MATERNAL AND PERINATAL OUTCOME IN PREECLAMPSIA

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ABSTRACT

AIM

To study the outcome of preeclampsia in relation to age, parity, unregistered or registered. To study the incidences of various maternal and foetal complications of preeclampsia.

MATERIAL AND METHODS

This is a prospective observational study done from August 2013 to August 2015 at K.A.P.V.G. Medical College & M.G.M. Government Hospital, Trichy. Various data analysed regarding age, parity, gestational age at the time of delivery, HELLP, abruption, preterm, IUGR, APGAR Score.

RESULTS

Out of 100 cases, 32 cases were severe, 68 cases were of mild preeclampsia. In our study, 9% cases were unbooked and 91% were booked. Unbooked cases had more complications than booked cases. Out of 100 patients, 8% had antepartum eclampsia, 3% had intrapartum eclampsia, 4% had postpartum eclampsia. In this study, 15% cases developed HELLP. 20% babies developed IUGR, 3% died in utero, and 7% died in neonatal period.

CONCLUSION

Morbidity and mortality of pre-eclamptic mother and the neonate is considerably reduced with evidence based practice and setting up of protocol based management.

KEYWORDS

Abruption, HELLP, IUGR, Preterm, Preeclampsia, Pulmonary Oedema,

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INTRODUCTION: Pre-eclampsia is a multisystem disorder specific to pregnancy and puerperium, it manifests by onset of hypertension and proteinuria after Twenty weeks of gestation. It occurs earlier with gestational trophoblastic diseases or multiple pregnancies and resolves by twelve weeks postpartum. Hypertension (HT) during pregnancy is diagnosed when the systolic pressure is 140 mmHg or more and diastolic pressure of 90 mmHg or more measured on two occasions at least 6 hours apart within seven days. A single reading of diastolic above 110 mmHg in a pregnant woman is considered as hypertension. In India, incidence of preeclampsia among hospital patients is about 7 to 10% antenatal admission.(1) In 1916, Zweifel first called the toxaemia "The disease of theories".(2) This was recognised as clinical entity since the time of Hippocrates. Pre-eclampsia remained a significant public health threat in both developed and developing countries, contributing to maternal and perinatal morbidity and mortality. Globally, the incidence of preeclampsia among hospital patients is about 7 to 10% of antenatal admissions.

The dangers of Eclampsia, Intrauterine growth restriction (IUGR) & Intrauterine foetal death, etc. are dependent on the degree of pre-existing pre-eclampsia. They can be mitigated by good obstetric care. In this study, an attempt has been made to study the effect of Pre-eclampsia & the severity on pregnancy & on maternal & foetal outcome.

AIM: To study the maternal and foetal outcome of preeclampsia in relation to age, parity, unregistered or registered.

OBJECTIVES:

a) To study the prevalence of preeclampsia in relation to
   1. Age.
   2. Parity.
   3. Unregistered or registered.
b) To study the incidence of various maternal complication of preeclampsia.
c) To study the foetal outcome in pregnancies complicated by preeclampsia.

METHODS: This is a prospective observational study done from Nov 2013 to September 2015 (22 months) at K.A.P.V.G. Medical College & M.G.M. Government Hospital,

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Tiruchirapalli. It consists of analysis of maternal and foetal outcome in preeclampsia. Pregnant women with more than 20 weeks of pregnancy with systolic BP >140 mmHg & diastolic >90 mmHg in two separate readings taken 6 hrs. apart.

Any patient fulfilling the inclusion criteria to be explained the type of study and after taking her written consent. Patients were assessed on the basis of history, clinical examination, ultrasound & laboratory investigations.

Inclusion Criteria: BP Systolic >140 mmHg and diastolic >90 mmHg, urine albumin >1+ on dipstick single test, oedema may or may not be present.

Exclusion Criteria: Chronic hypertension diagnosed before 20 weeks of gestations, patients having hepatitis, heart disease, diabetes, renovascular HT, Cushing syndrome, phaeochromocytoma, thyrotoxicosis, SLE, glomerulonephritis protocol, patients having mild PE (Pedal oedema), with gestation age group >37 weeks were induced & delivered, and <37 weeks were advised inpatient or outpatient according to their blood pressure. Severe pre-eclampsia patients were admitted to hospital. Within 1st 24 hours of admissions, all patients with GA <34 wks. who received 2 doses of betamethasone 12 mg each 24 hrs. apart noted and any NICU admissions indication and duration of admission was recorded.

Data Collection and Methods: Detailed history is taken. Clinical evaluation of the patient is done. Investigations are recorded. Patients with imminent eclampsia received $MgSO_4$ prophylactically as per criteria laid down in Magpie trial and were intensively monitored for HT. Labetalol, nifedipine were commonly used, dose was adjusted according to the severity of hypertension. Monitoring to be done depending on severity and gestational age. Mode of termination depends on the periods of gestation, favourability of cervix & urgency of termination. Foetal outcome assessed by APGAR Score at birth.

RESULTS:

Obstetric-Code:

Category	Frequency
Primi	46
Multi	54
Total	100

In this study, 46 were primigravida and 54 were multigravida.

Booking Status:

Category	Frequency
No	9
Yes	91
Total	**100**

In this study, 9 were unbooked and 91 were booked.

Hypertension-Status:

Category	Frequency
Severe	32
Mild	68
Total	100

In this study, 32 were severely hypertensive and 68 were mildly hypertensive.

Antihypertensive Drugs:

Category	Frequency
None	6
Labetalol	64
Nifedipine	9
Combined	21
Total	**100**

In our study, 64 patients were on labetalol, 9 patients were on nifedipine, 21 patients on both drugs, 6 patients not started on any drugs.

"LFT" and "RFT" Results		
Results	**Liver Function Test**	**Renal Function Test**
Increased	29	17
Normal	71	83
Total	**100**	**100**

29% of patients had increased liver function test values and 17% patients had abnormal renal function test values. 71% of patients had normal liver function tests, 83% of patients had normal renal function tests.

Labour Category:

Category		Frequency
Labour Natural		55
LSCS	Maternal Indication	30
	Foetal Indication	15
Total		**100**

In our study, 55% patients had labour natural, 45% patients had LSCS. Among them, 30% were maternal indication, 15% were foetal indication.

Eclampsia		
Category	**Frequency**	**%**
No	85	85.00
Antepartum	8	8.00
Intrapartum	3	3.00
Postpartum	4	4.00
Total	**100**	**100**

In our study in 100 patients, 15 patients developed eclampsia. Among them 8 patients developed antepartum eclampsia & 3 patients developed intrapartum & 4 patients developed Postpartum eclampsia.

Abruption, HELLP, CVT:

Category	Frequency		%
	Present	Absent	
Abruption	14	86	100
HELLP	15	85	100
CVT	10	90	100

Of all patients, 14% developed abruption, 15% patients developed HELLP, 10% patients developed CVT.

Renal Failure, Pulmonary Oedema & Maternal Death:

Category	Frequency		%
	Present	Absent	
Renal Failure	8	92	100
Pulmonary Oedema	13	87	100
Maternal Death	2	98	100

8% of patients developed renal failure, 13% of patients developed pulmonary oedema. 2% of patients died and they belonged to severe preeclampsia category.

Apgar – Newborn - At 1 Minute	
Category	Frequency
1 [0 >3]	5
2 [3 to 5]	36
3 [More than 6]	59
Total	100

APGAR – newborn - at one minute, 5% were under 0-3, 36% were under 3-5, 59% were > 6.

Perinatal Outcome		
Category	Frequency	%
NICU Admission	49	49
IUGR	20	20
IUD	3	3
Neonatal death	7	7
Normal Neonates	21	21

49% of newborns were admitted to NICU, 20% developed IUGR, 3% died in utero, 7% died in neonatal period.

Hypertension Status Vs. Eclampsia				
Hypertension status	Eclampsia			
	Absent	Antepartum	Intrapartum	Postpartum
Severe	21 65.60%	7 21.90%	1 3.10%	3 9.40%
Mild	64 94.10%	1 1.50%	2 2.90%	1 1.50%
Total	**85 85.00%**	**8 8.00%**	**3 3.00%**	**4 4.00%**
Statistical Significance	**0.001**			

In this study, 32 patients were severely pre-eclamptic & 68 patients were mildly pre-eclamptic. P value between this group is 0.001 which is highly significant. 21.9% of severe pre-eclamptic group developed antepartum eclampsia, 94.1% of mild pre-eclamptic patients did not develop any type of eclampsia. So severity of preeclampsia highly influences the occurrence of eclampsia.

Urine Analysis Vs. HELLP			
Category	HELLP		%
	Present	Absent	
Nil	2	21	23
Trace	2	23	25
1+	3	36	39
2+	6	5	11
3+	2	0	2
Total	**15**	**85**	**100**
Statistical Significance	**0.000**		

Among 23% of patients with no proteinuria 2% developed HELLP. Among 77% of patients with proteinuria, 13% developed HELLP. P value in this study is 0.000 which is highly significant. So severity of proteinuria has significant impact on occurrence of HELLP.

Obstetrics Code Vs. Complication						
	ABRUPTION		%	HELLP		%
	Present	Absent		Present	Absent	
Primigravida	5	41	46	3	43	46
	10.90%	89.10%	100.00%	6.50%	93.50%	100.00%
Multigravida	5	45	54	12	42	54
	10.90%	83.30%	100.00%	22.20%	77.80%	100.00%
Total	14	86	100	15	85	100
	14.00%	86.00%	100.00%	14.00%	86.00%	100.00%
Statistical Significance	0.405			0.028		

In comparison of parity and the occurrence of abruption and HELLP, P value is 0.4, which is not significant. 10.9% multigravida developed abruption. 22.2% multigravida developed HELLP.

DISCUSSION: Pre-eclampsia is more prevalent in both developed and developing countries contributing to maternal and perinatal morbidity and mortality. It will produce maternal syndrome. It includes hypertension, proteinuria and with or without oedema. Foetal syndrome includes foetal growth restriction, reduced amniotic fluid, and abnormal placentation. Out of 100 cases, 32 cases were severe and 68 cases were mild pre-eclampsia. Some patients had irregular antenatal checkup and followup. This is the reason why incidence of pre-eclampsia and related complications are more in developing countries. In our study, 9% cases were unbooked and 91% of patients were booked. Unbooked cases developed more complications than booked cases.

In the study, age <20 years constituted 9 cases. Among them, 3 cases had eclampsia. Age 20 to 29 years were 83 cases and among them 10 patients had eclampsia; and age more than 30 years constituted 8 cases, among them 2 cases developed eclampsia. Similar incidence was found in SIBAI BH IN 1997.[3] Least incidence was found in age group above 30 years. It positively correlates with Vitthal Kulchake study in 2010.[4] Out of 100 cases, 46 patients were primigravida, and 54 patients were multigravida. Urinary proteins directly correlate with severity of pre-eclampsia. Urinary protein also correlates with severity of maternal morbidity like onset of HELLP syndrome, and abrupt placenta.[5]

In our study, 29% percentage of patients had elevated liver enzymes and 71% of patients had normal LFTs. 17% of patients had altered [elevated LFT values] and 83% patients had normal renal function. Out of 100 patients, 55 patients had labour natural, 44 patients had LSCS. 1 patient had hysterotomy. Among LSCS, 30% had maternal indications like malpresentation, cephalopelvic disproportion and failure of induction. 15% had LSCS because of foetal indications like foetal distress, intrauterine growth restriction. Eclampsia is a preventable condition by means of regular antenatal visits and control of blood pressure. It may develop antepartum, intrapartum or postpartum. Postpartum eclampsia unlikely to be after 4 days, but it may occur up to 6 weeks postnatal. Out of 100 patients, 85% patients didn't have eclampsia episode. 8% had antepartum eclampsia, 3% had intrapartum eclampsia, and 4% patients had postpartum eclampsia. 5 patients were primigravida and 10 patients were multigravida.[6]

Abruption is one of the dreadful complication of severe pre-eclampsia. 14% of patients had Abruption. Booking status had highly significant relation with abruption.[7] Among 9 patients of unbooked, 4 (44.4%) developed abruption. Abruption strongly correlates with severity of.[8] preeclampsia and severity of urine proteinuria. In our study, 64 patients were on labetalol, 9 patients were on nifedipine, 21 patients on both drugs, 6 patients were not on any drugs.

8% of patients developed renal failure. 13% of patients developed pulmonary oedema. 2% of patients died and they belonged to severe preeclampsia category. Among 100 patients, 14% developed abruption, 15% patients developed HELLP, 10% developed CVT, 8% developed renal failure.[9] 13% of patients developed pulmonary oedema. 2% of patients died and they belonged to severe preeclampsia category.[9] APGAR – newborn - at one minute, 5% were under 0-3, 36% were under 3-5, 59% were >6. Out of 49% newborns admitted to NICU, 20% developed IUGR which was comparable to Ludec et al. {1992}, 3% died in utero, 7% died in neonatal period.

9% were unbooked & 91 were booked. P Value in this study is 0.006 which is highly significant. 44.4% of unbooked cases developed Abruption. In this study, 32 patients were severely pre-eclamptic & 68 patients were mildly pre-eclamptic. P Value between this group is 0.001 which is highly significant. 21.9% of severe pre-eclamptic group developed antepartum eclampsia, 94.1% of mildly pre-eclamptic patients did not develop any type of eclampsia. So severity of preeclampsia highly influences the occurrence of eclampsia. 23% of patients had no proteinuria, among them only 1% developed abruption. Among 77% patients with proteinuria, 13% of patients developed abruption. P value is highly significant. So proteinuria significantly differs between these two groups. Among 23% patients with no proteinuria, 2% developed HELLP. Among 77% patients with proteinuria, 13% developed HELLP. P value in this study is 0.000 which is highly significant. So severity of proteinuria has significant impact on occurrence of HELLP. In comparison of parity and the occurrence of abruption and HELLP, P value is 0.4, which is not significant. 10.9% multigravida developed abruption. 22.2% multigravida developed HELLP.

CONCLUSION: Pre-eclampsia tends to threaten the maternal health, foetal viability, adding to maternal and neonatal morbidity and mortality. Mode of delivery depends on the severity of pre-eclampsia. Birth weight and severity of IUGR depends upon the degree of pre-eclampsia and duration of pre-eclampsia. Ultrasound and Doppler in antenatal period are important for good results. Skilled monitoring during antenatal period, early detection and prompt intervention as per protocol can prevent maternal complications of pre-eclampsia and improve maternal and perinatal outcome. Improvement in rural antenatal care in health care facilities and emergency obstetric care services in rural areas will improve the maternal and perinatal outcomes. Periodical training and public health awareness, education of primary health care workers and improvement of socioeconomic circumstances will improve maternal and perinatal outcomes. Early referral and institutional protocol management will reduce the maternal and perinatal mortality.

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