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INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/17200
DOI URL: http://dx.doi.org/10.21474/IJAR01/17200

RESEARCH ARTICLE

"A STUDY ON MATERNAL AND PERINATAL OUTCOME IN ECLAMPSIA"

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Manuscript Info

Manuscript History
Received: 26 April 2023
Final Accepted: 31 May 2023
Published: June 2023

Key words:-
Perinatal Mortality, Magnesium Sulfate, Eclampsia, Blood Pressure, Maternal Mortality, Hellp

Abstract

Introduction: Eclampsia is still amongst the six major determinants of maternal mortality. It is characterized by sudden onset of generalized tonic-clonic convulsion or coma in pregnancy or postpartum, unrelated to other cerebral conditions,in patients with signs and symptoms of preeclampsia. Eclampsia results in increased maternal morbidity and perinatal morbidity.

Materials And Methods: This is a prospective hospital based observational study in which all women with eclampsia admitted in OBG department of tertiary care center over one year period from January 2021 to December 2021.

Aims And Objectives: To study the incidence of eclampsia, maternal and fetal outcome in eclampsia, complications of eclampsia.

Results: Mean age of study group was 23.9±3.55 SD.Majority of the cases were primigravida- 74 (61.66%). Majority of cases were unbooked- 112 (93.3%). Mean gestational age in study group was 35.11 ± 3.24weeks.Majority of cases were antepartum eclampsia- 110 (91.66%);Caesarean delivery was needed in 74 (61.66%) and 46 (38.33%) delivered vaginally.The perinatal mortality is 29.03%. The maternal mortality is 4.16%.

Conclusion: Eclampsia occurred in young unbookedprimigravidas in the antenatal period and its incidence is 1.32%. Women require care in HDU-ICU and need careful evaluation to decide the mode of delivery in the best interest of mother and the, to be born preterm baby.We still have a long way to go to improve the outcome of such mothers and infants by better high-risk assessment at peripheral hospitals, critical care ambulances for transfer of these women from periphery and improvement of critical care at our institution by training of our faculty and residents in critical care obstetrics.

Introduction:-

Eclampsia is still amongst the six major determinants of maternal mortality. Eclampsia results in increased maternal morbidity (due to accompanying complications like cerebrovascular accidents, visual impairment, abnormal liver functions, HELLP syndrome, renal failure, coagulation failure etc.) and at the same time increases perinatal morbidity due to need for preterm delivery, need for operative delivery, hyaline membrane disease and prolonged NICU care may be needed. Hypertensivedisordersrepresentthemostcommonmedical complication of pregnancy

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affecting between 7–15% of allgestations and account for approximately a quarter of allantenataladmissions[1].AccordingtoWorldHealthOrganization's(WHO)systemicreviewonmaternalmortalityworld-wide,hypertensivediseaseremainsaleadingcauseofdirect maternal mortality[1].The diagnosis of eclampsia is usually clear when women present with seizures, hypertension and proteinuria. Unfortunately, in approximately 15% of the cases, hypertension and proteinuria may not be present. However, when seizures develop in a pregnant woman without a history of seizures disorders, eclampsia should be the diagnosis unless proven otherwise. In the majority of cases, the onset of convulsions is preceded by persistent occipital or frontal headache, throbbing in nature, visual symptoms, epigastric or right upper quadrant pain or altered mentation. Presence of these clinical symptoms helps in establishing the diagnosis as eclampsia.

Despite the improvement in antenatal care; available to the masses at their doorstep and free of cost; free diagnostic tests; better transport from periphery and HDU-ICU facility in tertiary care hospitals the incidence of Eclampsia has not come down remarkably although the deaths from eclampsia have been reduced due to better care. A woman with eclampsia requires a multidisciplinary expert critical obstetrical care which is available at a tertiary care level institution. Delay in identifying the risk factors and imminent signs of eclampsia by ignorant family members and the staff and doctors at peripheral hospitals; delay in starting the standard treatment once convulsions occur; delay in transport/transfer to a well-equipped centre; delay in starting treatment at the equipped centre due to non-availability of experts of critical care; delay in arranging the often needed blood products may result in poor maternal and perinatal outcome.

Present study is an effort to evaluate the maternal and perinatal outcome in cases of eclampsia at our tertiary care institution. A long and difficult path still exists before we can improve the morbidity-mortality data for mother and child in cases of eclampsia.

Aims And Objective:-

1. To study the incidence of eclampsia.
2. To study the maternal and foetal outcome in eclampsia.
3. To study the complications of eclampsia.

Material And Methods:-

Study Design:
Prospective Observational Study

Setting:
Govt Medical College and J.K. Loan Mother & Child Hospital, Kota

Sample:
All women with Eclampsia admitted to OBG department of tertiary care centre over one year from January 2021 to December 2021 were studied.

Inclusion Criteria:
1. Gestational age >28 weeks
2. History of convulsions (GCTS type).

Exclusion Criteria:
1. Gestational age <28weeks
2. Any Pre-existing medical disorder
3. Other causes for convulsion like Epilepsy, meningitis, poisoning, head injury, hepatic encephalopathy

Method:-

All patients of eclampsia who met the above mentioned criteria were included in the study. All patients were subjected to careful history from attendants, meticulous general physical examination, detailed systemic examination as per need and careful local examination was done: per abdomen and per vaginal examination.

Investigations:
1. Hematological: CBC, Hb, Blood grouping, Rh typing,PBF.
2. Biochemical: RBS, LFT, RFT, S.electrolytes.
3. Serology: HbSAg, HIV, VDRL.
4. Radiology: USG pelvis and abdomen, KUB, fetal assessment, post delivery chest x ray and CT scan of head when needed.
5. Urine: complete, microscopic, culture.
6. ECG.

Management:
1. All women were treated with Antihypertensive drugs (IV labetolol and tab. Nifidipine).
2. Anticonvulsant magnesium sulfate (pritchard regimen).
3. Termination of pregnancy (Induction of labour done when indicated)
4. Decision will be individualised as per needs.

Maternal outcome were studied on the following parameters:
1. Gestational age at delivery
2. Mode of delivery
3. Obstetric Complications
4. Maternal mortality.

Perinatal outcomes were studied on the following parameters:
1. Birth Weight.
2. LBW/ SGA.
3. Neonatal Complications
4. Congenital malformations.
5. NICU admissions.
6. Perinatal mortality.

Collected data was tabulated and statistical analysis done according to SPSS Software.

Observations And Results:-

In present study, there were 120 cases of eclampsia out of 9064 deliveries at our institution over a period of one year from January 2021 to December 2021. The incidence of eclampsia was 1.32% in our study.

Table no 1:-

Age group (in years)	**Frequency**	**Percentage (%)**
≤20	21	17.50%
21-25	68	56.66%
26-30	24	20%
>30	07	5.83%
Total	120	100
Mean age (in years)		23.9 years
Standard Deviation (SD)		±3.55 years
Gravida	**Frequency**	**Percentage**
G1	74	61.66%
G2	27	22.50%
≥G3	19	15.83%
Total	120	100%
Antenatal care	**Frequency**	**Percentage**
Booked	8	6.66 %
Unbooked	112	93.33 %
Total	120	100

Type of eclampsia	Frequency	Percentage
Antepartum	110	91.66%
Intrapartum	4	3.33%
Postpartum	6	5%
Total	120	100%
Number of fetuses	**Frequency**	**Percentage**
Singleton	116	96.66%
Twins	4	3.33%
Total	120	100

Table no 2:-

Blood pressure on admission	Frequency	Percentage
Systolic BP (in mm of Hg)		
Less than 140	8	6.66 %
140 – 160	71	59.16 %
More than 160	41	34.16 %
Mean systolic BP ± standard deviation	159.25 ± 16.61 mm of Hg	
Diastolic BP (in mm of Hg)		
Less than 100	20	16.66 %
100-110	84	70 %
More than 110	16	13.33 %
Mean diastolic BP ± standard deviation	104.66 ± 10.68 mm of Hg	

Table no 3:-

Indication for caesarean delivery	Frequency	Percentage (%)
Failed induction of labour	20	27.77 %
Abruptio placentae	12	16.21 %
Previous caesarean	11	14.86 %
Foetal distress	8	10.81 %
Foetal growth restriction	7	9.45 %
Non progress of labour	6	8.10 %
CPD	6	8.10 %
Oligohydramnios	3	4.05 %
Obstructed labour	1	1.35 %
Total	74	100 %

Table no 4:-

Maternal complication	Frequency	Percentage
HELLP syndrome	28	23.33 %
Anaemia	22	18.33 %
Abruptio placentae	10	8.33 %
Postpartum haemorrhage	8	6.66 %
Renal failure, DIC	4	3.33 %
MODS, CHF, PPCM	1	0.83 %
MODS, Pulmonary oedema	1	0.83 %
No additional complications	44	36.66 %
Total	120	100 %

Table No 5:-
Maternal Outcome

Gestational age at delivery (in weeks)	Frequency	Percentage (%)
Early preterm (28 to 33+6 weeks)	41	34.16 %
Late preterm (34 to 36+6 weeks)	23	19.16 %

Term gestation (≥37 weeks)	56	46.66 %
Mean gestational age ± standard deviation	35.117 ± 3.245 weeks.	
Mode of delivery	**Frequency**	**Percentage (%)**
Caesarean delivery	74	61.66
Vaginal delivery	46	38.33
Maternal complications	**Frequency**	**Percentage (%)**
Present	76	63.64 %
No additional complications	44	36.66 %
Maternal deaths	**Frequency**	**Percentage (%)**
	5	4.16 %

Table No 6:-
Perinatal Outcome

Birth weight (in grams)	**Frequency (n = 124)**	**Percentage**
Normal birth weight(2500-4000 g)	36	29.03%
Low birth weight(1500-2499 g)	54	43.54%
Very low birth weight (1000-1499 g)	26	20.96%
Extremely low birth weight (<1000 g)	8	6.45%
Total	124	100%
Perinatal complications	**Frequency**	**Percentage**
Preterm	65	52.41%
MAS/RDS	12	9.67%
Foetal growth restriction	9	7.25%
Congenital anomaly	2	1.61%
With no obvious complications	36	29.03%
NICU Admissions	**Frequency**	**Percentage**
Yes	55	53.92%
No	47	46.07%
Total	102	100%
Perinatal mortality	**Frequency**	**Percentage**
	36	29.03%

Discussion:-

Table of comparison of common observations in our study with other studies

STUDY	**MEAN AGE**	**PRIMI**	**UNBOOKED**	**ANTEPARTUM ECLAMPSIA**	**MEAN GESTATIONAL AGE**	**INCIDENCE**	**PREFFERED MODE OF DELIVERY**
Dalal M et al (2019)[2]	21-25 year (55.7%)	57.50%	95.57%	71%	>36wk (43%)	0.96%	LSCS (58%)
Verma k et al (2015)[3]	21-25 year (46.15%)	80%	66.92%	72.30%	≥34wk (44.62%)	0.82%	NVD (71.54%)
Mishra SK et al (2020)[4]	20-30 year (68%)	74%	82%	66%	≥37wk (92%)	0.75%	LSCS (78%)
Prashanthi SS et al (2020)[5]	23.9 (87.3%)	74%	92%	77.30%	29-36wk (64%)	1.20%	NVD (61.3%)
Celina J et al (2019)[6]	21-25 year (45.45%)	52%	95%	90.96%	33-36+6 (42.04%)	0.70%	LSCS (52.27%)
Singh N et al	21-25 year	74%	54%	100%		1.42%	NVD

(2019)[7]							(64%)
Gandhi G et al (2010)[8]	20-29 year (70%)	71%	46%	78%	<37 wk (51.25%)	0.45%	NVD (70.5%)
Present study	21-25 year (56.66%)	61.66%	93.33%	91.66%	>37 wk (46.66%)	1.32%	LSCS (66.1%)

STUDY	**MATERNAL ICU ADMISSION**	**PERINATAL OUTCOME**			**MEAN BP RANGE**	
		ALIVE	**PERINATAL DEATHS**	**NICU ADMISSIONS**	**SYSTOLIC**	**DIASTOLIC**
Dalal M et al (2019)[2]	25%	91(80.5%)	23%	45(49.4%)	140-160 (62%)	90-110 (64%)
Verma k et al (2015)[3]	-	79 (60.76%)	49 (37.6%)	-	>160 (50%)	90-110 (52.30%)
Mishra SK et al (2020)[4]	86%	39 (78%)	11 (22%)	38 (76%)	> 140/90 (80%)	
Prashanthi SS et al (2020)[5]	14.60%	-	-	45 (30%)	<160/110 (74%)	
Celina J et al (2019)[6]	-	86%	15.55%	55%	-	-
Singh N et al (2019)[7]	-	-	24%	-	>160/110 (44%)	
Gandhi G et al (2010)[8]	7.90%	85.90%	253/1000 live births	-	>160/110 (50%)	
Present study	17.50%	70.96%	29.03%	53.92%	140-160 (59.16%)	100-110 0%)

The incidence in our study was 1.32% which was similar to other similar studies, Prasanthi SS et al[5] (1.20%) and Singh N et al[7] (1.42%) whereas lesser incidence were reported by Dalal M et al[2] (0.96%), Verma K et al[3] (0.82%), Mishra SK et al[4] (0.75%), Celina J et al[6] (0.70%) and Gandhi G et al[8] (0.45%).

In present study, majority of patients belonged to 21-25 years of age group which was similar to other studies by Dalal M et al[2], Verma K et al[3], Celina J et al[6], Singh N et al[7].Out of all 120 cases in our study, majority of patients comprising of 74 (61.66%) were primigravida which was similar to other studies. However, Verma K et al [3] have reported highest number of primigravida (80%) followed by Mishra SK et al[4](74%), Prasanthi SS et al[5] (74%), Singh N et al[7] (74%), and the least incidence reported by Dalal M et al[2] (57.5%) and Celina J et al[6](52%) in their studies.

Level of BP is crucial in defining eclampsia. Systolic BP of 140 mm of Hg and Diastolic BP of 90 mm of Hg is considered as cut off level. In our study majority of patients (59.16%) had systolic BP range between 140-160 mm of Hg and 70% had Diastolic BP ranging between 100-110 mm of Hg which is similar to Dalal M et al (140-160 mm of Hg of systolic BP in 62% cases Diastolic BP of 90-110 mm of Hg in 64% of cases).In other similar studies, BP >140/90 mm of Hg is noted in majority of patients. Prashanthi SS et al reported 74% of patients with BP > 160/110 mm of Hg followed by 50% (>160/110 mm of Hg) in study conducted by Gandhi G et al, followed by 44% with BP >160/110 mm of Hg in study conducted by Singh N et al.

In our study 66.1% cases underwent LSCS and remaining were vaginal deliveries. In similar studies the highest incidence of LSCS was reported by Mishra SK et al (78%) as preferred mode of delivery followed by 58% in Dalal M et al , 52.27% in study conducted by Celina J et al. However lower incidence of caesarean delivery had been reported in studies conducted by Prasanthi S et al (36.6%), Singh et al (36%) Gandhi G et al (22.7%) reported the least incidence of caesarean delivery. Decision for caesarean delivery depends upon the associated maternal complications and foetal condition. Mother brought after many convulsions, presence of HELLP syndrome, gestational age less than 34 weeks, poor bishop score results in higher rates of caesarean delivery. In other studies vaginal route remained the preferred mode of delivery for termination of pregnancy.

In our study, perinatal mortality is 29.03% comparable to 22% in study conducted by Mishra s et al. The highest percentage of perinatal mortality was reported by Verma K et al (37.6%) and the least incidence was reported by Celina J et al (15.55%).

In our study 53.92% of alive new born were shifted to NICU, similar to study conducted by Celina J et al (55%) and Dalal M et al (49.4%).Mishra K et al reported majority (76%) of new born shifted to NICU and least incidence is reported by Prashanthi S et al (30%).

In our study out of 124 new born 102 (82.25%) were born alive and out of 102 live births, 88 new born (70.96%) survived and there were 14 neonatal deaths. The major cause of neonatal deaths was prematurity and low birth weight followed by foetal asphyxia, RDS, MAS. In our study 88 (70.96%) of new born survived which is comparable to 78% in Prashanthi S et al, 80.5% in study by Dalal M et al. Celina J et al and Gandhi J et al reported the alive perinatal outcome in 86% and 85.9% cases respectively.

In our study 17.5% of patients were shifted to ICU. Similar results were quoted by Prashanthi SS et al (14.6%). Highest ICU admission were reported by Mishra SK et al (86%) and lowest ICU admissions were reported by Gandhi G et al (7.9%).

In our study, maternal mortality was 4.16%. Similar results were reported by Verma K et al (6.5%) and Mishra SK et al (4%). Highest maternal mortality was quoted by Prashanthi SS et al (10%). There was no mortality in study conducted by Celina J et al. In other studies, Dalal M et al quoted 3.5% maternal mortality; 1.2% in study conducted by Singh et al and 2.3% in study conducted by Gandhi G et al. In our study the causes of maternal mortality were Acute Renal Failure, DIC, PPH, MODS. It was similar to cause of maternal mortality in other studies. Peripartum cardiomyopathy and Pulmonary embolism accounted for one maternal death each.

Conclusion:-

In our study Eclampsia occurred in young unbookedprimigravidas in the antenatal period and its incidence is 1.32%. The maternal mortality and perinatal mortality in our study is 4.16% and 29.03% respectively. Women require care in HDU-ICU and need careful evaluation to decide the mode of delivery in the best interest of mother and the, to be born preterm baby. We still have a long way to go to improve the outcome of such mothers and infants by better high risk assessment at peripheral hospitals, critical care ambulances for transfer of these women from periphery and improvement of critical care at our institution by training of our faculty and residents in critical care obstetrics.

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