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Trend in pre eclampsia

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ABSTRACT

Introduction: Pre eclampsia is a progressive disorder, in some circumstances; delivery is needed to halt the progression to the benefit of the mother and fetus. **Aim:** This study is designed to evaluate the incidence and effect of current interventional strategy for severe pre-eclampsia on maternal and perinatal outcome. **Materials and methods:** This is a cross-sectional study in Obstetrical and Gynecological department at Modern Govt. maternity hospital Hyderabad from January to August over a period of 8 months with sample size 285 cases in among 14085 deliveries. Cases were studied in relation to age, parity, level of antenatal care, gestational age, BP at the time of admission, investigations, complications, mode of delivery, mode of induction and perinatal outcome in all these cases. **Results:** Among 14085 deliveries in 8 months we had 285 pre-eclampsia cases, incidence percentage being 2.03%. Majority of women were in the age group of 20-25 yrs and majority of women gestational age >34 weeks. Almost half of the twin preeclampsia cases were unbooked cases. Majority of cases are in Primigravidae. Among 285cases, vaginal delivery occurred in 64% cases and LSCS in 37% cases. Severe pre-eclampsia is seen in all blood pressures. BP is controlled by giving oral Nifedepine, IV labetol and magnesium sulphate in all cases. Perinatal mortality is high with birth weight <1 kg in both vaginal and LSCS. In LSCS Total PNMR is 15.12%, while in induced vaginal delivery and non induced vaginal delivery PNMR is 42.2%, 37% respectively. According to gestational age total PNMR LSCS is12.26%, where as PNMR in induced vaginal delivery is 42.2% and in non induced cases PNMR is 37%. Maternal mortality rate observed is 2.1%, causes being pulmonary embolism, acute LVF, ARDS and DIC. **Conclusion:** Incidence of severe pre-eclampsia is 2.03% in deliveries, seen commonly in young women below 25 yrs of age, nulliparous, with no antenatal care and was seen maximum after 34 weeks of pregnancy. Many patients came with various complications which were efficiently managed by stabilizing and delivering them early. The BP was well controlled with Nifedepine or Labetalol and Magnesium sulphate in all cases.

Key words: Pre eclampsia, PIH, Perinatal mortality, Maternal mortality.

Introduction

Gestational hypertension/pre-eclampsia is the most common obstetrical complication of pregnancy, with a reported incidence of approximately 10%[1].Most cases of gestational hypertension/pre-eclampsia develop in healthy nulliparous women, with a reported incidence in this group of 26%-29%[2,3].Gestational hypertension/pre-eclampsia is a syndrome that is characterized by heterogeneous clinical, radiologic, and laboratory findings. The clinical findings of pre-eclampsia can manifest as either a maternal syndrome or a fetal syndrome in the form of fetal growth restriction, oligohydramnios abruptio placentae, abnormal umbilical artery Doppler findings, and reduced placental weight with infarctions and abruptio placentae[4]. In some patients, particularly those with severe early onset pre-eclampsia the clinical findings can affect both the mother and the fetus[5]. Gestational hypertension-pre-eclampsia can be associated with serious maternal and perinatal complications (both acute and long term)[6]. The risk of these complications will depend on severity of the disease process, gestational age at onset, fetal and maternal conditions at time of diagnosis, and timing of delivery. The primary objective of management in pregnancies complicated by gestational hypertension or pre-

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eclampsia must always be safety of the mother and the fetus, and then if possible, delivery of a mature newborn that will not require admission to a neonatal intensive care unit. Neonatal survival depends on gestational age at delivery and is low in small-for-gestational age babies. The purpose of this study is to evaluate the incidence and clinical profile of pre-eclampsia patients and the effect of current interventional strategy for severe pre-eclampsia on maternal and perinatal outcome.

Materials and methods

This is a cross-sectional study which analysed protocols of births during 2010, in Obstetrical and Gynecological department at Modern Govt. maternity hospital Hyderabad from January to August to evaluate incidence and clinical profile of severe pre-eclampsia patients and the effect of current interventional strategy for severe pre-eclampsia on maternal and perinatal outcome at tertiary medical center which would enable us to review the efficiency of our management. 285 cases of pregnancies were studied over a period of 8 months in among 14065 deliveries. A pre-tested interviewer-administered structured questionnaire was developed after reviewing different related literatures to collect the data. The questionnaire prepared was used to collect the data. Three Obstetrics and Gynecology residents, one pediatrics resident, one midwife nurse and two medical interns were recruited, trained to collect the required data from the mothers. The training was given for three days on the objective, relevance of the study, confidentiality of information, respondent's right, informed consent and techniques of interview. All completed questionnaires were reviewed each night and morning sessions were conducted every day with the data collectors to discuss on the problem encountered during data collection procedures.Cases were studied in relation to age, parity, level of antenatal care, gestational age, BP at the time of admission, investigations, complications, mode of delivery, mode of induction and perinatal outcome in all these cases. Medical records were also reviewed for some clinical and laboratory results including proteinuria. The participants were allowed to take rest for ten minutes before the blood pressure had been measured. Blood pressure readings were taken while the woman was seated in the upright position using a mercury sphygmomanometer apparatus which covers two-thirds of the upper arm. The measurement was taken from participant's right hand. The cuff was inflated at a rate of 2–3 mmHg per second. Systolic blood pressure (SBP) was taken up on hearing the first sound, and diastolic blood pressure (DBP) was taken up on 4th (muffled) Korotkoff sound. Those pregnant women with abnormal findings were checked again after 4–6 hours in order to confirm the diagnosis. However, when a pregnant woman found to have severe preeclampsia (BP of 160/110 mmHg), she was sent for immediate re-checkup and medical advice. Data regarding proteinuria and other clinical data were accessed from the women's medical records. Proteinuria was assessed using urine dipstick method and was part of the routine investigation for all pregnant women. Laboratory investigations includes CBP with peripheral smear, Platelet Count, RBS, AST, ALT, LDH, Serum Creatinine , Plasma Fibrinogen, APTT, Ultrasound – Doppler were done.Before conduct of the study, ethical clearance was obtained from the College. Written informed consent was obtained from every study participant before the interview by explaining the objective of the research. All the information collected from the study participants were handled confidentially through omitting their personal identification, conducting the interview in private place and using the data for the research purpose only.The collected data were coded and entered to SPSS for windows version for cleaning and analysis. Descriptive statistics (means and proportions) were used to describe the main features of the data. The incidence of pre eclampsia was expressed in rates per 1000 deliveries.

Results

This is a study of 285 cases of severe pre-eclampsia over a period of 8 months out of 950 cases of PIH in14, 065 deliveries at our hospital. Incidence in our study is 2.03.The peak age incidence was the 20-25 year group, which accounted for 187 (65%) cases. Most of the cases 142/285 (49%) are in Primigravidae. (Table 1). Almost half of pre eclampsia cases were unbooked cases. Out of the pre eclampsia cases 169/285(59%) were unbooked cases where as116/285(40%) were booked cases.

Table 1: Age and Parity Distribution

Feature	No.of Patients(N-285)	Perecntage
Age distribution in years		
<20 yrs	28	9
20-25 yrs	187	59
26-30 yrs	63	22
>30 yrs	7	2.4
Parity		
Primigravidae	142	49
G2	77	27
G3	43	15
G4	11	3.8
>G4	12	4.2

Out of 285 cases, 30(10.5%) cases were in between < 8 weeks gestational age, 80(28%) cases were in 28-34 weeks and 175 (61%) cases were in >34 weeks. Majority of pre-eclampsia cases were in >34 weeks gestational age, hence, close monitoring of pre-eclampsia cases to be done near term.Vaginal deliveries occurred in 180 cases in that 30(10.5%) cases being <8 weeks gestational age, 70(38.8%) cases were with 28-34 weeks gestational age and 80(44.4%) case were in >34 weeks gestational age. Caesarean delivery occurred in 105 cases, in that 10(9.5%) cases were in 8-34 weeks gestational age whereas 95(90.4%) cases were with >3 weeks gestational age. (Table 2)

Table 2: Gestational age and mode of delivery

Variable	No.of Patients(N-285)	Perecntage
Gestational age		
<28 weeks	30	10.5
28-34 weeks	80	28
>34 weeks	175	61
Vaginal deliveries (n-180)		
<28 weeks	30	16.5
28-34 weeks	70	38.8
>34 weeks	80	44.4
Caesarean section (105)		
28-34 weeks	10	9.5
>34 weeks	95	90.4

Out of 285 cases, 66(23%) women had diastolic BP <100 mm Hg, 160(56%) women had diastolic BP in between 100-110 whereas 59(20.7%) women reported with diastolic BP >110 mm of Hg. PIH investigations found normal in 171(60%) cases whereas abnormal in 64(22%) cases.

Table 3: Blood pressure on admission

Variable	No of Patients	Percentage
Blood pressure in mm Hg (diastolic)		
<100	66	23
100-110	160	56
>110	59	20.7
PIH investigations		
Normal	171	60
Abnormal	64	22

Table 4: Perinatal mortality according to gestational age

Gestational age	LSCS			Vaginal						GrandTotal
				Induced			Non-induced			
	Alive	Dead	Total	Alive	Dead	Total	Alive	Dead	Total	
<28	-	-	0	0	19	19	0	8	8	27
28-34	7	5	12	9	13	22	29	20	49	83
>34	86	8 (8.5%))	94	43	6(12.2%)	49	27	5 (15.6%)	32	175
Total	93	13(12%)	106	52	38(42%)	90	56	33(37%)	89	285

Perinatal mortality was seen in 5 cases with birth weight of 1.1-1.5 kgs and in 4 cases with birth weight 1.6-2 kgs by caesarean delivery. Perinatal mortality was seen in 19 cases with induced vaginal delivery birth weight <1.0 kg and 13 cases with birth weight of 1.1-1.5 kgs. Where as in non induced vaginal delivery 11 cases with birth weight of 1.1-1.5 kgs were seen and 9 cases with birth weight of 1.6-.0 kgs were seen. Perinatal mortality was seen in 8 cases by LSCS with gestational age of >34 weeks and 5 cases with gestational age 28-34 weeks.In induced vaginal delivery 19 cases were seen with gestational age <28 weeks and 13 cases with 28-34 weeks. Where as in non induced vaginal delivery, 20 cases were seen with gestational age of 28-34 weeks and 8 cases with <28 weeks were seen. (table 4)

Table 5: maternal mortality in pre eclampsia cases

Variable	No of patients	Percentage
Maternal mortality (n-6)		
Booked cases	1	16
Unbooked cases	5	83
Causes		
Pulmonary embolism	3	50
Acute lvf	1	16
Ards	1	16
Dic	1	16

Maternal mortality rate observed in 6/285(2.1%) cases, in which 5/6 (83%) cases were unbooked and 1(16%) case was booked case. Causes for maternal mortality were pulmonary embolism in 3(50%) cases, acute LVF in 1(16%) case, ARDS in 1(16%) case and DIC in1 (16%) case. (table 5)

Discussion

Pre-eclampsia is one of the leading causes of adverse maternal and child outcomes. Incidence of severe pre eclampsia was 2.03% in our study and similar results are found in a study by Swain et al[7] was 2.2%The incidence of eclampsia is very low within developed countries with a range of 0.29% - 0.75%, due to the provision of standard antenatal care for most pregnant women in these countries[8].The observed difference in incidences among the aforementioned areas could be explained by geographical variability, access to health care services and medical attention provided for patients.The peak age incidence was the 20-25 year group, which accounted for 65% cases Most of the cases 49% are in Primigravidae with no antenatal care and were seen maximum after 34 weeks (61%) of pregnancy.Most of the pre eclampsia cases 63% were carried out by vaginal delivery which is differed from the study results by Ndaboine et al[9].The NHBPEP Working Group Report on High BP in Pregnancy and the American College of Obstetrics and Gynecology (ACOG) guidelines recommend treatment in preeclampsia when the diastolic BP (DBP) is persistently above 105–110 mm Hg. Most experts agree that pharmacologic therapy should be initiated when the BP approaches 150/100 mm Hg with the goal of preventing cerebral and cardiovascular events in the mother[10].

Most of the hypertensive were controlled in this study by:

1) Oral Nifedepine - Up to 30 mg, starting with 10 mg can be repeated every 15-30 minutes till B.P. is controlled. In a small trial of pre eclamptic mothers who received Nifedepine versus placebo, there were significant reductions in maternal BP, serum creatinine and urea values, and 24-hour urinary protein measurements, without a reduction in umbilical artery blood flow[10].

2) I.V. Labetalol - Many were controlled by 30mg; maximum up to 120 mg was given. Labetalol has been compared to methyldopa in prospective trials and neither medication was associated with adverse maternal or fetal outcomes[10].

3) Magnesium sulphate was given to all patients. Magnesium sulfate has been shown to decrease the risk of eclampsia and maternal death without evidence of significant harm to the mother or baby[10].

A significant number of low birth weight neonates might have been the result of the high number of preterm deliveries among the eclamptic patients.

Perinatal mortality is high with birth weight <1 kg in both vaginal and LSCS.In LSCS Total PNMR is 15.12%, Corrected PNMR is 8.5%. LSCS group showed better outcome than vaginal group, especially in low birth weight babies. Hence, fetuses with good birth weight were left for vaginal delivery.In induced vaginal delivery Total PNMR is 42.2%, corrected PNMR is 11.76% where as in non induced vaginal delivery total PNMR is 37.08%, corrected PNMR is 22.2%.(Table 5) Perinatal outcome is better as the fetal weight is increasing. In this study, 27 cases with gestational age <28 weeks and 38 cases with gestational age 28-34 weeks were reported with adverse outcomes. In LSCS Total PNMR is12.26%, PNMR in >34wks gestational age is 8.5%.While in induced vaginal delivery total PNMR is 42.2%, PNMR in >34wks gestational age is 12.24% where as in non-induced cases total PNMR is 37.7% and PNMR in >34wks gestational age is15.63%.(Table 6) Young and colleagues11 studied mortality in late preterm new born babies and found the neonatal mortality rate to be higher in preterm babies than babies born at term.Overall perinatal mortality rate is 29.4% (84/285). There were 6 maternal deaths, 5 were unbooked cases and 1 case booked previously; earlier stabilization of these patients would have prevented maternal mortality. A few patients had more than one complication at the same time. Causes of death included pulmonary embolism, acute LVF, ARDS and DIC.Maternal fatality rate is 2.1%. However, many of the maternal complications seen in the eclamptic patients appeared to arise from delays in the timely management of pre-eclamptic patients.

Conclusion

Incidence of severe pre-eclampsia was 2.03% of deliveries, seen commonly in young women below 25 yrs of age, nulliparous, with no antenatal care and was seen maximum after 34 weeks of pregnancy. Many patients came with various complications which were efficiently managed by stabilizing and delivering them early. The BP was well controlled with Nifedepine or Labetalol and Magnesium sulphate in all cases. Though LSCS group had slightly higher perinatal survival, several study groups showed higher morbidity after LSCS. Thus, with proper evaluation i.e. clinically and by investigations (including Doppler), perinatal outcome will be good with vaginal delivery by miso induction or LSCS and maternal mortality and morbidity will be low.

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Conflict of Interest: None

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