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## A study of maternal and foetal outcome in severe pre-eclampsia and eclampsia

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### Abstract

Preeclampsia is a hypertensive disorder unique to human pregnancy and is a leading cause of maternal and perinatal morbidity and mortality worldwide. Present study was to find the maternal and perinatal outcome in patients of severe preeclampsia and Eclampsia and improving pregnancy outcome. Prediction, early diagnosis, early referral to tertiary level hospitals, and providing good antenatal care in the rural areas, where maximum percentage are from rural areas will reduce the Maternal and Perinatal mortality.

**Aim:** Of the study was monitoring and managing cases of severe pre-eclampsia and Eclampsia to improve foetal and maternal outcome in a tertiary care hospital

**Keywords:** Pre-eclampsia, eclampsia

### 1. Introduction

Preeclampsia remains a leading cause of maternal & foetal morbidity and mortality. It is a pregnancy specific multi-system disorder occurring most commonly in primigravidae and characterised by the development of hypertension & proteinuria in second half of pregnancy. How pregnancy incites or aggravates hypertension remains unsolved despite decades of intensive research.

Hypertensive disorders complicate 5 to 10 percent of all pregnancies, and together they are one member of the deadly triad—along with haemorrhage and infection—that contributes greatly to maternal morbidity and mortality. Preeclampsia is identified in 3.9% of all pregnancies (Martin, 2012) [1]. Berg and colleagues (2010) [2] reported that 12.3% of 4693 pregnancy related maternal deaths were caused by preeclampsia & Eclampsia. The incidence in second pregnancy is <1% in women who have had a normotensive first pregnancy, but increased in women who have had preeclampsia in first pregnancy, particularly whose first pregnancy was complicated by severe preeclampsia (Campbell *et al.*, 1985) [3]. Young and Nulliparous women are particularly vulnerable for developing preeclampsia, whereas older woman are at greater risk for chronic hypertension with superimposed preeclampsia. The incidence is markedly influenced by race and ethnicity—and thus by genetic predisposition. The incidence of preeclampsia in multiparas is also variable but is less than that for nulliparous. Specifically, population studies from Australia, Canada, Denmark, Norway, Scotland, Sweden, and Massachusetts indicate an incidence of 1.4 to 4 percent (Roberts, 2011) [4].

There are several other risk factors associated with preeclampsia. These include obesity, Multi foetal gestation, maternal age, hyperhomocysteinemia, and metabolic syndrome (Conde- Agudelo, 2000; [5] Scholten, 2013; [6] Walker, 2000 [7]). The relationship between maternal weight and the risk of preeclampsia is progressive. It increases from 4.3 percent for women with a body mass index (BMI) < 20 kg/m<sup>2</sup> to 13.3 percent than in those with a BMI > 35 kg/m<sup>2</sup>. In women with a twin gestation compared with those with singletons, the incidence of gestational hypertension—13 versus 6 percent, and the incidence of preeclampsia—13 versus 5 percent, are both significantly increased (Sibai, 2000) [8]. It is interesting that this latter incidence is unrelated to zygosity (Maxwell, 2001) [9].

Although smoking during pregnancy causes various adverse pregnancy outcomes, ironically, it has consistently been associated with a *reduced risk* for hypertension during pregnancy (Bainbridge, 2005; [10] Zhang, 1999 [11]).

Women with preeclampsia in the first pregnancy are at greater risk in a second pregnancy compared with women normotensive during their first pregnancy (McDonald, 2009 [12]). And conversely, in the woman who was normotensive during her first pregnancy, the incidence of preeclampsia in a subsequent pregnancy is much lower than for a first pregnancy. In a population-based retrospective cohort analysis, Getahun and colleagues (2007) [13] studied almost 137,000 second pregnancies in such women.

## 2. Materials & Methods

The study was carried out on all pregnant women with preeclampsia and eclampsia with >20 weeks gestation admitted in Obstetrics and Gynaecology department attached to Medical college over a period of six months from March 2016 to August 2016. We receive pregnant women from a radius of 200 kms. from Two states i.e., A.P., and Telangana, including 5 districts i.e., Kurnool, Mahaboob Nagar, Kadapa, Anantapur, Prakasam. All cases of severe pre-eclampsia, Eclampsia, HELLP syndrome, Eclampsia with cerebrovascular complications, cases of gross anaemia Hb <5gms/dl, Intra uterine foetal death/severe IUGR, Abruptio placenta.

On admission, detailed history regarding age, parity, period of gestation, signs and symptoms, obstetric and family history was recorded from the patient or patient's attendant, as appropriate. General physical, obstetric and pelvic examinations were carried out. Investigations like complete blood picture, liver function tests, renal function tests, coagulation profile, fundoscopy, platelet count, and 24 hour urinary protein were performed in all the patients. Foetal

Doppler, NST twice weekly also included. Nifedipine and labetalol and methyldopa were antihypertensive of choice depending on the control MgSO<sub>4</sub> is the drug of choice for controlling convulsions in eclampsia, phenitoin sodium was used where MgSO<sub>4</sub> was contra indicated. Severe cases of preeclampsia and eclampsia, Abruptio, cerebral, pulmonary & hepatic failure, cardiovascular complications were managed in obstetric ICU with continuous monitoring, platelet and FFP infusions were given when indicated intensive anti-hypertensive therapy & continuous foetal surveillance was made. Decision for continuation or termination of pregnancy and method of termination was taken as per standard department protocols. Mechanical ventilatory support was given as and when required. All Neonates with low birth weight, IUGR and prematurity are managed in Neonatal Intensive Care Unit.

## 3. Inclusion Criteria

All Cases of pre-eclampsia & its complications of >20 wks gestation and age group between 18yrs to 40yrs were included

## 4. Observations and Results

During the period of six months from March 2016 to August 2016 total number of antenatal cases attended to antenatal OPD were 4143, and emergency delivery room were- 3893 cases. Total number of deliveries during this period were 3702, among these, 492 were preeclampsia and eclampsia (13.2%) which were taken in to the study. The observations and results were tabulated

**Table 1:** According to Age, Parity, Gestational period at the onset

Maternal age (years)			Parity		Gestational age (weeks)		
<18	4	0.8%	Primi	260	53.25%	20-24	28
19-24	314	63.82%	G2	124	25.2%	20-28	32
25-29	141	28.6%	G3	84	17.07%	29-32	31
30-34	26	5.2%	>G4	24	4.8%	33-36	64
35-40	7	1.4%				>37 wks	337
							68.7%

**Table 2:** Method of Induction and Mode of Delivery

Mode of induction		Mode of delivery	
Spontaneous	11	Vaginal	256
Induced	89	LSCS	219
Oral misoprostol	48.4	Instrumental	17
PGE1 gel	0.4%	Hysterotomy	10
Foleys catheter	3.6%		0.2%

**Table 3:** Maternal and Foetal Complications

Maternal Complications			Foetal Complications		
Eclampsia	65 cases	(13.2%)	Low Birth Weight	128 cases	(26%)
HELLP	13 cases	(2.6%)	IUGR	11 cases	(2.23%)
Abruption Placenta	19	(3.8%)	Preterm	77 cases	(15.6%)
Pulmonary Oedema	18 cases	(3.6%)	Poor APGAR	30 cases	(6.7%)
Cerebral Haemorrhage	2 cases	(0.4%)	IUFD	29 cases	(5.8%)
Acute Kidney Injury	2 cases	(0.4%)	Neonatal Deaths	28 cases	(5.6%)
DIC	1 cases	(0.2%)	Perinatal Mortality	57	(11.5%)
Maternal Deaths	16	(3.2%)			

## 5. Discussion

Among 492 cases, 427 were Pre-Eclampsia (86.8%) and 65 cases are Eclampsia (13.2%). Majority of patient were unbooked (85%), belong to low socio economic status (86%), and 445 (92%) were between 19-30yrs of age. and

260 (53.25%) are Primi gravida, 214 (25.2%) are 2nd gravida. In 81.7% of cases the gestational period at the time of onset was between 33-37weeks and 6.3% between 28-32weeks, and between 24-28weeks was 6.5% and below 24weeks was 5.6%. Most common symptom was headache

(84%), Convulsions in (13.2%). Out of 492, 65 cases were eclampsia (13.2%), 13 cases were HELLP syndrome (2.6%), 19 cases abruption (3.8%), 18 cases were Pulmonary oedema /PPCM /heart failure (3.6%), 2 cases- cerebral haemorrhage (0.41%), 2 cases developed Acute Kidney Injury (0.4%), 1 case went in to DIC (0.2%). Labour was induced according to standard protocol of the department and Caesarean section was done as per obstetric indications Labour was spontaneous in 24 cases (4.9%). Induction was by misoprostol both oral and vaginal, foley's bulb, oxytocin, and extra amniotic ethacredil lactate, 256 were vaginal deliveries and 219 were LSCS, and one patient died undelivered, 10 cases by Hysterotomy. Maternal deaths were 15 (3.04%), and perinatal deaths were 57 (11.5%). The cause of maternal deaths was cerebral haemorrhage in 2 cases (0.4%), pulmonary oedema in 5 cases (1%), AKI in 2 cases (0.4%), severe blood loss with abruption in 3 cases (0.6%), pulmonary embolism in 3 cases (0.6%), DIC in 1 case (0.2%). All these women were brought in moribund condition, no efforts could save them. Perinatal deaths include IUFD 29 cases (5.8%) and neonatal deaths were 28 cases (5.6%), and cause of death being prematurity.

## 6. Conclusion

Evidence tells us that pre-eclampsia is dynamic process. Diagnosing a woman's condition as 'mild pre-eclampsia' is not helpful because it is a progressive disease, progressing at different rates in different woman. Appropriate care requires frequent reevaluation for severe features of the disease and appropriate action should be taken according to the guidelines. There is a very high maternal and perinatal mortality and morbidity in patients who had no antenatal care. Good antenatal care could have been prevented severe preeclampsia and eclampsia to some extent. Prediction, prevention, timely diagnosis, and good prenatal supervision can prevent eclampsia to a large extent and appropriate treatment will ameliorate many cases sufficiently so that maternal and foetal outcome is satisfactory. Thus it is suggested that developing countries have to go a long way to create awareness about importance of antenatal checkups and take measures for implementation

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