Study of Fetomaternal Outcome in Cases of Pre-Eclampsia

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Abstract

Introduction: Hypertensive disorders are among the most common medical disorders during pregnancy and continue to be a serious challenge in obstetric practice.Aims: This study investigated the various risk factors, fetal and maternal outcome in cases of preeclampsia.Study Design: This was a cross sectional study conducted over a period from January 2019 and June 2020. This study enrolled 100 cases of non severe preeclampsia and 100 cases of severe preeclampsia.Methods and Materials: Participants were selected by consecutive sampling and baseline data were collected by using a predesigned and pretested structured questionnaire. Data Analysis: Data were entered and analysed by using SPSS version 20.

Index terms— preeclampsia, hypertensive disorders, fetomaternal outcome.

1 Introduction

ypertensive disorders are among the most common medical disorders during pregnancy and continue to be a serious challenge in obstetric practice. About 10% of pregnancies are complicated by hypertensive diseases [1]. They are one of the deadly triad along with haemorrhage and infection [2].

Author: e-mail: amssdude@gmail.com These disorders comprise of spectrum of diseases that include pre-existing hypertension (i.e., Chronic Hypertension), gestational hypertension, preeclampsia, chronic hypertension with superimposed preeclampsia, eclampsia, and HELLP syndrome. Among these, preeclampsia syndrome either alone or superimposed on chronic hypertension, is the most dangerous.

WHO reported the incidence of preeclampsia to be in the range of 2-15% in India, and India has an average of 4.5% [3]. Eastern and north eastern states of India were reported to have highest incidence of preeclampsia [4].

Criteria for hypertension-During pregnancy, hypertension is defined as systolic blood pressure ?140 mmHg and/or diastolic blood pressure ? 90 mmHg. Severe hypertension is defined as systolic blood pressure ? 160 mmHg and / or diastolic blood pressure ? 110 mmHg.

Preeclampsia refers to the new onset of hypertension and proteinuria or the new onset of hypertension and significant end-organ dysfunction with or without proteinuria after 20 weeks of gestation or postpartum in a previously normotensive woman [5,6,7,8].

The diagnosis of preeclampsia with severe features is made when the women with preeclampsia who have severe hypertension and/or specific signs or symptoms of significant end organ dysfunction. The specific criteria are following [9].

2 d) Ethical consideration

The study was approved by the institutional ethics committee before commencing the study.

3 e) Data collection procedure

Data on socio-demographic variables and obstetric characteristics were collected by using predesigned and pretested structured questionnaire.

After admission in the antenatal ward, the patients were monitored for blood pressure, any imminent symptoms, proteinuria, fetal heart rate tracings. Details of labour, spontaneous or induced, and mode of delivery were recorded. Maternal complications were noted. Newborn's birth weight and condition at birth were recorded. All newborns were followed up to 7 days of their birth to determine the perinatal outcome. At the end of the study, the data was compiled and analyzed.

4 f) Data analysis

Data were entered and analysed by using SPSS version 20. Significance of statistical association were tested at P-value <0.05.

5 III.

6 Results

7 a) Socio Demographic Factors

It was observed that preeclampsia was most common in the age group of 21 to 30 years, women living in rural area, low socioeconomic class and in women with unbooked antenatal history. There was significant association of preeclampsia with above socio-demographic variables (Table No: 1).

Maximum number of patients in the study were Primigravida (52.5%). 43.5% cases belonged to second, third and fourth gravida. 4% of cases in the study were grand multigravida (Gravida ?5).

Among the 200 patients with pre-eclampsia 8 % patients presented in gestational age of 28 to ?34 weeks, 13.5% were in the group of >34 to ?37 weeks, 78.5% were in >37 weeks.

Maximum number of patients were in gestational age >37 weeks.

8 b) Anemia

Most of the preeclampsia patients had anemia. Presence of anemia was statistically significant with the severity of preeclampsia. (Table **??**o:2) 159 patients (79.5%) were anemic according to WHO definition of anemia (<11 gm%).

9 c) Antihypertensive drugs

All the patients of severe pre-eclampsia (100%) needed Antihypertensive drugs and 50% of non severe pre-eclampsia needed Antihypertensive drugs.

10 d) Inj. MgSO4

Inj. MgSO4 was used in 79% of severe preeclampsia for eclampsia prophylaxis in those cases where BP couldn't be controlled with antihypertensive drugs. Out of 79 patients who received Inj.MgSO4, only one patient developed convulsions and 21 patients didn't receive any eclampsia prophylaxis, of these 3 patients developed convulsions.

11 e) Mode of delivery

50% patients had vaginal delivery, 50% had Caesarean section (Table No: 3).

12 f) Maternal outcome

Out of 200 cases of preeclampsia 134 patients (67%) had uneventful maternal outcome and in 66 patients (33%) the maternal outcome was eventful.

Although there was no statistical association between maternal outcome and severity of preeclampsia, the grave complications were more common in severe preeclampsia cases than in non severe preeclampsia cases.

The most common complication in the cases of preeclampsia was Post Partum Haemorrhage, which was observed in 15 cases (7.5%), the next common complication was Abruption, which occurred in 10 cases (5%).

HELLP Syndrome occurred in 7 cases of severe preeclampsia, Eclampsia in 4 cases, Pulmonary edema in 3 cases, Renal failure in 3 cases, Sepsis in 6 patients, Cerebrovascular Accident in 1 case and 11 patients needed ICU care.(Table No:4). Maternal mortality occurred in 2 cases (1%).

13 g) Fetal Outcome

Of the 200 babies 73.5% (81 from non severe and 66 from severe pre-eclampsia) were full term alive babies, preterm were 20.5% (41 babies), 4% (8 babies) IUD and 2% (4 babies) stillbirth. Early neonatal death occurred in 4.5% babies (9), 26% (52) babies were low birth weight, 18.5% were Growth restricted, 5.5% babies had Neonatal jaundice and 18.5% babies were admitted in Neonatal Intensive Care Unit. (Table No: 5) IV.

14 Discussion

In our study majority of patients (68%) belonged to the age group of 21 to 30 years. Similar result was obtained by Kari Annapurna et al [22], Singh et al [23], Neha Kumari et al [16] and Dr. J B Sharma et al [24]. This is because most of the patients in our country get pregnant at this age group only.

There was preponderance of primigravida in preeclampsia cases (52.5%) i.e., 56% in non severe cases and 52.5% in severe cases. This was comparable with the results observed by various authors by Rakesh Gadsa et al [24] (66.6%), Parveen M. Aabidha et al [18] (61.2%) and Kishwara et al [14] (63.3%). In most of the literature on preeclampsia, this has been reported that preeclampsia is common among the primigravida [10,11].The maximum

number of patients (78.5%) were in the gestational age ?37 weeks, which is almost similar to study by Dr Ashok Kumar Kumawat et al (72%) [23].

In our study anemia was present in 79.5% patients. In another study 55.9% were anaemic **?**41]. Awol Yamane Legesse et al [30] (2019) reported only 19.6% anemia. This is because the prevalence of anemia in Jharkhand is 78.45% among pregnant women [31] and anemia itself is a risk factor for developing preeclampsia.

In our study 73.5% patients had spontaneous labour, only 22% had induced labour which is similar to the study by Al Mulhim A.-A et al [12] (22.8%) and elective caesarean section was done in 4.5%.

In our study 50% (100 patients) delivered vaginally and 50% (100 patients) underwent Caesarean section. Similar to Aabidha et al [18] study in which 48.3% patients delivered by Caesarean section. Kari Annapurna et al [22] observed 57.6% Caesarean section. In another study 43% delivered by Caesarean section [26]. It is more when compared with other studies by Singh et al (21.4%) [19] and Rathore R, Butt NF et al [27] (15%).

It is also observed that there was no significant statistical association between the number of Caesarean sections and severity of preeclampsia. This is similar to the study by Juhi Patel et al [17]. The incidence of caesarean section was higher in our study because, in our institute most of the cases were referred complicated and previous caesarean section cases.

Prematurity was the most common complication associated with pre-eclampsia, which was seen in 20.5% cases. Similar results have also been observed by Aabidha et al [22] (23.65%). This is less when compared to the studies by Shaila Khan et al [13] (2013) and Muhammad Ashfaq et al. [21] (2018). In both studies prematurity was present in 52% cases. Prematurity as a complication of preeclampsia is either due to spontaneous preterm onset of labour or due to preterm induction of labour [14].

In the present study 16% babies had birth asphyxia. This is close to the study by Singh et al [23] (21.4). Aslam et al. [29] at Karachi (2014). Incidence of MSL and Fetal Distress were high in these cases.

In the present study 18.5% babies born to preeclampsia cases were growth restricted. This observation is similar to the study by Juhi Patel et al [17] (2015), in which 21% had IUGR babies. While Shaila Khan et al [13] and Vajira HW Dissanayake et al [32] observed 50% and 48% respectively.

The perinatal mortality was observed in 10.5% cases. similar result was also observed by Singh et al [23] (12.5%). Rakesh P.Gadsa et al [20] and Parveen M. Aabidha et al [18] observed perinatal mortality 17.4% and 15% cases respectively. However lower perinatal mortality was observed by Al Mulhim A.-A et al [12] (3.36%). This variability could be due to differences in availability of medical facilities. Main causes of fetal mortality were birth asphyxia, prematurity and IUGR.

15 a) Maternal outcome

The most common complication in the present study was post partum haemorrhage, which was observed in 7.5% cases. This is similar to the study by Dr Ashok Kumar Kumawat et al [23] (7%) and Aabidha et al [18] (10.75%). Preeclampsia patients lack normal pregnancy hypervolemia, are much less tolerant of even normal blood loss than are normotensive pregnant women [2].

The next most common complication in our study was Abruption, which was present in 5% cases. Almost similar incidences (5.6%) were noted by Baha M Sibai et al. [28] and Rathore R, Butt et al at Lahore [27] (4%). Hypertension in pregnancy is a most important risk factor for Abruption (10-50%) [10].

HELLP syndrome is a form of severe preeclampsia and is the most serious haematologic complications of preeclampsia [28]. In the present study 7% cases of severe preeclampsia developed HELLP Syndrome. It is comparable to the study by Vithal Kuchake et al [25] and Baba M Sibai et al [28] where HELLP syndrome developed in 8% and 8.6% patients respectively.

In our study, 2% cases developed convulsions. It is comparable to the study by Ashok Kumar kumawat et al (3%) [23] This is less when compared with studies by Juhi Patel et al [17] (36%), Rathore R, Butt et al [27] (26%), Vithal Kuchake et al [25] (10%) and Allilaj Minire et al [15] (3.25%). Less number of preeclampsia cases was attributed to the proper selection of cases eclampsia prophylaxis and timely administration of MgSO 4 . V.

16 Conclusion

This study highlights various risk factors for preeclampsia. Unbooked, young primigravida in advanced period of gestation are at greater risk for preeclampsia related morbidity and mortality.

Preeclampsia tends to threaten maternal health and fetal viability adding to maternal and neonatal morbidity & mortality. There is a high frequency of preeclampsia in our setting and consequences of preeclampsia for neonatal morbidity and mortality are alarmingly high. Treating and improving socioeconomic status will improve maternal and neonatal outcome in preeclampsia. Antenatal care and educating women on significance of symptoms will markedly improve perinatal morbidity and mortality.

Prematurity, growth restriction and Low birth weight are neonatal complications to be anticipated and dealt with, when the mother has preeclampsia. A good Neonatal Intensive Care Unit (NICU) will help to improve neonatal outcome. Prompt treatment and management of its complications will certainly improve maternal and fetal complications.

154   Reversing the present trend in maternal health seeking behaviour is therefore an issue that needs to be effectively addressed if significant improvement in maternal health is to be achieved. [1]

1

S.No.	Variables	Non-severe preeclampsia	Severe preeclampsia	Total	P
	Age in years			44 (22%) 136 (68%) 21 (10.5%)	P=>0.05
1.	<20 21-30 >30	20 24		143 (71.5%) 57 (28.5%) 0	P=>0.05
2.	Residence Rural Urban	71 9			P=>0.05
3.	Socioeconomic status Upper	65 11 76 24 67 33 0 0	Frequency		
	Upper middle	3	2	5 (2.5%)	
	Lower middle	14	8	22 (11)	
	Upper lower	22	32	54 (27%)	
	Lower	61	58	119 (59.5%)	
4.	Booking History				P=>0.05
	Booked	38	22	60 (30%)	
	Unbooked	62	78	140 (70%)	
5.	Gravidity				P=>0.05
	1	56	49	105 (52.5%)	
	2,3,4	41	46	87 (43.5%)	
	?5	3	5	8 (4%)	

Figure 1: Table 1 :

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2

S.No.	Anemia (Hb<11 gm%)	Non-Severe preeclampsia	Severe preeclampsia	Total
1	Not Anemic	33	18	51(25.5%)
2	Anemic	67	82	149(74.5%)

Chi square X 2 =4.10
P value=0.038   P= <0.05

Figure 2: Table 2 :

3

S.No.	Mode of delivery	Non Severe preeclampsia	Severe preeclampsia	Total
1	Vaginal delivery	54	46	100(50%)
2	Caesarean section	46	54	100(50%)

Chi square X 2 =1.28
P value=0.254   P= >0.05

Figure 3: Table 3 :

4

S.No.	Maternal complications	Non Severe Preeclampsia (N/%)	Severe Preeclampsia (N/%)	Total
1	PPH	12	3	15 (7.5%)
2	Abruption	2	8	10 (5%)
3	HELLP syndrome	0	7	7 (3.5%)
4	Sepsis/Infection	3	3	6 (3%)
5	Pulmonary edema	0	3	3(1.5%)
6	Acute Renal Failure	0	3	3 (1.5%)
7	Eclampsia	0	4	4 (2%)
8	CVA	0	1	1(0.5%)
9	ICU Admission	0	11	11(5.5%)
10	Death	0	2	2(0.5%)

CVA-Cerebro Vascular Accident; ICU-Intensive Care Unit;
PPH-Post Partum Haemorrhage

Figure 4: Table 4 :

5

S.No.	Fetal Outcome	Non Severe Preeclampsia (N/%)	Severe Preeclampsia (N/%)	Total
1	Full term alive baby	66	81	147 (73.5%)
2	Preterm alive baby	26	15	41(20.5%)
3	Intrauterine death	5	3	8(4%)
4	Stillbirth	3	1	4(2%)
5	Birth Asphyxia	15	17	32(16%)
6	Early neonatal death	7	2	9(4.5%)
7	Low birth weight babies	33	19	52(26%)
8	Newborn jaundice	7	4	11(5.5%)
9	IUGR	22	15	37(18.5%)
10	NICU Admission	23	14	37(18.5%)

IUGR-Intra Uterine Growth Restriction; NICU-Newborn Intensive Care Unit

Figure 5: Table 5 :

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16 CONCLUSION

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