

A study of maternal morbidity and mortality DUE to Pre eclampsia and eclampsia

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Abstract: *Background:* Pre eclampsia and eclampsia is one of the leading causes of maternal morbidity and mortality worldwide. Eclampsia though still remains an obstetric enigma, and is a major problem in developing countries. Although the incidence of pre eclampsia and eclampsia is on the decline, still it remains major contributor to poor maternal outcome. In India-gestational hypertension continues to be responsible for the largest proportion of cases contributing to maternal morbidity and mortality. *Aims & objectives:* The main objective of the study is to analyse the case of pre eclampsia and eclampsia complicating pregnancy, its maternal outcome, study the consequences of hypertensive disorders contributing pregnancy and its management. *Methods:* All patients beyond 20 wks of pregnancy with hypertensive disorders complicating pregnancy admitted in Al Ameen Medical College Hospital, Bijapur during the two year three months study period were enrolled in the study. *Results:* Total hypertensive cases accounted for 234 i.e; out of which mild pre eclampsia accounted for 144 cases i.e; 61.5%, severe pre eclampsia 64 cases i.e, 27.4%; eclampsia 26 cases 11.1%. *Conclusion:* Pre eclampsia and eclampsia is of the leading causes of maternal morbidity and mortality worldwide. The early use of antihypertensive drugs, optimum timing of delivery and strict fluid balance, anticonvulsants in case of eclampsia will help to achieve successful outcome.

Keywords: Gestational hypertension, Pre-eclampsia, Eclampsia.

Introduction

Hypertensive disorders complicating pregnancy are common and pre-eclampsia & eclampsia being the major causes of maternal morbidity and mortality [1]. The new definition of maternal morbidity by the 11 revision of international statistical classification of diseases and related health problem [ICD] “any health condition attributed or aggravated by pregnancy and childbirth that has a negative impact on the women wellbeing”. Maternal near miss is a women who nearly died but survived a complication that occurred during pregnancy, childbirth or within 42 days of termination of pregnancy. F.I.G.O has defined maternal mortality ratio as number of women dying from any cause while pregnant or within 42 days of its termination irrespective of its duration and site of pregnancy per 100,000 live birth. Hypertensive disorders in pregnancy may be classified as follows:

1. Gestational Hypertension – (formerly pregnancy – induced hypertension that included transient hypertension).

2. Preeclampsia
3. Eclampsia
4. Preeclampsia / eclampsia superimposed on chronic hypertension
5. Chronic hypertension [2].

Worldwide, 10% of all pregnancies are complicated by hypertension. It is also estimated that pregnancy induced hypertension (PIH), affects about 5-8% of all pregnant women [3]. Approximately 1 in 2000 deliveries is complicated by Eclampsia in developed countries where as the incidence in developing countries is estimate around 1 in 100 to 1 in 1700 cases [4-5]. The incidence of gestational hypertension in India varies from 0.5% to 1.8% [6]. The incidence however depends on the availability, accessibility and quality of antenatal care. Consequently rates are higher where health care provision is constrained for a variety of reasons [7].

In India maternal mortality ranges from 8-14% [8]. Incidence ranges from 5-15%; 16% in primigravida and 7% in multigravida [9-

10]. *Pre-eclampsia*: Incidence in hospital practice in India: varies from 5-15%; primigravida – 10%; multigravida - 5% [9]. *Eclampsia*: Hospital incidence in India ranges from 1/500 to 1/30, primigravida 75%. Maternal mortality in India ranges from 2-30% [9-10]. In Karnataka - Maternal mortality due to PIH is 4-5/ 1000 live births [11]. It is much more in rural hospital than in urban counterpart. Report of the maternal mortality committee FOGSI and other studies shows the incidence of pre eclampsia in India ranges between 11-13%. Gestational hypertension (formerly pregnancy induced hypertension). The effects of which may range from simple hypertension to multiorgan failure [12].

Aims of Study:

1. Analyzing the cases of preeclampsia and eclampsia complicating pregnancy in patients admitted in Al-Ameen medical college hospital, Bijapur.
2. Studying the maternal outcome in patients with preeclampsia and eclampsia.
3. Study of consequences and situations of Hypertensive disorders complicating pregnancy.

Material and Methods

Source of data: A total number of 234 cases of pregnancy induced hypertension (Gestational Hypertension, pre-eclampsia and eclampsia) admitted to Al-Ameen Medical College Hospital, Bijapur, from January 1st, 2014 to March 31st, 2016 were taken in this study after obtaining clearance from Hospital Ethical Committee.

Method of collection of data: Both booked and un-booked, and all patients who were diagnosed to have hypertension complicating pregnancy The patients were selected irrespective of parity, consanguinity and from all socio-economic classes. Detailed history, period of gestation, last menstrual period and expected date of delivery, history of previous pregnancies, results of present study were noted in the proforma.

Inclusion criteria: Patient beyond 20 wks with hypertension, proteinuria and convulsions

Exclusion criteria:

- All pregnant patients with hypertensive disorders complicating pregnancy getting terminated before 28 weeks were excluded.

- All chronic hypertension cases were excluded from the study.

Results

Hypertensive disorders complicating pregnancy are common and pre-eclampsia & eclampsia being the major causes of maternal morbidity and mortality. This study was carried out to study the consequences and situation of hypertensive disorders complicating pregnancy in relation to hypertensive cases complicating pregnancy accounted for 7.9% of the fetal deliveries conducted during the study period, out of which mild Pre eclampsia accounted for 61.5% of the total deliveries. Severe Pre-eclampsia cases accounted for 27.4% and Eclampsia cases accounted for 11.1% [chart-1].

Chart-1: Incidence of Pre eclampsia and eclampsia

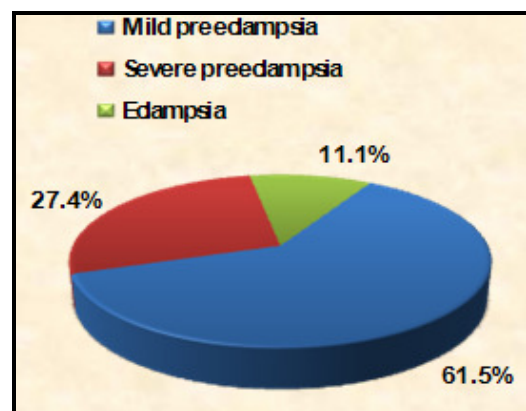


Chart-2: Age Group

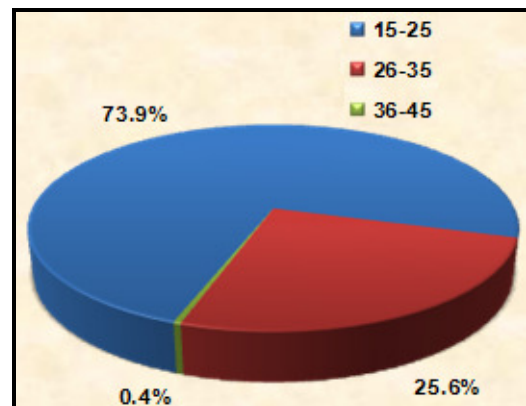


Chart-3: Parity

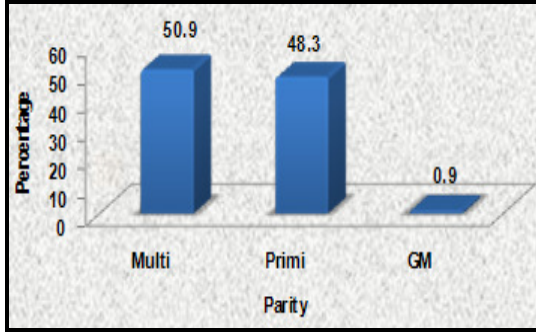
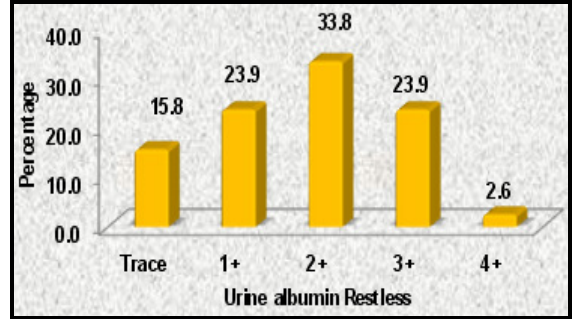


Chart-6: Urine albumin results



Maximum cases were in the age group of 15-25yrs (73.9%) [chart-2]. Most of the cases were booked cases and had regular antenatal check-ups (50.9%).Majority of the cases belonged to low socio-economic groups (76%).Number of cases in primigravida group (48.3%) was almost equal to multigravida group (51.7%) [chart-3]. Mean gestational age of patients were 36.50 in this study (Range was 28-42 weeks).In this study severe cases with systolic BP \geq 160 mmHg and diastolic pressure $>$ 110 mmHg were 28.2 and 32.5% [chart 4, 5]. Proteinuria (severe) was found in 24.6% of the cases [chart-6].

All the maternal mortality (3 cases) had BP of more than 160/110 mmHg and proteinuria 3+ or more. Labetalol was the drug predominantly used as an antihypertensive agent; Nefedipine was added when BP was not controlled with labetalol alone. Labetalol alone was used in 48 cases and 30 babies were born without any complications. As an anticonvulsant magnesium sulphate (MgSO₄, 7H₂O) was used in all case of imminent eclampsia and eclampsia, (Pritchard Regime) in a total number of 99 cases [chart-7].

Chart-4: SBP

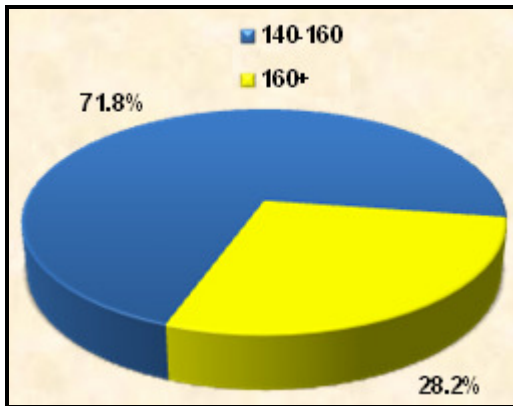


Chart-7: Treatment given

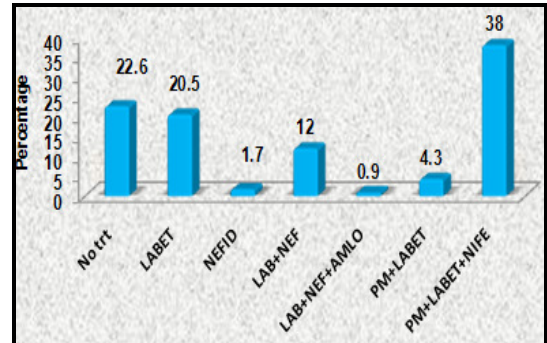


Chart-5: DBP

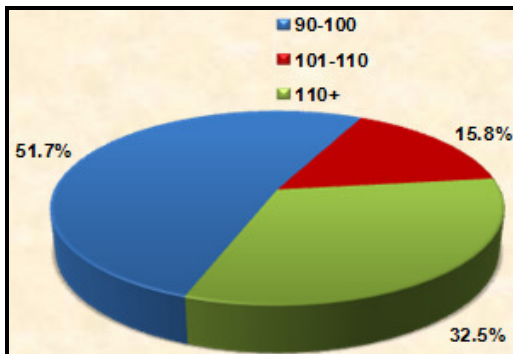
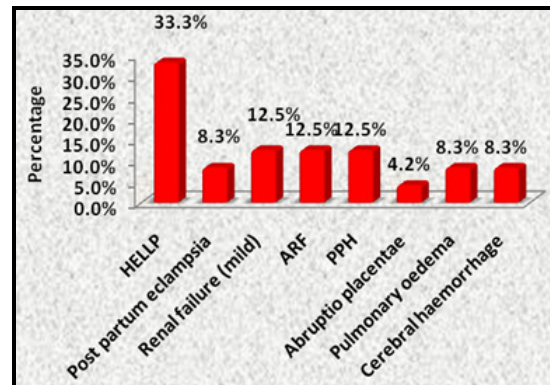
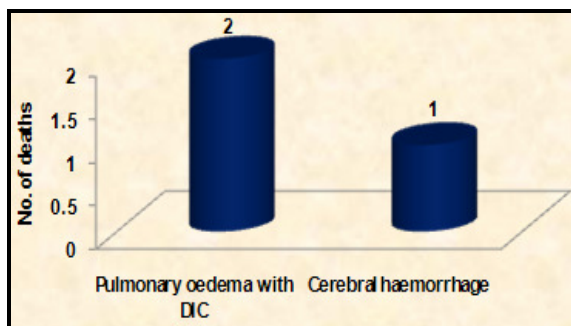


Chart-8: Complications



Only one patient had a repeat convulsion with Pritchard regime. In this present study mode of delivery was equal in both vaginal and caesarean section (117:117). Among the vaginal deliveries outlet forceps delivery was 17; and vacuum delivery was in 2 cases. In case of caesarean section 88 cases (72.2%) were done for obstetric indications. Convulsion (eclampsia cases)-delivery interval was 10-14 hours (60.9%). In this study there was not much difference between duration of labor in relation to maternal mortality and morbidity. HELLP Syndrome was the commonest maternal complication - 8 cases (3.4%) in the present study [chart-8]. Post-partum eclampsia was observed in only 2 cases (0.9%). Maternal mortality [chart-9]. There was 3 maternal mortalities; one due to pulmonary oedema with DIC; other 2 were due to cerebral haemorrhage.

Chart-9: Maternal mortality



Discussion

Preeclampsia and Eclampsia in pregnancy is a common condition which is responsible for majority of maternal morbidity and mortality. The total maternal deaths that occur around the world every day resulting from pregnancy or childbirth related complications, ninety nine percent occurs in developing countries. Pre-eclampsia and Eclampsia still remains a major problem in developing countries [13]. In this study the overall incidence of hypertensive disorders in pregnancy was 7.9%. According to Kuklina E.V, *obstet gynecol* 2009 .Ten million women develop pre eclampsia each year around the world. World wide about 76,000 pregnant women die each year from pre eclampsia and its related complications [14].

According to Alokendu Chatterjee, Geeta Basu (Oct. 2000) [15], N.R.S. Medical College,

Calcutta - "Hypertension complicates nearly 10% of all pregnancies". According to Bharti Mehta et al, incidence of hypertension complicating pregnancy was 6.9 % [16].

According to Shrish N Daftaray and Sudip Chakravarti it is 10-15% [17] Sachdeva PD et al reported a incidence of pregnancy-induced hypertension (PIH) to be 15% among women of rural background [18]. The findings of our study are similar to that reported by Bharti Mehta et al (2015) [16]. However compared to other studies, the incidence in this study is on the lower side which may be attributed to the fact that number of booked cases were more compared to other studies (Booked: Unbooked \cong 50:50) and patients had received adequate ante-natal care.

The incidence of hypertension in pregnancy in western population is also almost similar to present study i.e., according to Chesley it is 6-10% as reported by Burrow. Incidence of gestational hypertension in this study was 2.1% and according to the study by Martin and colleagues (National center for Health Statistics 2002) [1] incidence of Gestational hypertension was 3.7% which is quite similar to this present study [1].

In this study most of the women (76%) had come from the low socio-economic status. All patients with eclampsia were from low socio-economic status. According to Arup Kumar Majhi (2001) [19] majority of the patients (82%) belonged to low socio-economic status which is largely related with health consciousness and health and family welfare of the people.

In the present study unbooked cases (49.1%) were equal to the number of booked cases (50.9%). This may be the reason of lower incidence of preeclampsia and eclampsia in this study as unbooked cases were less compared to other recent studies. Patients diagnosed to have eclampsia, maximum patients were unbooked (\cong 60%); according to Arup Kumar Majhi (2001) [19] 82.3% of patients did not have regular ANC's. Pregnancy outcomes related to eclampsia in the unbooked mothers was significantly

poorer than in the booked mothers according to a study conducted by Sahadev Sahoo et.al (2015) [18].

In this study 73.9% were in the age group of 15-25 years with mean age of 23.52 years. In this study severe cases with systolic BP ≥ 160 were 66 (28.2%) and diastolic blood pressure of greater than 110 mmHg were 76(32.5%). Mild cases with systolic blood pressure of 140 mmHg to 160 mmHg were 168 cases (71.8%) and diastolic blood pressure 90-109 mmHg were 121cases (51.7%). The mild cases of pre-eclampsia usually do not require any anti-hypertensives Abha Singh (2003) [20]. In this study Labetalol alone or Labetalol and Nifedipine combination was started only when diastolic blood pressure was greater than 110 mmHg and systolic blood pressure was more than 160 mmHg. As recommended by the working group - "National High Blood Pressure Education Programme - 2000 - indication of Anti-hypertensive agents is - systolic BP >160 mmHg and diastolic BP more than 105 mmHg.

- Labetalol was the drug predominantly used in this study. Nifedipine (as the second drug) was added only when BP was not controlled with Labetalol. As recommended by National Guideline Clearinghouse, regarding treatment of PIH, initial treatment should be started by labetalol or nifedepine. Labetalol has no effect on the uteroplacental perfusion and reduce the risk of preterm delivery, neonatal jaundice and RDS [21].

As an anticonvulsant magnesium sulphate ($MgSO_4 \cdot 7H_2O$) was used in all cases of severe pre-eclampsia and eclampsia. Pritchards Regime was followed for all the cases – 99 cases (42.3%). In this present series out of 99 cases where Pritchards was used, 26 cases were eclampsia cases. Out of these 26 eclampsia cases only one patient had repeat convulsions with Pritchards Regime. The incidence of repeat convulsions is 3.8% and was very less compared to the study of Sibai [12]. Total number of HELLP syndrome in this present study was 8 giving a incidence of 3.4%. It was the commonest complication in this present study.

Kaur Amrit Pal, Saini AS (2003) [22] had reported a incidence of 4% for HELLP syndrome. Out of the 8 cases 5 cases needed ICU admissions

and 3 patients were given ventilator support. Other complications which were encountered in the study was - Acute Renal Failure (3 cases); post partum haemorrhage (3 cases); and abruptio placentae. There were 3 maternal deaths, one due to pulmonary oedema, with DIC (2 cases) and 1 case due to cerebral haemorrhage. So the incidence of maternal mortality in this study was 1.3%. Maternal mortality in other studies were as follows:

- Arup K. Majhi (2001) [19]- Maternal mortality from eclampsia was 11.28%.
- Tabassum N et.al (2010) reported incidence of maternal mortality in eclampsia cases as 14.7% [23].

Conclusion

Preeclampsia and eclampsia is one of the leading causes of maternal morbidity and mortality worldwide. Hypertensive disorders complicating pregnancy is one of the most extensively researched subjects in obstetrics. Still the etiology remains an enigma to us. Out of the total maternal deaths that occur around the world every day resulting from pregnancy or childbirth related complications, ninety-nine percent occurs in developing countries.

Pre-eclampsia and Eclampsia still remains a major problem in developing countries. Although the incidence of pre-eclampsia and eclampsia is on the decline, still it remains the major contributor to poor maternal and foetal outcome. The pathology of this disorder should be understood and that it involves multiorgan dysfunction should be taken into account. The incidence of these cases accompanied with proper antenatal care and prompt treatment is negligible.

Clear protocols for early detection and management of hypertension in pregnancy at all levels of health care are required for better maternal outcome. The early use of antihypertensive drugs, optimum timing of delivery and strict fluid balance, anticonvulsants in cases of eclampsia will help to achieve successful outcome. Early transfer to specialist center is important and the referral centers should be well equipped to treat such critically ill patients. Training and continuing medical education of the attending

staff and structuring management protocols relevant to local needs is also an important part in cases of pre-eclampsia and eclampsia.

Summary

Hypertensive disorders complicating pregnancy are common and pre-eclampsia & eclampsia being the major causes of maternal morbidity and mortality. This study was carried out to study the

consequences and situation of hypertensive disorders complicating pregnancy in relation to Hypertensive cases complicating pregnancy accounted for 7.9% of the fetal deliveries conducted during the study period, out of which mild Pre eclampsia accounted for 61.5% of the total deliveries. Severe Pre-eclampsia cases accounted for 27.4% and Eclampsia cases accounted for 11.1.

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