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"Maternal Outcome in Pregnancies With Preeclampsia-A Hospital Based Cross Sectional Study."

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Abstract
Background: *Preeclampsia has remained a significant public health threat in both developed and developing countries contributing to maternal and perinatal morbidity and mortality globally, in spite of advancements in medical sciences.*
Objective: *To determine the maternal outcome in pregnancies with preeclampsia.*
Methods: *A hospital based cross-sectional study was conducted in tertiary care hospital in North Karnataka, India from June 2012 to December 2012. A pre-designed structured Performa was prepared and 85 (n=85) eligible women were interviewed to collect necessary information. The data was entered in SPSS 20 version software and analyzed for maternal outcome.*
Results: *This study showed that preeclampsia occurs mainly in younger age group (85.90%), rural background (80%), lower socioeconomic status (69.40%), nulliparous women (60%). Labour was induced in 81.20% of the preeclampsia cases and 57.60% cases underwent LSCS.*
Conclusion: *The younger age and first pregnancy are probable risk factors for preeclampsia. Severity of preeclampsia adversely affects the perinatal outcome, necessitating early recognition and treatment of mild preeclampsia.*
Keywords: *IUD, maternal mortality, maternal outcome, perinatal mortality, preeclampsia.*

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I. Introduction

Preeclampsia has remained a significant public health threat in both developed and developing countries contributing to maternal and perinatal morbidity and mortality globally.[1] Preeclampsia, a human-pregnancy-specific disorder is defined as the occurrence of hypertension and significant proteinuria in a previously healthy woman on or after the 20th week of gestation. Risk factors for preeclampsia include nulliparity, multifetal gestations, previous history of preeclampsia, obesity, diabetes mellitus, vascular and connective tissue disorders like systemic lupus erythematous and antiphospholipid antibodies, age >35 years at first pregnancy and smoking. Among primiparous women, there is a disparity among ethnic groups as the risk in African American women is twice that of Caucasian women, and the risk is also very high in women of Indian and Pakistani origin.[2]The global incidence of preeclampsia has been estimated at 5-14% of all pregnancies. Among all cases of the preeclampsia, 10% occur in pregnancies of less than 34 weeks' gestation. WHO estimates the incidence of preeclampsia to be seven times higher in developing countries (2.8% of live births) than in developed countries (0.4%). In developing nations, the incidence of the disease is reported to be 4-18%, with hypertensive disorders being the second most common obstetric cause of stillbirths and early neonatal deaths in these countries.[1,3, 4]Preeclampsia (PE) is a major pregnancy complicationresulting in further complications like abruptio placentae, premature delivery, [2,3,4]foetal growth restriction and intrauterine foetal demise with increased maternal and perinatalmorbidity and mortality. Since not many studies on preeclampsia have been carried out in this part of Karnataka, this study was undertaken to determine the maternal outcome in pregnancies with preeclampsia.

II. Materials And Methods

A hospital based cross-sectional study was conducted for a period of six months in the Department of Obstetrics &Gynaecology in tertiary care hospital in North Karnataka, India from June 2012 to December 2012 and convenient sampling procedure was used.Sample size was calculated using the formulan=4pq/ d^2.Since p=prevalence 30%,from previous studies q= (100-p) =70, d=10. Therefore n=4x30x70/100=84. The sample size is 85.Eligible pregnant women including both registered and unregistered, diagnosed to have preeclampsia,

admitted to this tertiary care hospital during the study period were enrolled for the study. Informed consent of each eligible pregnant woman was taken prior to data collection. On admission, a detailed history was taken. A pre-designed structured Performa was used to interview eligible women and clinical examination findings & investigations performed were noted. Exclusion criteria (Twin pregnancy, bad obstetric history, eclampsia, severe anemia, diabetes, cardiac diseases) were followed meticulously as per hospital records and investigations. The eligible preeclampsia pregnant women were followed up to delivery and were noted for the type of labour, preterm labour and other complications during delivery. Ethical clearance was taken from the Institutional Ethics Committee on Human Subjects Research to conduct the study. The data was compiled, coded and entered in SPSS 20 version software and analyzed for Rates and Ratios of maternal outcome.

III. Results

In present study majority (85.9%) of the PE cases were seen in the age group of 20-30 years followed by 9.4% in more than 30 years age group .Among 85 study participants 68 (80%) cases were from rural background. There was almost equal number of primigravidae (49.40%) and multigravidae (50.60%). Most(60.0%) of the PE cases were nulliparous, (Table No 1).

Table No 1: Distribution of PE cases according to their age, area of residence and gravidity.

	Frequency	**Percentage (%)**
Distribution of study participants according to their age (in years)		
<20	4	4.7
20-30	73	85.9
>30	8	9.4
Distribution of study participants according to their residence		
Rural	68	80.0
Urban	17	20.0
Distribution of study participants according to their gravidity		
1	42	49.4
2	25	29.4
3	11	12.9
4	4	4.7
5	2	2.4
6	1	1.2
Total	**85**	**100**

There were around 42(49.4%) cases with severe proteinuria followed by 25(29.4%) cases with mild proteinuria and 18(21.2%) cases with moderate proteinuria. Out of 85 PE cases, most of them had severe preeclampsia i.e., 55(64.7%). Mild preeclamptic cases were only 30(35.3%),(Table no 2).

Table No 2: Distribution of PE cases according to various characteristics of maternal outcomes**.**

Distribution of study participants according to their severity of proteinuria		
+	25	29.40%
++	18	21.20%
+++	42	49.40%
Distribution of study participants according to their diagnosis		
Mild preeclampsia	30	35.30%
Severe preeclampsia	55	64.70%
Distribution of study participants according to their mode of delivery		
Spontaneous	16	18.80%
Induced	69	81.20%
Distribution of study participants according to their route of delivery		
Vaginal delivery	36	42.40%
Caesarean section	49	57.60%

Table No 3: Distribution of PE cases according to their mode of delivery.

Preterm Delivery	**Frequency**	**Percentage**
Mild PE	12	26.70
Severe PE	33	73.30
LSCS	**Frequency**	**Percentage (%)**
Mild PE	15	30.60
Severe PE	34	69.40

Labour was induced in 69(81.2%) of the PE cases while only 16(18.8%) of the cases went into spontaneous labour. Out of 69 cases 49 (71.0%) cases ended with LSCS. In severe PE 46(66.70%) cases were induced labour and in mild PE 23(33.30%) cases were induced labour. Out of 85 PE cases, 36 (42.40%) cases had vaginal delivery whereas 49 (57.60%) cases underwent caesarean section. In severe PE majority of the cases (69.40%) underwent caesarean section (LSCS) and in mild PE 30.60% of the cases underwent LSCS. There was almost equal number of preterm and full term deliveries. Preterm deliveries were 45(52.90%) and full term deliveries were 40(47.10%).

IV. Discussion

The present study provides the insight on the maternal outcome in pregnancies with preeclampsia .Majority (85.90%) of the PE cases were seen in the age group of 20-30 years, ranging from 17 to 45 years and 68(80.0%) were from rural background Dr. J B Sharma et al carried out a multi-centric retrospective study in four hospitals of New Delhi and got similar age groups affected by preeclampsia. In their study the mean age was 27.2 years. [6]Mehul T Parmar et al carried out a cross-sectional study in NHL municipal college, Ahmadabad and found that the incidence of PIH was more among teenage pregnancies. [7]Vidyadhar B Bangal et al carried outprospective randomized study in Pravara Rural Hospital, Loni and got similar results. In their study majority of the cases were from rural background.[8]In the present study almost equal number of primigravidae and multigravidae whereas a study conducted by Mehul T Parmar et al in Ahmedabad showed higher incidence of PIH in primigravidae.[7]This studyshowed thatmost (60.0%) of the PE cases were nulliparous.Dr. J B Sharma et al reported the mean parity of 1.6 in their study.[6] J Nadkarni et al conducted a prospective study in and their results showed 267 (65.9%) were nulliparous women.[9]This was in agreement with our study.Hnat MD et al carried out a secondary analysis of data in the University of Cincinnati, USA in 2001. In their study the rates of preeclampsia and of severe preeclampsia were significantly higher in the previous preeclamptic group as compared to the nulliparous group; this was in contrast to our study. [10]The study findings revealed that 42(49.4%) cases had severe proteinuria. Ferrazzani S et al carried out a study in 1990 to determine the role of proteinuria on pregnancy outcome and found that the presence of increased proteinuria (greater than 0.3 gm/L) predicted an adverse pregnancy outcome which was comparable to our study.[15]Mehul T Parmar et al carried out a cross-sectional study in NHL municipal college, Ahmadabad and found higher degree of proteinuria as a risk factor which was in agreement with our study. [7]In the present study most 55(64.7%) had severe preeclampsia. RekhaSachan et al carried out a case-control study in King George's Medical University, Lucknow, Uttar Pradesh and found 32 severe preeclampsia cases which was in contrast to our study. [11]Yucesoy G. et al carried out a retrospective analysis at Kocaeli University. They reported 54.1% severe preeclampsia cases and 34.5% mild preeclampsia cases which were comparable to our study. [12]In the present study, labour was induced in 69(81.2%) of the PE cases while only 16(18.8%) of the cases went into spontaneous labour. Yadav S et al carried out a case controlled prospective study at Safdarjang Hospital in New Delhi, in their study labour induction was 52.8%.[13]In present study 36 (42.40%) cases had vaginal delivery whereas 49 (57.60%) cases underwent caesarean section. In severe PE majority of the cases (69.40%) underwent caesarean section (LSCS) and in mild PE 30.60% of the cases underwent LSCS. In most of the cases the indication for caesarean section was uncontrolled hypertension. Yadav S et al carried out a case controlled prospective study at Safdarjang Hospital in New Delhi and reported 14.8% caesarean section.[13]Dissanayake VH et al carried out a study on nulliparous Sinhalese women in Sri Lanka and reported a higher percentage i.e, 78% of caesarean section.[14]

V. Conclusion

Younger age and first pregnancy are probable risk factors for preeclampsia.Severity of preeclampsia adversely affects the maternal outcome, being much higher in severe preeclampsia. Early recognition and treatment of mild preeclampsia would definitely reduce the adverse outcomes of severe preeclampsia.

5.1 Limitation

The selection of the hospital was purposive.

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5Conflict of interest
Nil

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