

ORIGINAL RESEARCH**A clinical study on maternal and fetal outcome in preeclampsia with thrombocytopenia****¹Dr. Nabila Naaz, ²P. Vineela, ³Dr. Inampudi Anupama**

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Email: dranoos363@gmail.com**ABSTRACT**

Background & objectives: Class II and III mortality Class I deliveries were vaginal (62.5 percent). Thrombocytopenia in pregnancy causes hypertension in both mother and foetus. Associated causes include abruptio, dead foetus, septicaemia, and DIC worsen the thrombocytopenia consequence. For both mother and foetus, thrombocytopenia is more common with early pregnancy induced hypertension. Study of pre-eclampsia with thrombocytopenia in hypertensive pregnant women.

Material and Methods: From the records of pregnant women admitted to the Osmania Medical College's Modern Government Maternity Hospital, Petlaburz, from November 2020 to November 2021.

Results: In this study, 120 women were followed for two years, and 70.58 percent of them developed pregnancy-induced hypertension. It was prevalent in the 21-30 age range (31%), with 54.17 percent primigravida. There were 45.45% LSCS in severe PIH with thrombocytopenia between 34-37 weeks for foetal indications including severe IUGR and oligohydramnios. In 8 cases of eclampsia with thrombocytopenia, vaginal birth was more common in 34-37 weeks gestation (60 percent). Cesareans were more common in the 37-week gestation period (75 percent). Maternal Mortality was 7.69%, followed by 42.30% and 20.9 percent of cases with eclampsia and PPH, 19.23 percent with renal failure, and 15.38 percent with DIC. Pre-eclampsia is a primary cause of thrombocytopenia in pregnancy. This increases maternal and foetal mortality and morbidity.

Keywords: severe PE; mild PE; HELLP, thrombocytopenia, LSCS.

INTRODUCTION

Thrombocytopenia is a condition that can complicate up to 7-8 percent of all pregnancies. The computerised Complete blood count, which typically includes platelet count, is largely responsible for the present detection of the illness. The majority of this drop takes place during the third trimester and is connected with a shift in the histogram of platelet count distribution throughout this time period.

It can be caused by a range of conditions, ranging from benign illnesses such as pregnancy thrombocytopenia to life-threatening syndromes such as HELLP syndrome (Haemolysis, Elevated Liver Enzymes, Low Platelet Count), which is characterised by low

platelet counts and hemolysis. Thrombocytopenia is characterized as a low number of platelets in the circulatory blood that is below normal. [1]

The discovery of thrombocytopenia during pregnancy is an intriguing problem for obstetricians to deal with on a daily basis. It is estimated that roughly 20% of all occurrences of thrombocytopenia during pregnancy are caused by hypertensive disorders of pregnancy, which are responsible for approximately 20% of all cases. Preeclampsia is associated with mild to moderate thrombocytopenia, however it is possible to develop severe thrombocytopenia. Patients with eclampsia were at an even larger risk of having severe thrombocytopenia than those without the condition. In addition, women who are pregnant are more likely to develop HELLP syndrome, which is a subtype of preeclampsia.

Thrombocytopenia is a critical and required component of this condition, and it must be treated. Four processes contribute to thrombocytopenia: artifactual thrombocytopenia, insufficient platelet generation, rapid platelet breakdown, and platelet pooling. Which is defined mostly by bleeding from small blood vessels as its hallmark. [2,3]

The period of onset of many problems during pregnancy, as well as their clinical symptoms, frequently coincide, making the diagnosis of individual disorders challenging. Thrombocytopenia is a concern for both the woman and her unborn child, and it has been connected with significant maternal or neonatal morbidity and mortality in several studies. [4-5]

Specialized treatments, on the other hand, have been shown to improve the outcomes of affected patients and their progeny when implemented quickly and effectively. In order to determine the prevalence of thrombocytopenia in pregnant women with pregnancy-induced hypertension, as well as the consequences of this condition on maternal and foetal outcomes, a retrospective study was conducted.

AIM & OBJECTIVES

- Clinical study of maternal and foetal outcome in preeclampsia with thrombocytopenia in hypertensive pregnant women.

MATERIALS AND METHODS

SOURCES OF DATA

From the records of pregnant women admitted in the Department of Obstetrics and Gynaecology, Modern Government Maternity Hospital, Petlaburz, Osmania Medical College, Hyderabad, Telangana – from November 2020 to December 2021.

METHOD OF COLLECTION OF DATA

STUDY DESIGN

Prospective

SAMPLE SIZE

120

From the records / case sheets of pregnant women with pregnancy induced hypertension admitted in labour to the department of obstetrics and gynaecology, Modern Government Maternity Hospital, Petlaburz, Osmania Medical College, Hyderabad, Telangana. Details will be entered in the proforma regarding the detailed history of period of gestation, high risk factors, complications – during present and past pregnancy, like pregnancy induced hypertension, diabetes mellitus, APLA, intra uterine death, abruption, hepatitis. Past history of pregnancy induced hypertension, hypertension, diabetes mellitus & haemor

rhagic disorders.

INCLUSION CRITERIA

1. Third trimester pregnant women with BP measuring more than 140/90mmHg with thrombocytopenia.
2. Pregnant women with HELLP syndrome.
3. Pregnant women with diagnosed pre-eclampsia and eclampsia with thrombocytopenia.

EXCLUSION CRITERIA

1. Patients with established ITP disease.
2. Patients with hypertensive disorder before pregnancy.
3. Patients established with HIV disease.
4. Patients with history of viral fever.

PROCEDURE OF THE STUDY

Pregnant women who are admitted to Osmania Medical College associated hospital in the third trimester with BP >140/90 will be selected according to inclusion and exclusion criteria. A written consent is taken in those who satisfy these inclusion criteria.

Blood pressure measurements and full blood counts, renal function, liver function tests and peripheral blood smear study are done. This will exclude any known cause of thrombocytopenias such as ITP, Leukaemia, and or lympho-proliferative diseases.

Study is about maternal and fetal outcome related to mode of delivery (vaginal/instrumental / CS), maternal and fetal morbidity and mortality, complications like renal failure, pulmonary oedema, cerebral venous thrombosis, disseminated intravascular coagulation, postpartum haemorrhage, multiorgan failure.

Blood specimen will be withdrawn with minimal stasis from the ante-cubital vein using a dry sterile disposable syringe and needle. 3ml of blood is dispensed into EDTA anticoagulant tubes. The specimens are labelled with subject's age, sex and identification number. The EDTA samples will be kept at room temperature until processed within 4 hours of collection.

Laboratory analysis – Platelet count will be performed using manual method and automated haematology method.

RESULTS

Table 1: Etiology of Thrombocytopenia

Etiology	No of subjects	Percentage
Mild PIH	32	26.66
Severe PIH	48	40
Eclampsia	10	8.34
HELLP	29	24.16
Total	120	100

In the above table, out of 120 cases included in the study, 32 and 48 cases presented with mild and severe pregnancy induced hypertension, 8 cases were diagnosed as eclampsia and 29 cases presented with HELLP syndrome.

Table 2: Age distribution of Subjects of Pregnancy induced Hypertension with thrombocytopenia

Age group	Frequency (n)	Percentage (%)
<20 years	31	25.84

21-25years	47	39.16
26-30years	27	22.5
>30years	15	12.5
Total	120	100

Majority of the study subjects in our study were aged between 21-25 years (39.16%) followed by <20 years (25.84%). 22.5% of the cases were between the age group 26-30 years and 12.5% were aged above 30 years of age.

Table 3: Gravidity index of patients with pregnancy induced hypertension with Thrombocytopenia

Gravida	Frequency(n)	Percentage(%)
Primigravida	65	54.17
Multigravida	55	45.83
Total	120	100

In our study, 65 of the cases were primigravida and 55 of them were multigravida.

Table 4: Analysis of mode of delivery and gestational age in mild pregnancy induced hypertension with thrombocytopenia

Gestational Age	Mode of delivery	MILDPIH	Percentage
	ID	2	22.23
	LSCS	3	33.33
28-34 weeks	VD	4	44.44
	TOTAL	9	100
34-37 WEEKS	ID	2	11.76
	LSCS	5	29.41
	VD	10	58.82
	TOTAL	17	100
>37 WEEKS	ID	3	33.33
	LSCS	1	11.11
	VD	5	55.55
	TOTAL	9	100

Out of the 120 cases of thrombocytopenia 35 cases presented with mild PIH. Out of the total 35 cases the 9 of them were between the 28-34 weeks of gestation, 17 were between 34-37 weeks and 9 were over the 37 weeks of gestation.

Among the 28-

34 weeks of gestation, 4 (33.33%) had normal vaginal delivery, 3 (33.33%) underwent LSCS and remaining 2 cases (22.23%) had instrumental delivery.

Nearly 10 (60%) cases out of 17 in the 34-37 weeks of gestational age had vaginal delivery, 5 (29.41%) underwent LSCS and 2 (11.76%) had instrument assisted delivery.

Out of 9 cases between the gestational age greater than 37 weeks, 5 (55.55%), 1 (11.11%) and 2 (22.23%) delivered through normal vaginal, LSCS and instrumental delivery respectively.

Table 5: Analysis of mode of Delivery and Gestational age and Severe Pregnancy Induced Hypertension with and without thrombocytopenia

Gestational Age	Mode of delivery	Thrombocytopenia patients	Percentage
	ID	0	0
	LSCS	3	37.5

	VD	5	62.5
28-34weeks	TOTAL	8	100
34-37WEEKS	ID	3	13.63
	LSCS	10	45.45
	VD	9	40.9
	TOTAL	22	100
>37WEEKS	ID	2	13.33
	LSCS	8	53.33
	VD	5	22.72
	TOTAL	15	100

Out of the 120 cases of thrombocytopenia 40 cases presented with Severe PIH .Out of the total 45 cases the 8 (17.77%) of them were between the 28-34 weeks of gestation, 22 (48.88%) were between 34-37 weeks and 15 (33.33%) were over the 37 weeks of gestation. Among the 28-34 weeks of gestation, 3 (37.5 %) had normal vaginal delivery, 5 (62.5%) underwent LSCS. Nearly 9 (40.9%) cases out of 22 in the 34-37 weeks of gestational age had vaginal delivery, 9 (40.9 %) underwent LSCS and 10 (45.45 %) had instrument assisted delivery. Out of 15 cases with the gestational age greater than 37 weeks, 5 (22.72 %) , 8 (53.33%) and 2 (13.33%) delivered through normal vaginal, LSCS and instrumental delivery respectively.

Table 6: Mode of Delivery in Mild and Severe Pregnancy Induced Hypertension with Thrombocytopenia

Mode of delivery	Mild PIH	Severe PIH
VD	17 (58.62%)	15 (36.58%)
ID	5 (17.24%)	7 (17.03%)
LSCS	7 (24.13%)	18 (43.90%)
TOTAL	29 (100%)	41 (100%)

Chi square=3.69 df=2 p=0.169

Out of the 29 cases of Mild PIH, 16 (57.2%) had Normal Vaginal Delivery, 4 (14.3%) were instrumental delivery and 8 (28.5%) underwent LSCS.

Out of the 40 cases of Severe PIH, 14 (35%) had normal Vaginal Delivery, 6 (15%) had instrument assisted delivery and 20 (50%) were delivered through LSCS.

The association between the mode of delivery and the variants of PIH was found to be statistically not significant

Table 7: Analysis of Mode of Delivery and Gestational age in Eclampsia with Thrombocytopenia

Gestational weeks	Eclampsia			Total
	Mode of delivery			
	NVD	ID	LSCS	
28-34WKS	0(0%)	0(0%)	0(0%)	0(0%)
34-37WKS	3(60.0%)	2(100%)	1(25%)	6(54.5%)
>37WKS	2(40%)	0(0%)	3(75%)	5(45.5%)
TOTAL	5(100%)	1(100%)	4(100%)	11(100%)

Fisher's exact test=0.46 p>0.05 (not significant)

Out of the 11 cases of eclampsia with thrombocytopenia, 6 (54.5%) were in the 34-37 weeks of gestation and 5 (45.5%) above 37 weeks of gestation.

Out of 5 cases which had normal vaginal delivery, 3 (60 %) were in the 34-37 weeks of gestation and 2 (40 %) was above 37 weeks of gestation. There was only one case which was delivered through the assist of instrument was in the 34-37 weeks of gestation. Among 3 cases delivered through LSCS, 1(25 %) was in 34-37 weeks and 3(75 %) above 37 weeks of gestation.

The Association between Mode of delivery and gestation weeks among the eclampsia cases was found to be not significant.

Table 8: Distribution of subjects according to the classification of HELLP

Class	Frequency	Percentage
CLASS I	14	52
CLASS II	7	28
CLASS III	5	20
Total	25	100

HELLP was classified into Class I (52%), Class II (28%) and Class III (20%).

Table 9: Distribution of subjects according to the Complications and classification of HELLP syndrome

Complication	HELLP			Total
	Class I	Class II	Class III	
Maternal mortality	0(0%)	1(12.5%)	1(20%)	2(7.69%)
Eclampsia	9(60.0%)	2(25%)	0(0%)	11(42.30%)
PPH	2(13.33%)	2(25%)	2(40%)	6(23.07%)
Renal failure	2(13.33%)	2(25%)	1(20%)	5(19.23%)
DIC	2(13.34%)	1(12.5%)	1(20%)	4(15.38%)
TOTAL	15(100%)	8(100%)	5(100%)	26(100%)

Among all the HELLP patients, Maternal Mortality was 7.69 % followed by 42.30 % and 20.9% of cases presented with eclampsia and PPH, 19.23% for Renal Failure, 15.38% with DIC. Maternal Mortality was seen each among class II and Class III of HELLP. Out of 15 cases among class I, 9(60.0%) eclampsia, 2(13.34%) PPH, 2(13.3%) Renal failure and 2(13.3%) DIC were Present.

8 cases of HELLP class II was seen in our study out of the 8 cases 1 (12.5%) Maternal Mortality, 2 (25.0%) eclampsia, 2(25.0%) renal failure and one (12.5%) case of PPH.

HELLP class III had 5 cases, 1(20%) had maternal Mortality and renal failure, 2(40%) had PPH and 1(20%) had DIC.

Table 10: Analysis of Mode of Delivery And Gestational age Among Class I HELLP

Gestation age	Mode of delivery			Total
	VD	ID	LSCS	
28-34 WKS	0(0%)	1(25%)	0(0%)	2(12.5%)
34-37 WKS	6(60%)	3(75%)	2(40.00%)	8(50.0%)
>37 WKS	4(40.0%)	0(0%)	3(60.0%)	6(37.5%)
TOTAL	10(100%)	4(100%)	5(100%)	16(100%)

Out of 14 cases of HELLP class I, 8 cases were vaginal delivery (60% in 34-37 weeks and 40% in >37 weeks), 4 cases were instrumental delivery (25% in 28-34 weeks and 75% in 34-37 weeks), and 5 cases were LSCS (40% in 34-37 weeks and 60% in >37 weeks).

The Association between Mode of delivery and gestation weeks among the HELLP Class I cases was found to be not significant.

Table 11: Analysis of Mode of Delivery And Gestational Age Among Class II HELLP

Gestation age	Mode of delivery			Total
	VD	ID	LSCS	
28-34 WKS	1(25%)	1(33.34%)	0(0%)	2(28.72%)
34-37 WKS	3(75%)	2(66.63%)	0(0%)	4(57.14%)
>37 WKS	0(0%)	0(0%)	2(100%)	1(14.28%)
TOTAL	4(100%)	3(100%)	2(100%)	7(100%)

Out of 6 cases of HELLP class II, 4 cases were vaginal delivery (25% in 28-34 weeks and 66.7% in 34-37 weeks), 2 cases were instrumental delivery (50% in 28-34 weeks and 50% in 34-37 weeks), and 1 case was LSCS seen in the >37 weeks of gestation.

The Association between Mode of delivery and gestation weeks among the HELLP Class II cases was found to be not significant.

Table 12: Analysis of Mode of Delivery And Gestational Age Among Class III HELLP

Gestation age	Mode of delivery			Total
	VD	ID	LSCS	
28-34 WKS	0(0%)	0(0%)	0(0%)	0(0%)
34-37 WKS	1(33.34%)	1(100%)	0(0%)	2(33.34%)
>37 WKS	2(66.66%)	0(0%)	2(100%)	4(66.66%)
TOTAL	3(100%)	1(100%)	2(100%)	6(100%)

Out of 6 cases of HELLP class III, 2 cases were vaginal delivery (33.34% in 34-37 weeks and 66.66% in >37 weeks), 2 cases were instrumental delivery in 34-37 weeks, and 2 cases of LSCS in the >37 weeks of gestation.

The Association between Mode of delivery and gestation weeks among the HELLP Class III cases was found to be not significant.

Table 13: Analysis of Mode of Delivery and Gestational Age among Eclampsia and patients with HELLP

Mode of delivery			Total
	With HELLP	With eclampsia	
VD	14(53.84%)	5(50%)	19(52.78%)
ID	7(26.92%)	2(20%)	9(25.0%)
LSCS	5(19.23%)	3(30.0%)	10(27.77%)
TOTAL	26(100%)	10(100%)	36(100%)

Out of 36 cases with HELLP and Eclampsia, 14 cases (53.84%) delivered through vaginal, 9 (25%) delivered using instruments and 10 (27.77%) through LSCS. Out of 10 cases with eclampsia, 5 (50%) delivered through vaginal route, 2 (20%) through instrumental and 3 (30%) through LSCS. The association between mode of delivery with eclampsia and HELLP was also found to be statistically not significant.

Table14: Analysis of Foetal Mortality and Morbidity in All cases admitted with Thrombocytopenia

Gestational Age	Fetal outcome	Thrombopenia			
		Mode of delivery			Total
		VD	ID	LSCS	
	Healthy	7 (75%)	2 (66.7%)	2 (50%)	11 (63.64%)
	Perinatal mortality	0 (0%)	0 (0%)	0 (0%)	0 (0%)
28-34 wks	Perinatal Morbidity	2 (33.33%)	2 (33.33%)	2 (33.34%)	6 (33.3%)
	Total	9 (100%)	4 (100%)	4 (100%)	17 (100%)
34-37 wks	Healthy	23 (76.66%)	8 (72.72%)	12 (70.58%)	41 (100%)
	Perinatal mortality	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Perinatal Morbidity	7 (25.54%)	3 (27.28%)	5 (29.41%)	15 (25.9%)
	Total	30 (100%)	11 (100%)	17 (100%)	56 (100%)
>37 wks	Healthy	11 (78.57%)	3 (60%)	12 (80%)	24 (72.72%)
	Perinatal mortality	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Perinatal Morbidity	3 (27.27%)	2 (40%)	3 (20%)	9 (27.27%)
	Total	14 (100%)	5 (100%)	15 (100%)	33 (100%)

Foetal outcome is generally influenced by gestational age and mode of delivery in the present study. The above factors were confirmed by the table given above.

In the group with thrombocytopenia gestational age between 28 to 34 Weeks (n=17), live births were 100%, perinatal mortality was nil, Perinatal morbidity 33.3% and 63.64% were healthy. The association between the mode of delivery and foetal outcome was found to be statistically insignificant in this group.

In gestation between 34 to 37 weeks (n=56) live births were 100%, perinatal mortality was zero, Perinatal morbidity 25.54% and 27.28%, 29.41% were healthy. The association between the mode of delivery and foetal outcome was found to be statistically insignificant in this group.

More than 37 Weeks of gestation (n=33) live births were 100%, perinatal mortality was zero and Perinatal morbidity 27.27% and 67.2% healthy infants. The association between the mode of delivery and foetal outcome was found to be statistically insignificant in this group.

DISCUSSION

Thrombocytopenia complicating hypertensive disorders of pregnancy are approximately 10%. Pre-eclampsia affects approximately 6% of all pregnancies.²

In our study of 120 cases of thrombocytopenia, 70.58% of the cases had Pregnancy induced hypertension.

In the other studies done by Robert S Egerman (7-10%)⁶, was the overall incidence of PIH.

The prevalence of thrombocytopenia among the PIH was 21% in the study done by Ray JG⁷, 21% in Bob and Burrow⁸, 20% in John G Kelton⁹, 28.5% in Joshi et al.¹⁰

The findings of our study were much higher when compared to other studies.

INCIDENCE OF HELLP SYNDROME

HELLP syndrome is part of this spectrum of platelet consumption and coagulation activation in pregnancy. Incidence of thrombocytopenia among patients with severe PIH and eclampsia around 20%¹¹.

In the present study, 24.16% patients had HELLP syndrome.

INCIDENCE OF MATERNAL MORTALITY

Patients with severe pre-eclampsia, eclampsia and HELLP have a significant

maternal mortality which can range from 1-3% as a result of multi-system organ failure¹². In our study the mortality was 2% among the HELLP. This compares with others as follows

INCIDENCE OF FOETAL MORBIDITY

IUGR is a most common fetal morbidity associated with PIH and thrombocytopenia. In the present study incidence of Foetal Morbidity was 28%. This compares with the following

CONCLUSION

Thrombocytopenia in pregnancy-induced hypertension is associated with a danger for both the mother and the foetus, according to the American Heart Association. The concomitant causes of thrombocytopenia, including a abruptio, retention of a dead foetus, septicæmia, and disseminated intravascular coagulation, exacerbate the complication of the disease. Thrombocytopenia is more common among women who have experienced the onset of pregnancy-induced hypertension early on, and it is associated with substantial morbidity for both the mother and the foetus.

HELLP syndrome continues to be a source of concern for obstetric health care providers. The nonspecific signs and symptoms of many illnesses early in the disease process make correct identification difficult, and delaying early treatment, which has the best prognosis for both maternal and foetal outcomes, further complicates the situation and delays treatment. The presence of thrombocytopenia per se has no effect on the mode of delivery. Mild thrombocytopenia was frequent in the third trimester, and it had a benign course after delivery. Administration of corticosteroids—dexamethasone rescue to the mothers should be done as soon as possible to increase the platelet count and to enhance lung maturity, as well as to reduce the risk of intraventricular haemorrhage and necrotising enterocolitis between 28 and 34 weeks of pregnancy, thereby reducing maternal and perinatal morbidity and mortality, as well as maternal and perinatal morbidity and mortality.

ACKNOWLEDGMENT

The author is thankful to Department of Obstetrics and Gynecology for providing all the facilities to carry out this work.

CONFLICT OF INTEREST

None

FUNDING SUPPORT

Nil

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