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SOCIO-DEMOGRAPHIC PROFILE IN PREECLAMPSIA

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Abstract
Background: Pre-eclampsia is a complex multisystem condition. It affects 3-5% of all prenancies.It is defined as new onset hypertension after twenty weeks of pregnancy plus involvement of at least one organ system-renal, hepatic, neurological, hematological, pulmonary or cardiac system or as utero-placental dysfunction
Methods: This was a hospital based comparative analytical cross sectional study carried out over 2 years period from may 2019 in the Department of Obstetrics and Gynecology, SMS Medical College and attached hospitals, Jaipur.
Results: The mean age of cases (27.36 ± 3.66 years) was higher than the controls (23.43 ± 3.23 years). There was not much difference in the distribution of subjects according to residence. In the study group 26 (57.78%) women belonged to urban areas and 19 (42.22%) belonged to rural areas whereas in the control group, 26 (62.22%) women belonged to rural areas and 17 (37.78%) belonged to urban areas. There were more primigravida in pre eclamptic group compared to the control group.
Conclusion: Identification of risk factor in the antenatal period helps in early detection of women who are at high risk of developing pre-eclampsia in order to reduce maternal morbidity and mortality.
Keywords: Preclampsia, Age, Gravida

Introduction:

Pre-eclampsia is a complex multisystem condition. It affects 3-5% of all prenancies[1].It is defined as new onset hypertension after twenty weeks of pregnancy plus involvement of at least one organ system-renal, hepatic, neurological, hematological, pulmonary or cardiac system or as utero-placental dysfunction.

It not only increase the risk for maternal and perinatal morbidity and mortality, but also represents a risk factor for further hypertension, ischemic heart disease, stroke and premature cardiovascular death in women. It has been associated with intrauterine growth retardation, preterm birth, maternal and perinatal death.

In pregnancy, the cardiovascular system has to adapt to a state of chronic volume overload. The cause and risk factors for preeclampsia are unclear, however the factors that have been postulated to influence the risk of preeclampsia includes obesity, multiple pregnancy, primiparity, personal and family history of preeclampsia ,and chronic hypertension. Screening for risk factors of pre-eclampsia or gestational hypertension may give insight into an individual's cardiovascular risk profile.

Material & Methods

This was a hospital based comparative analytical cross sectional study carried out over 2 years period from may 2019 in the Department of Obstetrics and Gynecology, SMS Medical College and attached hospitals, Jaipur.

The study included two groups consisting of 45 women in each group match with age and gestational age.

Group-A: 45 women with singleton pregnancy with gestational period of ≥34 weeks with preeclampsia.

Group-B: 45 normotensive women with singleton pregnancy with gestational period of ≥34 weeks.

Women with singleton pregnancy, ≥34 week's gestation normotensive pregnant, ≥34 weeks gestation with preeclampsia and women willing to participate were included in the study.
Subjects with any renal disease, chronic hypertension, cardiovascular disease, Congenital cardiac disorder of pregnant and obesity were excluded from the study.
After applying inclusion and exclusion criteria informed written consent were taken and women willing to participate in this study were recruited from routine antenatal clinic. Approval from Institutional Research, Review Board and Ethical Committee was taken. The data was collected using preset questionnaire including information regarding socio-demographic characters, past history, personal history and family history of this disease related variables. Data was compiled in Microsoft excel and analysed. Linear variables were summarized as mean and standard deviation whereas nominal/categorical variables were expressed as proportional (%). Unpaired t test and others parametric test were used for analysis of linear variables while nominal/categorical variables were analyzed by using chi square test and Fisher exact test.

p-value <0.05 was taken as significant. Medcalc 16.4 version software was used for all statistical calculations.

Results

The study subjects included 45 pre eclamptic women and 45 controls.

Socio-demographic characters: The mean age of cases (27.36 ± 3.66 years) was higher than the controls (23.43 ± 3.23 years). There was not much difference in the distribution of subjects according to residence. In the study group 26 (57.78%) women belonged to urban areas and 19 (42.22%) belonged to rural areas whereas in the control group, 26 (62.22%) women belonged to rural areas and 17 (37.78%) belonged to urban areas. There were more primigravida in pre eclamptic group compared to the control group. Pre-eclamptic women had higher mean weight (75.89 ± 8.04) as compared to control group (67.71 ± 7.36). The difference was statistically significant. In the study group, 24 (53.33%) women had BMI>25 kg/m² and 21 (46.67%) women had BMI between 18-25 kg/m² whereas in the control group, 19 (42.22%) women had BMI >25 kg/m², 25 (55.57%) had BMI between 18-25kg/m² and 1 (2.22%) had BMI <18 kg/m². The difference in BMI was statistically significant.

Table 1: Distribution of subjects according to mean age

Group	Mean Age (in years)	SD
Case	27.36	3.66
Control	23.43	3.23

t-test=28.04, p-value=0.001

Table 2: Distribution of subjects according to residence

Residence	Case		Control	
	N	%	N	%
Rural	19	42.22	28	62.22
Urban	26	57.78	17	37.78

chi-square=9.60, p-value=0.02

Table 3: Distribution of subjects according to gravidity

Gravidity	Case		Control	
	N	%	N	%
G1	28	62.22	23	51.11
G2	7	15.56	17	37.78
≥G3	10	22.22	5	11.11

chi-square=6.32, p-value=0.04

Table 4: Distribution of subjects according to mean weight (in kg)

Group	Mean Weight(in Kg)	SD
Case	75.89	8.04
Control	67.71	7.36
t test	25.32	
p value	<0.01*	

Table 5: Distribution of subjects according to BMI

BMI (kg/m^2)	Case		Control	
	N	%	N	%
<18	0	0	1	2.22
18-25	21	46.67	25	55.56
>25	24	53.33	19	42.22
Mean ±SD	25.22±2.48		23.11±2.40	
t test	8.21			
p value	0.02*			

Discussion

This case–control study aims to identify the risk factors of pre-eclampsia related to socio-demographic profile.

The association between the mean age group and pre-eclampsia was less prominent but there was a difference in mean age between the two groups. Higher incidence of pre-eclampsia was found in old ages >25years. Similar results were found in the study done by Memari B et al (2018)[2]. They noted a significant difference in mean age between the pre-eclamptic and normotensive pregnant women (32.86 ± 4.96 years v/s 30.00 ± 5.92 years).

The study suggests that incidence of pre eclampsia is more in primi garavidas as compared to multigravidas. Similar results were obtained in the study done by Buddeberg BS et al (2018)[3]. They studied 30 pre-eclamptics and 40 normotensive pregnant women.63% of pre-eclamptic group were nulliparous as compared to 40% women in control groups.

The study shows that mean weight was higher in the pre-eclamptic group as compared to control group and the difference was statistically significant (p-value <0.01).

Another finding showed that pre-eclamptic group had higher BMI compared to control group. 53.33% cases had BMI >25 kg/m² as compared to 57.78% control group had BMI <25 kg/m². This indicates the importance of BMI in the incidence of pre-eclampsia. Rizwana S et al (2011)[4] also observed a higher BMI in pre-eclamptic group as compared to the controls. The mean BMI in pre eclamptic group was 27.36 ± 7.02 kg/m² as compared to the 22.7 ± 3.77 kg/m² in the control group.

Conclusion

Identification of risk factor in the antenatal period helps in early detection of women who are at high risk of developing pre-eclampsia in order to reduce maternal morbidity and mortality.

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