Original Research Article

A study of clinical profile and factors associated with pre-eclampsia at tertiary health care center

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Abstract

Background: Pre eclampsia is one of the important factor contributing to maternal mortality. Early detection and treatment will be helpful in reducing the disease. **Aim and objective:** to study the clinical profile and risk factors associated with preeclampsia at a tertiary health care centre. **Methodology:** Total 200 patients were studied in two groups. First group was women who developed preeclampsia and group two was women used as controls were without preeclampias. Data collected with pre tested questionnaire. **Results and discussion:** Age<20 years, low income, early menarche ,I0 relative marriage, time b/w marriage and first conception, Gestational age> 30 weeks, h/o preeclampsia, family h/o preeclampsia, hypertension were significant risk factors for preeclampsia.
Key Word: pre-eclampsia.

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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].Globally, over half a million women die each year of pregnancy related causes and 99% of these deaths occur in developing countries [2]. Preeclampsia typically starts after 20th week of pregnancy and is related to increased blood pressure (BP≥140/90 mmHg) and protein in mother's urine (urinary albumin protein ≥300 mg/24 h). The clinical spectrum of preeclampsia ranges from mild to severe. Pre-eclampsia has been associated with increased risk of adverse fetal, neonatal and maternal outcomes including Antepartum and Postpartum haemorrhage, Acute renal and Hepatic failure, eclamptic seizures, stroke, Placental abruption, HELLP syndrome failure, DIC, Multiple organ failures and Maternal death.[3,4] Fetal complications include Fetal distress, Intrauterine growth retardation, Preterm birth, Stillbirth, Perinatal death and Neonatal asphyxia.[5,6] This study was conducted to study the clinical profile and risk factors associated with preeclampsia at a tertiary health care centre.

MATERIAL AND METHOD

A case control study was carried out in a tertiary health care center to find out factors associated with preeclampsia. Cases and control were selected in study population. Inclusion criteria: Cases were pregnant women diagnosed with preeclampsia. Controls were pregnant women without preeclampsia. Exclusion criteria[1]. those with renal disease[2]. Those with chronic hypertension and cardio vascular diseases[3].Those not willing to participate Pre-eclampsia was defined as a pregnancy induced hypertension associated with proteinuria. Pregnancy induced hypertension was defined as new hypertension with blood pressure of 140 mmHg systolic or diastolic pressure of 90 mmHg or greater arising after 20wk of gestation in a woman who was normotensive before 20wk of gestation. Proteinuria was defined as excretion of 300mg or more of protein in 24h urine sample. Cases were selected from pre-eclamptic

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ward and controls from outpatient section of Obstretics and Gynaecology department. Total 50 cases and 50 controls were selected. Study was approved by ethical committee. A written valid consent was taken from patients after explaining study to them. The data was collected using a pre-tested questionnaire. Data collection included socio-demographic data and clinical data including detailed history. Data analysis was done with appropriate statistical tests.

RESULTS

Table 1: Comparison between cases and controls according to socio demographic characters

Sr no	Sociodemographic characters		Cases	Controls	Odds ratio	P value
1	Age	<20 years	56(56%)	25(25%)	3.81	<0.05
2		>20 years	44(44%)	75(75%)		
3	Education	Illiterate	22(22%)	19(19%)	1.2	>0.05
4		Literate	78(78%)	81(81%)		
5	Occupation	Unemployed	83(83%)	81(81%)	1.1	>0.05
6		Employed	17(17%)	19(19%)		
7	Monthly income	< 5000	80(80%)	37(37%)	6.8	<0.05
8		>5000	20(20%)	63(63%)		
9	Family type	Nuclear	18(18%)	72(72%)	0.08	<0.05
10		Joint	82(82%)	28(28%)		

Table 2: Comparison between cases and controls according to maternal characters

Sr no	Maternal characters		Cases	Controls	Odds ratio	P value
1	Age at menarche	<12 years	83(83%)	28(28%)	12.55	<0.05
2		>12 years	17(17%)	72(72%)		
3	Marriage with I^{O} relative	Yes	78(78%)	20(20%)	14.18	<0.05
4		No	22(22%)	80(80%)		
5	Age at marriage	< 18 years	20(20%)	21(21%)	3.7	<0.05
6		>18 years	80(80%)	79(79%)		
7	Time period between marriage and first conception	<12 months	81(81%)	24(24%)	13.5	<0.05
8		>12 months	19(19%)	76(76%)		
9	Gestation age	20 -30 weeks	67(67%)	03(3%)	44.82	<0.05
10		>30 weeks	33(33%)	97(97%)		
11	Family H/O PIH	Yes	61(61%)	04(4%)	37.53	<0.05
12		No	39(39%)	96(96%)		
13	H/O PIH	Yes	60	04	36	<0.05
14		No	40	96		

In table 1, mean age of cases (23.31 years) was less than the controls (25.71years). Pregnant women with age less than 20 years had 3.8 times more risk of developing preeclampsia than more than 20 years. Proportion of literate in cases was 78% and among controls was 81%. There was less difference in proportion of illiterate among cases (22%) and controls (19%). Proportion of employed patients was similar in both cases (17%) and controls (19%). Proportion of family income less than 5000 Rs was more in cases (80%) than controls (37%). This difference was statistically significant ($p < 0.05$). Among cases 82% patients belonged to joint family and 18% belonged to nuclear family. Among controls 28%% patients belonged to joint family and 72% belonged to nuclear family (table1). Mean systolic blood pressure was 150±23.6 mm Hg in cases and it was 123±18.6 mm Hg in controls. This difference was statistically significant.($p<0.05$) similarily Mean diastolic blood pressure was 90±12.6 mm Hg in cases and it was 76±15.9 mm Hg in controls. This difference was statistically significant. ($p<0.05$)

Table 2 showed comparison between cases and controls according to maternal characters. Women who had menarche at age of less than 12 years were having 12.55 times more chances of developing pre-eclampsia than to those who had menarche after 12years of age. Women who married their first degree relative were at 14.18 times more risk of developing pre-eclampsia compared to those who did not marry their first degree relative. Women who married before age of 18 years were at 3.7 times more risk of developing pre-eclampsia compared to those who married after 18 years. Women who had their first

conception within one year of their marriage were at risk of developing pre-eclampsia more than 13 times compared to those who had their first conception after one year of marriage. Gestational period of more than 30weeks was significantly associated with pre-eclampsia compared to gestational period between 20–30weeks. Family history of pre-eclampsia, diabetes and hypertension were significantly associated with pre-eclampsia. The pregnant women with family history of PIH were having 37 times greater risk being preeclamptic than those without such history. odds of having preeclampsia as compared to those who had no such history. Women with previous history of preeclampsia had greater odds than without such history. (OR= 36)

DISCUSSION

Pregnant women with age less than 20 years had 3.8 times more risk of developing preeclampsia than more than 20 years. This may be due to the failure of the normal invasion of trophoblastic cells leads to mal adaptation of the spiral arterioles, which are related to the causation of pre-eclampsia[7]. Some of the studies showed that advanced maternal age is contributing factor for development of preeclampsia.[8,9] Lower socioeconomic status was significant risk factor in development of preeclampsia in our study. Similar findings were observed in Najman JM *et al* [10] and Ceron-Mireles P *et al* [11]. women with early menarche were having 12.55 times more chances of developing pre-eclampsia than to those with late menarche. Similar findings were observed in Dejener F *et al.*[12] Women who married their first degree relative were at 14.18 times more risk of developing pre-eclampsia compared to those who did not marry their first degree relative. Similarily ramesh K *et al* observed marriage with first degree relative was important risk factor in preeclampsia[13]. In our study Women who had their first conception within one year of their marriage were at risk of developing pre-eclampsia more than 13 times compared to those who had their first conception after one year of marriage. Similar findings were observed in previous studies.[13] Gestational age of more than 30 weeks was more significant in developing preeclampsia. The pregnant women with family history of PIH were having 37 times greater risk being preeclamptic than those without such history. Similar results were observed in Kumar S *et al*[14,] Kirsten Duckitt *et al.*[9] and Mesviel P *et al.*[15] Women with previous history of preeclampsia had greater odds than without such history. (OR= 36) similar findings were observed in Laminapee *et al*[8.] and Conde *et al.*[16]

CONCLUSION

Age<20 years, low income, early menarche,[10] relative marriage, time b/w marriage and first conception, Gestational age> 30 weeks, h/o preeclampsia, family h/o preeclampsia, hypertension were risk factors for preeclampsia.

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