, physician opinion was also taken. The treatment is started as early as possible. Prophylactic antibiotics were given in all cases. Once the convulsions were under control, steps were taken to initiate delivery. In majority of cases with antepartum eclampsia, labour soon starts after convulsions. The patient was observed and treated for 24 hours after delivery or 24 hours after last convulsion in the eclampsia room. Subsequently, transferred to the general ward. The baby was kept in the nursery for 24 hours or more and then handed over to mother for feeding after she was shifted to the general ward and was fit for nursing.

RESULTS

Total 70 patients of Eclampsia presented in this institution during the study period. Accordingly 140 controls were included in the study.

Table 1: Age group wise distribution of Cases and Controls

Age (yrs)	Cases (%) (n=70)	Controls (%) (n=140)
< 20	16 (22.9)	23 (16.4)
21 – 25	33 (47.2)	80 (57.1)
25 – 29	15 (21.4)	33 (23.5)
30 – 34	6 (8.5)	3 (2.1)
> 35	0	1 (0.7)

p-Value = 0.135

Table 2: Parity wise distribution of Cases and Controls

Parity	Cases (%) n = 70	Controls (%) n = 140
1	46 (65.7)	88 (62.9)
2	12 (17.2)	26 (18.1)
3	9 (12.9)	19 (13.6)
>4	3 (4.2)	7 (5.4)

p-Value = 0.980

Table 3: Types of eclampsia in Cases (n=70)

Types	No. (%)
Antepartum	56 (80.0)
Intrapartum	2 (2.9)
Postpartum	12 (17.1)

Table 4: Fetal Outcome in cases and controls

Variables	Cases(%)	Controls(%)
Live Births	**n =46**	**n = 106**
Full Term	40 (86.9)	87 (82.1)
Pre Term	6 (18.1)	19 (17.9)
Still Births	**n =24**	**n = 34**
Full Term	6 (25.0)	10 (30.4)
Pre Term	18 (75.0)	24 (70.6)
Neonatal Birth Weight (Gms)	**n = 70**	**n = 140**
1001-1500	17 (24.3)	24 (17.1)
1501-2000	17 (24.3)	29 (20.7)
2001-2500	26 (37.1)	46 (32.8)
2501-3000	9 (12.9)	35 (25.0)
>3000	1 (1.4)	6 (4.2)
Mortality	**n = 70**	**n = 140**
Neonatal	8 (11.4)	7 (5.0)
Perinatal	28 (40.0)	39 (27.8)

The above table shows the distribution of patients in both case & control group according to their age. Maximum number of cases and controls were from

the age group of 21 years to 25 years. Both cases & control group are comparable with respect to age. The difference is statistically not significant. (p-Value-0.135)

The above table shows parity wise distribution of both case & control group. As shown in the above table, majority of cases (65.7%) and controls (62.9%) were primigravidae. Both cases and controls are comparable with respect to parity. The difference in parity between the cases & controls is statistically not significant. (p-Value 0.980)

Table 3 shows the distribution of types of Eclampsia. Table shows that out of 70 cases 56 (80%) were of Antepartum eclampsia, 02 (2.9%) were of Intrapartum eclampsia & 12(17.1%) were Postpartum eclampsia. It was very difficult to differentiate Antepartum eclampsia and Intrapartum eclampsia, as usually on admission most of them had established labour. However, with thorough history and clinical findings, they were classified as mentioned in table.

Out of total 70 cases, 46 (65.7%) were full term delivery. As shown in table 4, out of total 46 live births among cases and 106 live births among controls, 40 (86.9%) Cases and 87(82.1%) Controls were fullterm (>37 weeks). Out of total 24 Still birth in cases and 34 still birth in controls, 18(75.0) Cases and 24(70.6%) Controls were preterm (<37 weeks). Among the cases, 34(48.6%) babies had birth weight between 1000-2000 grams against 53(37.8%) controls who belong to the same category. Babies weighing > 2000 grams constituted 36 (51.4%) in Case group & 87(62%) in Control group. The incidence of low birth weight in eclampsia is attributed to prematurity & IUGR.

The perinatal mortality in the Case group was 28(40%) against the Control group of 39(27.8%). The neonatal loss in Case group was 08(11.4%) against 07(5.0%) in the Control group. The difference between the two groups is statistically significant. (P value 0.047)

Table 5 shows that, 7 (10.0%) out of 70 babies in the Case group had septicemia in comparison to 03 (2.1%) out of in Control group. All the septicemic babies were given antibiotics for 14 days according to the protocol of NICU. Out of which 05 babies in Case group were lost.

08 (11.4%) babies in the Case group and 05 (3.5%) babies in the Controls had hyperbilirubemia (Jaundice). These babies were investigated and given phototherapy accordingly.

10 (14.3%) babies in the Case group had birth asphyxia and 7 (5.0%) in the Control group had birth asphyxia. These babies were kept under observation in the NICU. The difference between the two group is statistically significant.(P value = 0.01)

Table 5: Neonatal morbidity among cases and controls

Neonatal Morbidity	Cases(%) n = 70	Controls(%) n = 140
Jaundice	8 (11.4)	5 (3.5)
Septicemia	7 (10.0)	3 (2.1)
Birth Asphyxia	10 (14.3)	7 (5.0)
Meconium Aspiration	2 (2.9)	1 (0.7)
Intraventricular Hemorrhage	1 (1.4)	1 (0.7)
Hypoglycemia	1 (1.4)	2 (1.4)
Meningitis	1 (1.4)	0
Prematurity	2 (2.9)	1 (0.7)
Total	**32 (45.7)**	**20 (14.2)**

p-Value = 0.01

Table 6: Maternal morbidity among cases and controls

Morbidity	Cases (%) (n = 70)	Controls (%) (n=140)
Severe Anemia	8 (11.4)	5 (3.5)
DIC	2 (2.8)	0
Jaundice	5 (7.14)	2 (1.4)
PPH	1 (1.4)	0
Puerperal Infection		
UTI	3 (4.2)	2 (1.4)
WI	2 (2.8)	3 (2.1)
FM	4 (5.7)	3 (2.1)
ARF	1 (1.4)	0
CCF	0	1 (0.7)
Breast Engorgement	4 (5.7)	7 (5.0)
Postpartum Psychosis	1 (1.4)	0
Total	**23 (32.8)**	**23 (16.4)**

P value =0.001

Table 7: Maternal mortality in cases (n = 70)

Mortality	Cases (%)
Cerebrovascular haemorrage	1 (1.4)
DIC with renal failure	1 (1.4)
HELLP Syndrome with Cerebral malaria	1 (1.4)
Hepatic encephalopathy	2 (2.8)
Pulmonary edema sec. to aspiration	1 (1.4)
Total	**6 (8.6)**

Maternal morbidity in the form of Severe anemia (11.4%) and puerperal infection (12.8%) constituted a majority. 8 patients (11.4%) came with severe anemia requiring blood transfusions, out of which 2 patients developed DIC and died. 5 patients (7.1%) had Jaundice and 3 patients died because of hepatic encephalopathy. One patient developed ARF and DIC and expired within one day. Puerperial infection like genital tract infection, UTI, Febrile morbidity and wound infection constituted (12.8%). These patients were given appropriate antibiotics till the infection was treated. As perinatal deaths were high, significant mothers (5.7%) who delivered still births developed breast engorgement. Medical treatment was given to

these patients in the form of tight breast bandage and Injection Mixogen 1 amp stat, analgesics and antipiretics. Maternal morbidity in the Control group was significantly lower. The difference between the two groups is statistically significant.(P value = 0.00)

The above table shows the distribution of maternal mortality and the causes of death in both the case. The maternal mortality was high in the Case group i.e. 8.57%. There was no maternal mortality in the Control group.

DISCUSSION

Eclampsia was known to people since ancient times. The literature of ancient Egyptians and Chinese mention the danger of convulsions in pregnancy. Hippocrates stated that headache, drowsiness and convulsions are of serious significance in pregnant women.

Maximum number of cases and controls were from the age group of 21 years to 25 years. This is in consistent with Sighal et al . 78.8% cases belonged to 20 - 25 years of age.[7] as Same findings were also reported by Sunita et al[8] and Sarika et al[9] discussed by other studies.

As shown in the table 3, majority of cases (65.7%) and controls (62.9%) were primigravidae. Eclampsia is a disease of young primigravidae. As the parity increases the incidences of eclampsia decreases. In present series 65.7% were primigravidae correlating with the fact. Both cases and controls are comparable with respect to parity. The difference in parity between the cases & controls is statistically not significant. (p-Value 0.980)

Majority of the cases (65.7%) were primigravidae, which is comparable to other studies.[10,11,12] It indicates that primigravidae are the main victim for eclampsia. Out of total 70 cases, 46 (65.7%) were full term delivery. This result is in consistent with Raji C et al[10], Sunitha et al[8] and Prabhakar et al.[13]

This disorder is one of the leading causes of maternal mortality worldwide it varies from 1.8 - 27.5%. Maternal mortality in our study was 8.6%. This result is similar to Raji C et el in which 6.16% mothers died.[10] In our study 32.8% mothers were suffer from any of the complications. This is in consistent with Raji C et al. in which one third of patients suffer from complications.[10]

Causes of mortality include Cerebro-vascular haemorrage, DIC with renal failure, HELLP Syndrome with Cerebral malaria, Hepatic encephalopathy and Pulmonary edema sec. to aspiration. Perinatal mortality is published around 432.6/1000 with prematurity where IUGR remains the main culprit and is considered to be responsible for most of the complications. 27,28 Perinatal mortality was 40% in current study which is similar to Raji C et el.[10]

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