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Feto-Maternal Outcome in Women with Early Onset of Pre-Eclampsia and Eclampsia

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Abstract: ***Aim: 1) Prevalence of Early onset of Pre-eclampsia & Eclampsia (between 20 to 34 gestation week of pregnancy) in government medical college, Surat. 2) Mode of Delivery 3) To Evaluate Feto-Maternal Outcome among these subjects. Method: Prospective Study was carried out in department of Obstetrics & Gynecology enrolling 100 consecutive subjects between 20 to 34 weeks of gestation with Severe Pre-Eclampsia & Eclampsia admitted to labor room & OB ICU over period of 1 year (2015-16). 100 consecutive cases admitted of which 63 were PET, 34 were Ante-partum Eclampsia, 1 was Intra-partum Eclampsia & 37 were Post-partum Eclampsia. In all cases of Severe PET & APE pregnancy was terminated irrespective of gestation age. Results: Subject was conducted enrolling 100 subjects admitted with Severe PET (n= 63) & Eclampsia (n = 37). 76% were 20-30 year of age group, 55% were Primigravida, 77% subjects were presented between 32-34 weeks of gestation, 82% were unregistered, 74% need premonitory support. Out of 100 subjects 6% died & 19% had complications. 80% Subjects had adverse fetal outcome. Conclusion: Eclampsia is still one of the important and common obstetric emergencies, which has a significant role in maternal and perinatal outcome. Regular Antenatal Care (ANC), proper health education, improvements of socioeconomic conditions. Timely and appropriate intervention including primary management, early referral and judicious termination of pregnancy help in reducing morbidity and mortality of both mother and fetus.***

Keywords: Preeclampsia, eclampsia, fetomaternal outcome, magnesium sulphate

1. Introduction

India is among those countries which have a very high "Maternal Mortality rate", a rate of around 174/1 lakh live births, i.e. more than one lakh subjects die each year due to pregnancy related causes. Hypertensive disorders complicating pregnancy are common and form one of the deadly triad along with hemorrhage and infection that contribute greatly to maternal morbidity and mortality (13% of all maternal deaths). How pregnancy incites or aggravates hypertension remains unsolved despite of intensive research. Indeed, hypertensive disorders remain amongst the most significant and intriguing unsolved problems in Obstetrics. Although the cause remains unknown, evidence for it begins to manifest early in pregnancy with covert patho-physiological changes that gain momentum across gestation unless delivery supervenes, these changes ultimately result in multi-organ involvement with a clinical spectrum ranging from barely noticeable to one of the cataclysmic mother and fetus1. These adverse maternal and fetal effects develop simultaneously. These events presumably are a consequence of vasospasm, endothelial dysfunction and ischemia. The Department of Obstetrics and Gynecology, Government Medical College, Surat is the largest referral center in South Gujarat catering to high risk obstetrics. 8.42% of patients that deliver here usually have hypertensive disease in pregnancy. This study was undertaken to assess fetal and maternal outcome in severe PET and eclampsia and to correlate the outcome to various responsible factors so as to enable us to draw out our hospital policy for management of these subjects to improve their outcome. The purpose of this study is to evaluate the incidence of preeclampsia & eclampsia, maternal and perinatal and morbidity/ mortality associated with it.

2. Method

This prospective descriptive study (subject series) was carried out in department of Obstetrics and gynecology enrolling 100 consecutive subjects between 20 to 34 weeks gestation with severe pre-eclampsia (Severe PET) and eclampsia admitted to Labor room and Obstetrics Intensive Care Unit (OB-ICU) over a period of one year(2015 – 2016)

They underwent a detailed assessment (history, examination and investigations as mentioned in the Performa). Termination of the pregnancy was the ultimate management in all subjects of severe PET/ eclampsia after the following initial management:

- Injection Labetalol 20 mg intra-venous for control of severe hypertension (which was repeated after 15 minutes if the systolic blood pressure remained above 160mmHg or diastolic remained above 110 mmHg).
- Magnesium sulphate was given as per Pritchard regime for control of convulsions in subjects admitted with eclampsia.
- Prophylactic Magnesium sulphate (MgSO4) was administered as per Pritchard regimen for prevention of convulsions in subjects with severe PET if Blood Pressure remained persistently high (systolic≥160mmHg and diastolic≥110mmHg) even after one dose intravenous 20 mg Labetalol.

Fetal outcome variables were preterm delivery, live birth, birth weight, dead born and early neonatal death. Investigations such as urine albumin, renal function test, liver function test, prothrombin time, clotting time, peripheral smear and fundus examination were carried out.

Patients were followed up from admission up to discharge. Maternal and fetal outcome variables were presented as frequencies and percentages.

Inclusion Criteria:
Consenting pregnant subjects with Severe Pre-eclampsia and eclampsia between 20 to 34 weeks gestation

Exclusion Criteria
Pregnant subjects with Severe Pre-eclampsia and eclampsia more than 34 weeks gestation.

3. Observation and Discussion

This prospective descriptive study (subject series) was carried out in department of Obstetrics and Gynecology enrolling 100 subjects between 20 to 34 weeks with severe pre-eclampsia (Severe PET) and eclampsia admitted to Labour room and Obstetrics Intensive Care Unit (OB-ICU) in our institute .

Table 1: Number of Participants (n=100)

Age	*Total*	*PET*	*Eclampsia*
<20 yr	13(100%)	10(77%)	3(23%)
20-30 yr	76(100%)	46(61%)	30(39%)
30 yr	11(100%)	7(64%)	4(36%)

Table 2: Parity (n=100)

	Total	PET(n=63)	Eclampsia(n=37)
Primi	55(100%)	30 (55%)	25(45%)
Multi	45(100%)	33(74%)	12(26%)

Table 3: Gestational Age of Presentation (n=100)

	Total	*PET(63)*	*Eclampsia(37)*
20-28	5	4(80%)	1(20%)
28-32	18	12(67%)	6(33%)
32-34	77	47(62%)	30(38%)

Table 4: Registration Status (n=100)

	Total(100)	PET(63)	Eclampsia(37)
Emergency	40	22(55%)	18(45%)
Reffered	42	26(62%)	16(38%)
Registered	18	15(84%)	3(16%)

Table 5: Premonitory Symptoms(n=100)

	Total	PET	Eclampsia
No symptoms	26	26(100%)	0
Premonitory symptom	74	37(50%)	37(50%)
Headache	58	23(40%)	35(60%)
Vomiting	25	5(20%)	20(80%)
Epigastric pain	24	14(59%)	10(41%)
Blurring of vision	22	5(22%)	17(78%)

Table 6: Various antihypertensive Drugs used

Control of Hypertension(n=100)	
Labetalol (L)	87%
Other antihypertensive required	13%
Nifedipine (N)	5%
Labetalol + Nifedipine	5%
Labetalol + Methyldopa	3%
Labetalol + furosemide	1%
Labetalol+Methyldopa+Furosemide	1%
Nifedipine + furosemide	1%

Table 7: Anticonvulsant therapy for control of convulsions (therapeutic /prophylactic)

	No of subjects
$MgSO_4$ alone was effective	45(100%)
Other anti convulsants were needed	0

Table 8: Mode of Delivery (n=100)

	Total(100)	PET(63)	Eclampsia(37)
Instrumental (assisted vaginal)	2	0	2(100%)
LSCS	41	17(42%)	24(58%)
Vaginal	57	46(81%)	11(19%)

Table 9: Maternal Outcome (N=100)

	Total	PET	Eclampsia
Abruption	9	8(89%)	1(11%)
ARF	2	1(50%)	1(50%)
Pulmonary edema	5	5(100%)	0
Cerebral hemorrhage	1	0	1(100%)
HELLP	1	1(100%)	0
DIC	1	0	1(100%)
PRESS	0	0	0
Mortality	6	2(33%)	4(67%)

Uneventful maternal outcome=81(81%)
Adverse maternal outcome=19(19%)

Table 10: Fetal Outcome (100)

	Total	PET	Eclampsia
Prematurity	44	28(64%)	16(36%)
IUGR	20	10(50%)	10(50%)
IUFD	23	18(78%)	5(22%)
RDS	16	9(57%)	7(43%)
NICU admission	58	34(59%)	24(41%)

Normal outcome = 20
Adverse outcome = 80

Table 11

Study	Result			
	Abruption	ARF	DIC	Maternal Mortality
ShaziaShahin	19.20%	9.20%	4.80%	4.80%
Present Study	9%	2%	1%	6%

Hypertension is a leading problem that may complicate and result in additional disorders during pregnancy. One such complication is eclampsia which causes devastating results, though it is preventable. The epidemiological figures of eclampsia are not consistent worldwide, in fact the incidence of eclampsia varies geographically according to the standard antenatal care facilities provided in that area.

In the given study 76 % subjects were between 20-30 years of age and total 89% were below 30 years of age, this is comparable to other studies like Singhal et al 90% & Lopez et al 90.8% but is higher than Dutta 67.3% cases were below 30 years.

Majority i.e. 55%) of the subjects were primigravida, similar results were shown by Pritchard and Mudaliar and Menon, though their results were higher with 75% females primigravida. It indicates that primigravida are the main victim for eclampsia.

95% subjects presented with severe PET and eclampsia at 28 to 34 week, of which 77% patients were between 32-34 weeks. This is comparable to Kameshwaridevi's study.

Regarding the 18 registered subjects who presented with severe PET or eclampsia, 15 had severe PET while 3 had eclampsia, and amongst the 82 unregistered subjects, 48 had severe PET while 34 had eclampsia, showing that even though the development of hypertensive disorder of pregnancy could not be prevented amongst the registered subjects they had a lower incidence of eclampsia as compared to unregistered subjects. Hemkantaet al, Prabhakar et al, Pradeep et al and Chaudhury reported similar results. But on the other hand, in 1994 Douglas and Redman reported that women with less frequent antenatal visits were not significantly different from those with standard antenatal care

74subjects presenting with severe PET/eclampsia had premonitory symptoms. The commonest premonitory symptom noted was headache which was seen in58/100 subjects (58%).

Majority i.e. 87/100(87%) subjects responded to labetalol alone, while 13/100(13%) subjects required other anti-hypertensive drug like Nifedipine, this is comparable to Faculty of medicine, National university of Singapore showing 70% result.

Also the response of the subjects to Magnesium sulphate for control of convulsions was 100%, this is similar to Almas tabassum et al study. The ability to administer intravenous anticonvulsants is a component of basis emergency obstetric care. Anticonvulsants should therefore be made readily available in all maternity health facilities. Close monitoring of patients during pregnancy, labour, and early pueperium as well as early referral should be highlighted

The definitive treatment of eclampsia is delivery, irrespective of gestational age. Therefore, the patient must be delivered within 24 hours in case of severe preeclampsia, and within12 hours in a patient with eclampsia. Majority i.e. 57 of 100 subjects (57%) delivered vaginally, 2/100(2%) delivered by assisted vaginal delivery, 47/100(47%) were delivered by caesarean section. This caesar rate was comparable toKynak& coworkers 45% and Sibai 49%. Significant association of Eclampsia is reported with high perinatal mortality and morbidity.

The most common timing of eclampsia was antepartum 34/37(92%) followed by postpartum – 2/37(5.4%). This agrees with reports from many developing countries. Presentation of eclamptic patients to health facilities in our environment usually occurs late, accounting for the attendant, accompanying high morbidities and mortality as exemplified by the findings in this study. Late presentations may not be un-related to poor referral system, geographicin-accessibility of most health facilities, and financial constraints. These constitute burning health systems, and household socioeconomic challenges yearning for urgent address 81(81%) subjects had a normal maternal outcome while 19 subjects (19%) had an adverse maternal outcome in the form of maternal complications like Abruptio placentae, Acute renal failure, Pulmonary oedema, DIC and cerebral hemorrhage, maternal mortality.

- Abruptio placentae was the commonest maternal complication noted in 9 out of 100 i.e.9% subjects, followed by pulmonary oedema (5%), acute renal failure (1%), cerebral hemorrhage (1%) ,Disseminated intravascular coagulation (1.%).
- 6 deaths (amongst 6% subjects) were noted amongst the enrolled subjects, In which 4 had eclampsia and 2 had Severe Pet

Fetal outcome: Only 20 subjects (20%) had a normal fetal outcome while 80 subjects (80.%) had an adverse fetal outcome. Significant association of Eclampsia is reported with high perinatal mortality and morbidity. The commonest fetal complication noted in the present study was prematurity. As this is an established fact that early deliveries reduce maternal mortality and morbidity however expose the babies to the risks of prematurity. The higher risk of preterm delivery among the preeclamptics with severe features and eclamptics may have been due to the interventional care and early delivery usually given to these patients after stabilization in the study centre. The significantly higher proportion of preeclamptics with severe features and eclamptics being delivered through caesarean section when compared with the control may have been due to the emergency delivery approach usually required to avert further maternal andperinatal complications from this disease especially when the cervix is unfavourable.

4. Conclusion

1) Maternal mortality and morbidity increases in subjects with severe pre-eclampsia and eclampsia, so it is importantfor clinicians to educate subjects about the early warning sign of pre-eclampsia and to identify subjects with severe PET and eclampsia. Certainly the high incidence of eclampsia can be reduced by proper antenatal care, diagnosing, admitting and treating the mild and severe pre- eclampsia cases. However, eclampsia can occur bypassing the preeclamptic state and as such, it is not always a preventable condition. Antenatal care, early diagnosis, primary management and referrals need to be improved.
2) Labetalol is an effective drug to control the severe hypertension noted in pre-eclampsia and eclampsia and MgSO4 as anticonvulsant is the best drug to treat and prevent convulsion in eclampsia and severe PET respectively

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