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Original Research Article

Assessment of maternal and fetal outcome in eclampsia patients getting admitted in Bundelkhand Medical College, Sagar, India on basis of general condition of patient at time of admission and induction delivery interval

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ABSTRACT

Background: Eclampsia is the convulsive and most severe manifestation of the hypertensive disorders of pregnancy. Eclampsia is defined by new-onset tonic-clonic, focal, or multifocal seizures in the absence of other causative conditions.

Methods: It is a prospective observational study conducted in BMC Sagar, Madhya Pradesh, India of duration one year, according to inclusion and exclusion criteria with 72 eclampsia patients.

Results: Most patients had vaginal deliveries 62.5%. There were 4.2% maternal deaths. 65.4% patients' babies were shifted to mother's side. Lesser no. of SNCU referrals were seen in cases of LSCS as compared to vaginal deliveries, in cases where patients had GCS more than 8 at time of admission, where admission delivery interval was less than 12 hrs.

Conclusions: The results of the current study indicated that better the general condition of patient at time of admission, lesser the induction/admission delivery interval-better is the fetal maternal outcome. Eclampsia could have been prevented in patients by regular antenatal visits and early detection in pre-eclampsia/gestational hypertension stage.

Keywords: Eclampsia, Maternal and fetal morbidity and mortality, Pre-eclampsia, Pregnancy induced hypertension, Pritchard's protocol

INTRODUCTION

Hypertensive disorders are the most common complication of pregnancy affecting 7 to 15% of all pregnancies.¹ These are rapidly progressive conditions characterized by new onset elevated blood pressure and protein in the urine and/or features of end organ damage most often after 20 weeks of gestation.² It causes severe morbidity, long term disability and death among both mothers and babies. Eclampsia is the major neurological complication of preeclampsia, characterized by convulsive episode, or coma arising in a setting of preeclampsia, in absence of any other preexisting neurological condition.³ The risk of

maternal death is much more common in settings in which prenatal and intra partum care is not routinely available to pregnant women. The maternal mortality ratio in India is 99/100 000 live births (90-108) in 2020 due to complications related with pregnancy and childbirth.⁴

Almost all of these deaths occurred in low-resource settings, and most of them were preventable. Women with preeclampsia and eclampsia are at 3-25 times the risk of developing severe pregnancy related complications like placental abruption, disseminated intravascular coagulation, renal failure, pulmonary oedema, intra cranial bleeding, transient loss of vision,

chronic hypertension, HELLP syndrome, cardiopulmonary arrest, recurrence and rarely cognitive function impairment due to cytotoxic oedema and infarction.^{5,6} The fetal complications related to severe pre-eclampsia and eclampsia are pre term delivery, RDS, intra uterine fetal death/stillbirth, IUGR.

As per national health portal India (2016) the incidence of preeclampsia is 8-10% among the pregnant women. The prevalence of hypertensive disorders of pregnancy was 7.8% with pre-eclampsia in 5.4% of the study population in India.⁷ The incidence of eclampsia is 3.2% with mortality of 2.2-23%.⁷ Access to perinatal care, the early detection of the disorder, careful monitoring, and appropriate management are crucial elements in the prevention of pre-eclampsia and eclampsia-related deaths. The only treatment of eclampsia is delivery of fetus. For ignorant or undiagnosed patients who present with convulsions, we can offer emergency services which include supportive care to prevent serious maternal injury, magnesium sulfate for prevention of recurrent seizures, and promoting delivery thus reducing maternal and fetal morbidity and mortality.⁸

METHODS

This study was conducted in the department of obstetrics and gynecology, Bundelkhand Medical College, Sagar, Madhya Pradesh, India. It was a prospective observational study. Study was conducted from 27th August 2021 to 26th August 2022. All the patients diagnosed with eclampsia who were admitted in Obstetrics and Gynaecology department of BMC, Sagar were included in the study population. There were 72 cases diagnosed as eclampsia admitted in Bundelkhand Medical College, Sagar who were satisfying inclusion and exclusion criteria of the study were enrolled conveniently after written informed consent. Study was ethically approved by the Institutional Ethical Committee. After the ethical approval study was started and patients were enrolled after written informed consent.

Inclusion criteria

Inclusion criteria were the both primi and multigravida of more than 18 years of age. More than 20 weeks of gestation. Systolic blood pressure of equal to or more than 140 mm of Hg or diastolic blood pressure of equal to or more than 90 mm of Hg. Generalized tonic clonic convulsions and or coma.

Exclusion criteria

Exclusion criteria were age less than 18 years. Less than 20 weeks of gestation. Patients with pre-existing medical conditions of neurocognitive system, hepatobiliary and renal system.

Data collection method

All the females satisfying inclusion criteria for eclampsia were included in the study. The study subject's attenders were included in the study only if her attenders willingly agreed and signed the due consent form. The subjects and their babies were analyzed for maternal and fetal outcomes in form of maternal complications and mortality, babies in form of perinatal morbidity and mortality. Further using appropriate statistical methods, the results were analyzed primarily to determine the effects of 1) status of patient at the time of admission, 2) admission/induction delivery interval and 3) mode of delivery on maternal and fetal outcomes and secondarily to determine incidence of eclampsia.

Study of mothers and their babies

All the patients were followed up for complications like abruptio placentae, PPH, pulmonary oedema, ARF, HELLP syndrome, death. All the babies delivered were followed up during the early neonatal period in view of SNCU admission, stillbirth and intrauterine death. All the information was recorded in a pre-structured proforma, entered in MS excel spreadsheet and analyzed by appropriate statistical method.

Statistical analysis

Data collected was entered in the Microsoft excel spreadsheet and later transferred into Statistical Package for Social Sciences (SPSS Inc., Chicago., IL, version 20.0 trial Ver) for analysis. Parametric data was represented in means and Standard deviations and non-parametric data was expressed in proportions. Statistical tests like one way chi square, Chi square, ANOVA were applied. P Value less than 0.05 is considered statistically significant.

RESULTS

Most of the patients in the present study belonged to the age group of 21-25 years (66.6%), were primigravida (76.4%) and presented at a gestational age of 36-40 weeks (56.9%) and had antepartum eclampsia (90.4%). More number of patients had vaginal deliveries (62.5%) as compared to LSCS. A 65.4% babies were shifted to mother's side just after birth or after short stay for observation in SNCU 20.8 % babies needed SNCU stay for longer duration and 13.8 % mothers had IUD babies. There were 3 maternal deaths among 72 eclampsia patients with case fatality of 4.1% due to causes like HELLP syndrome and ARF and all the three patients had admission delivery interval of more than 12 hours. More number of babies were shifted to mother's side post LSCS (92.5%) as compared to post vaginal delivery (48.8%). More number of SNCU referrals were seen in patients who had GCS score less than 8 at the time of admission (66.6%) as compared to those who had better GC at the time of admission (18.75%). More number of babies were shifted to mother's side where the admission/induction delivery interval was less than 12 hours (80%) as compared to those who had admission/induction delivery interval of more

than 12 hours (46.8%). Incidence of eclampsia in Bundelkhand medical college from august 2021-august 2022 (duration 1 year) was 1.10% of all deliveries (6509).

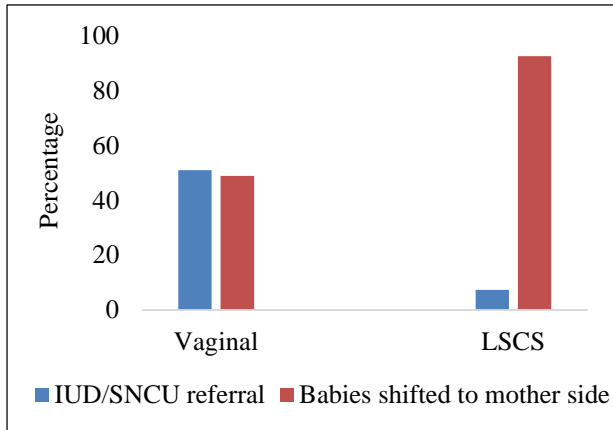


Figure 1: Fetal outcome on basis of patient's mode of delivery.

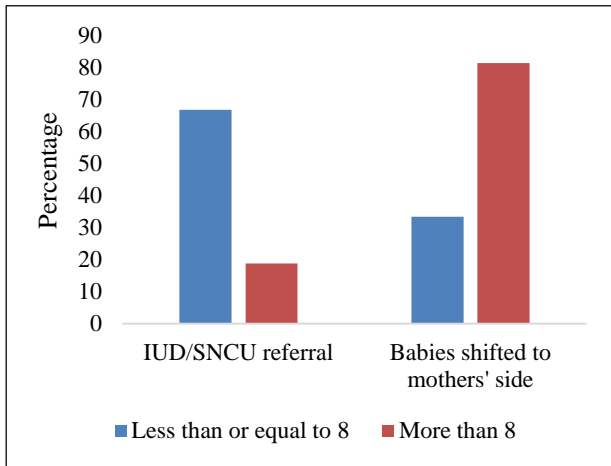


Figure 2: Fetal outcome on basis of patient's GCS at time of admission.

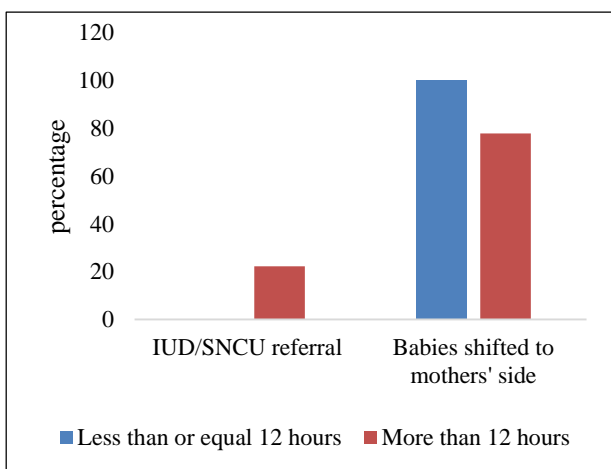


Figure 3: Fetal outcome on basis of admission delivery interval in case of LSCS.

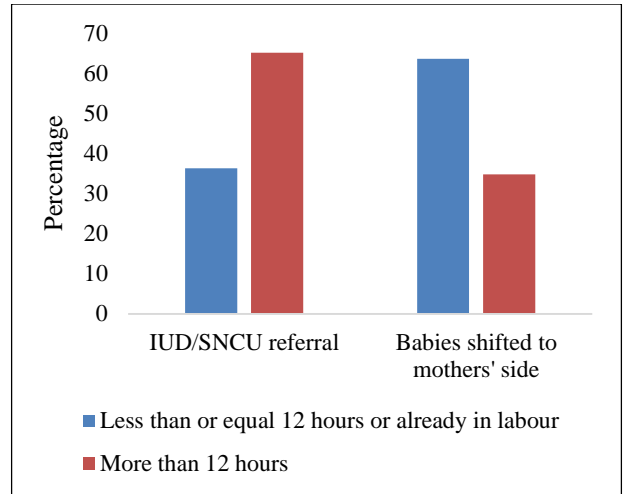


Figure 4: Fetal outcome on basis of induction delivery interval in case of vaginal deliveries.

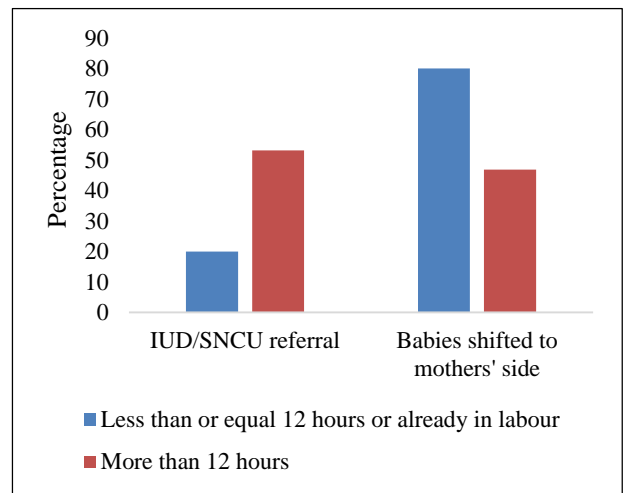


Figure 5: Fetal outcome on basis of admission/induction delivery interval (vaginal and LSCS).

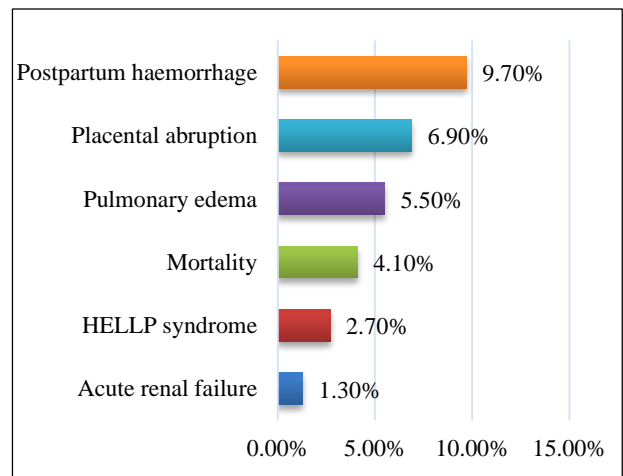


Figure 6: Maternal complications.

DISCUSSION

In present study majority of the patients (66.6%) belonged to 21-25 years age group. In a study conducted by Agida et al in a teaching Hospital, Gwagwalada, Abuja, Nigeria in 2010, majority of eclampsia patients belonged to age group of 20-24 year (34.8%).⁹ In a study at a zonal hospital in 2008 by Thapa et al, majority of the patients (63.2%) were between 20-25 years of age.¹⁰ In a study conducted by Swain et al eclampsia was more common in women of age equal to or less than 20 years.¹¹

Majority of the patients (90.4%) in the present study belonged to antepartum eclampsia group, followed by postpartum eclampsia group i.e. 6.9% and intrapartum eclampsia group i.e. 2.7%. In a study at a teaching hospital, Abuja, Gwagwalada Nigeria by Agida et al most of the patients (73.9%) had antepartum eclampsia followed by intrapartum eclampsia (19.6%).⁹ In a study at a tertiary center in Northern Nigeria conducted by Adamu et al majority patients (62.6%) had Intrapartum eclampsia.¹² In a study by Abate et al in 2 teaching hospitals most of the patients (61.6%) had antepartum eclampsia, followed by intrapartum eclampsia (22.7%) and postpartum eclampsia (15.7%).¹³ In a study at a zonal hospital by Thapa et al most of the patients (67.7%) presented with ante-partum eclampsia, followed by 22.1% patients with intrapartum eclampsia and 10.3% with postpartum eclampsia.¹⁰

Majority of the patients (62.5%) in the present study had vaginal deliveries, followed by LSCS (37.5%). In a comparative study at a teaching hospital by Kamilya et al in 2005, rate of caesarean sections was reported to increase from 10% to 49.7%.¹⁴ In a study at Teaching Hospital, Gwagwalada, Abuja by Agida et al 84.8% patients underwent caesarean section whereas only 10.8% had vaginal delivery.⁹

In present study lesser number (7.4%) of SNCU referral/IUDs were reported in LSCS cases, as compared to that of vaginal deliveries as 51%. In a comparative study by Kamilya et al perinatal mortality was lowest in caesarean section group.¹⁴

In present study there was significant difference noted in foetal and maternal outcome if admission/induction delivery interval was less than 12 hours, and when the interval was more than 12 hours. In patients who had admission/induction delivery interval of less than or equal to 12 hrs or who were already in labour, 8 patients had IUD babies and SNCU referrals (20%), and 32 patients' babies were shifted to mother's side (80%). Those who had admission/induction delivery interval of more than 12 hrs, 17 patients had IUD babies and SNCU referrals (53.12%), and 15 patients' babies were shifted to mother's side (46.87%). There is an association between admission/induction delivery interval and fetal outcome. Lesser time interval has better outcomes. In a study conducted by Pandit et al in 2016, no significant difference

was noted when admission to delivery interval was 2 hrs, 6hrs, 12 or more hours.¹⁵

In present study out of total 72 eclampsia patients, 7 patients developed PPH (9.7%), abruption in 5 patients (6.9%), ARF in 1 patient (1.3%), pulmonary oedema in 4 patients (5.5%), 3 maternal deaths (4.1%) due to HELLP syndrome and one due to ARF. In a study by Singhal et al most common complication was PPH (50.98%), followed by pulmonary oedema in 13.73%, renal dysfunction in 11.76%, pulmonary embolism and DIC in 3.92%, abruptio placentae and HELLP syndrome in 1.96 and death in 7.84% patients.¹⁶

In present study out of total 3 maternal deaths, 2 patients had GCS less than 8, one mother had GCS more than 8 at the time of admission who developed postpartum eclampsia. All the 3 patients had admission/induction delivery interval of more than 12 hours.

CONCLUSION

Hypertensive disorders pose 3-25 times the risk of developing severe pregnancy related complications, eclampsia being its most severe form. The risk of maternal and fetal morbidity and mortality is much more common in settings in which prenatal and intra partum care is not routinely available to pregnant women. Greater awareness and coverage of routine antenatal check-up and timely referral to higher health centers leads to earlier diagnosis and management, thereby reducing proportion of the morbidity and mortality from preeclampsia and eclampsia. Once developed, better foetal and maternal outcomes could be obtained by necessary interventions to prevent further convulsions and early delivery after initial stabilisation of patient. It was found that better the general condition of patient at time of admission better was maternal and fetal outcome, lesser the admission delivery interval, better was the maternal and fetal outcome with lesser SNCU admissions. Timely caesarean sections gave a better fetal prognosis as more percentage of babies were shifted to mother's side. However further studies are needed with higher number of patients to support this study.

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