

## RISK FACTORS OF SEVERE PREECLAMPSIA REMOTE FROM TERM

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### SUMMARY

In a hospital based case-control study, 70 consecutive cases presenting with severe preeclampsia remote from term were studied. Case control ratio was 1 : 1. The risk factor significantly associated were history of abortions, infertility, preeclampsia in previous pregnancy, urinary tract infection and hypertension in mother and/or preeclampsia in sister. The other possible risk factors for consideration were primigravidity, age less than 20 years, low socioeconomic status, greater weight and body mass index and lack of antenatal care.

### INTRODUCTION

An interesting recent observation is the occurrence of severe preeclampsia in increasing number of women remote from term. The clinical course in such patients is commonly associated with progressive deterioration in both maternal and fetal conditions. Perinatal mortality is particularly high. And about 45-65% patients stand a risk of preeclampsia in subsequent pregnancies (Desai and Chandrashekar 1988, Sibai B. M., et al 1990)

The incidence of preeclampsia in India is estimated to be about 10-15% of which about a third manifest with severe disease

attended by complication (Upadhyaya 1979). The present study was therefore undertaken in order to -

- 1) Identify risk factors associated with severe preeclampsia remote from terms
- 2) Study relative importance of different risk factors identified in such patient. This will make it possible to predict the disease & institute prophylactic therapy in proper time.

### MATERIAL AND METHODS

In a hospital based case control study conducted at the Department of Obstetrics and Gynaecology of the Government Medical College, Nagpur from 01.10.1991 to 30.09.1992, 70 consecutive cases presenting with severe

preeclampsia were studied. A subject was considered eligible provided she fulfilled the following criteria :

- a) Period of gestation less than or equal to 34 weeks as calculated by LMP.
- b) Systolic blood pressure (SBP) was  $\geq 160$  mmHg and diastolic blood pressure (DBP) was  $\geq 110$  mmHg, on at least two occasions, 6 hours apart, with or without proteinuria (300 mg/24 hrs or 2+ or more on dipsticks examination) and/or edema.
- c) Pregnancy was singleton and viable.

The control group comprised patients who delivered immediately after the case and had remained normotensive throughout the pregnancy, labour and 48 hours postpartum. Case control ratio was 1 : 1.

Cases and controls were interviewed by the same investigator using standard questionnaire. Inquiry regarding history of chronic hypertension, UTI, renal disease, migraine, Rayanand's phenomenon, intermittent claudications and thromboembolic episodes was made. A family history of hypertensions, hypertension in mother and pre eclampsia in sister was elicited. The patient was also asked about duration of infertility, early pregnancy losses and preeclampsia in previous pregnancy.

Data regarding delivery events, fetal outcome and maternal complications were recorded in a predesigned, coded proforma. The sample size was worked out to be 62 by Schelesselman's formula in each of cases and control groups. Statistical analysis was done by Z test for testing the difference between two means. Odds Ratio and 95% confidence interval was calculated by Woolf's formula.

## RESULTS

Table I illustrates the demographic details of the subjects studied. Those with severe pre eclampsia remote from term

were significantly heavier and had greater body mass index but were no different from controls regarding height, age distribution and socioeconomic status.

The cases however had a greater number of subjects who were primigravidae and significantly associated with previous history of abortions, infertility, urinary tract infection, preeclampsia in previous pregnancy and history of hypertension in mother or preeclampsia in sister.

Table II shows that the risk of severe preeclampsia remote from term was more in primigravidae as compared with G2 (1.90) and G3 or more (2.25), in those who were less than 20 years of age as compared with those between 21 to 25 years (2.16) and those more than 25 years (1.79) and in subjects belonging to the lower socioeconomic strata as compared with those who belonged to middle class (1.72) and upper class (1.660 times risk.

It also shows that those with history of abortion are 3.61, history of infertility 5.29, history of urinary tract infection 8.5, history of preeclampsia in previous pregnancy 9.14, history of hypertension in mother or preeclampsia in sister 10.2 times risk of development of severe preeclampsia remote from term.

Above 90% of cases delivered vaginally and 1.4% required assistance with low forceps. The cases showed a statistically significant number of low birth weight babies ( $1.61 \pm 502$  gm) as compared with controls ( $2600 \pm 451$  gm) ( $p < 0.01$ ). There were no perinatal losses in the control group while the cases had 16 still births and 13 neonatal deaths. Abruption placentae was observed in 3 cases, and there were no other complications in cases/controls.

## DISCUSSION

The data collected to not allowed the incidence of severe preeclampsia remote from

Table I

## Risk Factor Associated with Severe Pre Eclampsia Remote from Term

Risk Factor	Cases (N = 70)	Control (N = 70)
Height * meters	1.48 ± 0.06	1.49 ± 0.52
Weight * (Kg)	47.70 ± 6.26	42.5 ± 5.80
Body mass index* (Kg/m <sup>2</sup> )	33.64 ± 1.99	21.55 ± 1.81
Age #		
< = 20 years	6 (8.86)	3 (4.28)
21 - 25 years	45 (64.3)	51 (72.85)
> = 26 years	19 (27.1)	16 (22.87)
S. E. Status #		
Upper	7 (10.0)	7 (10.00)
Middle	58 (82.82.8)	60 (85.71)
Lower	5 (7.2)	3 (4.28)
Gravidity #		
1	39 (55.7)	27 (38.57)
2	22 (31.4)	29 (41.42)
> 2	9 (12.9)	14 (20.00)
H/o Abortions #		
Yes	10 (342.3)	5 (11.6)
No	60 (67.7)	65 (88.4)
H/o Infertility #		
Yes	17 (24.3)	4 (5.7)
No	53 (75.7)	6 (94.3)
H/o Preeclampsia #@ in Prev. Preg.		
Yes	15 (48.4)	4 (9.3)
No	55 (78.6)	
H/o UTI #		
Yes	14 (20.0)	2 (2.9)
No	56 (80.0)	68 (97.1)

\* Figures indicate mean ± S.D.

# Figures in parentheses indicate percentages.

@ For this factor only cases = 70, no controls.

Table II

**Relative Significance of Risk Factors Associated with Severe Preeclampsia  
Remote from Term**

Risk Factors	Significance		
Variable	Z values	OR	95% CI
Height (meters)	0.16 (p > 0.05)		
Weight (kg)	5.14 (p < 0.01)		
Body mass index (Kg/m <sup>2</sup> )	6.53 (p < 0.01)		
Age (Years)			
< 20 Vs 21-25		2.16	0.51 - 9.14
< 20 Vs > 26		1.79	0.39 - 8.29
SES			
Lower Vs Middle		1.72	0.52 - 5.64
Lower Vs Upper		1.66	0.28 - 9.78
Gravidity			
Primi Vs G2		1.90	0.90 - 3.98
Primi Vs >G3		2.25	0.85 - 5.94
H/o Abortions		3.61	1.1 - 11.97
H/o Infertility		5.29	1.68 - 16.7
H/o UTI		8.5	1.85 - 38.99
H/o Preeclampsia in Prev. pregnancy		9.14	2.63 - 31.8
H/o Hypertension in mother, preeclampsia in sister		10.2	2.88 - 36.02

from term to be calculated because hospital admission cannot be related to a single population base. (Moore and Redman 1983) found no significant difference in weight, height and body mass index. Our cases weighed more. Primigravidity, low socioeconomic class and unbooked status which are known epidemiological factors responsible for P. I. H. were also operative for those

with severe preeclampsia remote from term. The importance of unbooked status as a risk factor cannot be emphasized with certainly since patients developing severe preeclampsia early will understandably have fewer antenatal visits as compared to those presenting later.

A statistically significant association was noted with history of abortion, infertility,

urinary tract infection preeclampsia in previous pregnancy, hypertension in mother or preeclampsia in Sister and occurrence of severe pre eclampsia remote from term. None of the cases delivered a baby > 2500 gm birth weight. (Sibai 1984, 1985) reported a zero perinatal survival when severe preeclampsia affected at or before 28 weeks of gestation. Similar finding was also made in our study.

The literature is replete with simple time-tested methods for predicting preeclampsia (Chesley L. C. 1978, Campbell and Carrhill 1983). A judicious combination of valid predictive test along with identification of risk factors could target the population who could benefit immensely from early institution of prevention therapy. Risk factors identification are invaluable for their simplicity and universality of use.

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