

## A STUDY ON THROMBOCYTOPENIA IN HYPERTENSIVE DISORDERS OF PREGNANCY AND ITS EFFECT ON MATERNAL AND PERINATAL OUTCOME

R.Srividya<sup>1</sup>, M.Laxmi<sup>2</sup>, G.Sravya<sup>3</sup>

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Corresponding Author:  
**Dr. G. Sravya,**  
Email: drsrividyaagmbbsmd12@gmail.com

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<sup>1</sup>Associate Professor, Department of Obstetrics and Gynaecology, Government Medical College, Mahabubabad, Telangana, India

<sup>2</sup>Assistant Professor, Department of Obstetrics and Gynaecology, Government Medical College, Narsampet, Telangana, India

<sup>3</sup>Assistant Professor, Department of Obstetrics and Gynaecology, Kakatiya medical college Hanumakonda, Telangana, India

### Abstract

**Background:** The aim is to study thrombocytopenia in hypertensive disorders of pregnancy and its effect on maternal and perinatal outcome. **Materials and Methods:** This was the prospective study conducted from January 2021 to June 2022 to study thrombocytopenia in hypertensive disorders of pregnancy and to correlate maternal and perinatal outcomes with severity of thrombocytopenia. A total of 100 women with hypertensive disorders of pregnancy with thrombocytopenia with gestational age >28 weeks were selected for the study. The subjects were divided into three groups based on the severity of thrombocytopenia. **Result:** There were 59 subjects with mild thrombocytopenia, 32 subjects with moderate thrombocytopenia and 9 subjects with severe thrombocytopenia. It is observed that as gestational age increased there was increase in incidence of thrombocytopenia. The p-value calculated as 0.0099 indicating statistical difference between birth weight and severity of thrombocytopenia. It is seen that that as severity of thrombocytopenia increasing there was increase in incidence of low birth weight babies. With the severity of thrombocytopenia increased there was also increase in NICU admissions. The severity of thrombocytopenia was significantly associated with unfavourable perinatal outcome (p=0.0001). It was observed that as severity of thrombocytopenia increasing there was increase in perinatal complications. In the present study 7(7%) babies were IUD and 5 (5%) babies had early neonatal death and 88 (88%) babies were healthy. **Conclusion:** Screening for thrombocytopenia in hypertensive disorders of pregnancy should be done at the level of primary health care centre and timely referral to higher centre should be done which can help to reduce complications due to severity of thrombocytopenia in hypertensive disorders of pregnancy and improve maternal and perinatal outcome which further helps in decreasing maternal and perinatal morbidity and mortality.

## INTRODUCTION

Pregnancy is a physiological process but can induce hypertension in normotensive women or aggravate already existing hypertension. Hypertension is the most common medical disorder of pregnancy that results in multi-organ failure in the mother. It is one of the most common causes of both maternal and neonatal morbidity.<sup>[1]</sup>

It is global problem and complicates approximately 10-17% of pregnancies. The incidence of hypertensive disorders of pregnancies in India ranges from 5-15%.<sup>[2]</sup> Together with haemorrhage and infection, hypertension forms deadly triad that

contributes to morbidity and mortality during pregnancy and childbirth. Studies have suggested that placental vascular under perfusion, maternal endothelial damage, and increased vascular permeability have been contributory to the pathophysiology of the disease.

A variety of haematological abnormalities may occur in woman with hypertensive disorders of pregnancy of which thrombocytopenia is most common. It is seen to occur in 11% to 29% of patients.<sup>[3]</sup> Thrombocytopenia is defined as platelet count less than 1,50,000/ $\mu$ l. Thrombocytopenia is said to be mild when platelet count is between 1,00,000-1,50,000/ $\mu$ l, moderate if platelet count is between

50,000- 1,00,000/ $\mu$ l and severe when platelet count is <50,000/ $\mu$ l.

In addition to changes in absolute platelet numbers, the platelets also appear to circulate in a more activated state in hypertensive disorders of pregnancy. There is a shortened platelet life span, increased numbers of megakaryocytes in the bone marrow, and an increased number of immature platelets seen in the peripheral blood smear. The increased rate of platelet destruction observed in hypertensive disorders of pregnancy may result from several potential mechanisms. There will be pathologically increased adherence of circulating platelets to damaged or activated endothelium and activation of the coagulation system with accelerated thrombin generation leading to platelet activation and enhanced platelet clearances and consumption.<sup>[4]</sup>

The frequency and intensity of maternal thrombocytopenia varies and is dependent on duration and severity of hypertensive disorders of pregnancy. In general, lower the platelet count higher the rates of maternal and perinatal morbidity and mortality. Specific therapies if instituted promptly, improves the outcome of affected patients and their offspring. Hence, an attempt is made to study thrombocytopenia in hypertensive disorders of pregnancy and correlate maternal and perinatal outcome in hypertensive disorders of pregnancy with the severity of thrombocytopenia. Early identification of this clinical entity and effective management play a significant role in the outcome of pregnancy.

## MATERIALS AND METHODS

It is Hospital based prospective study conducted at Government Maternity Hospital from January 2021 to June 2022 in 100 study subjects.

### Inclusion Criteria

Pregnant women from age 20 years to 35 years, Gestational age more than 28 weeks in all pregnant women with hypertensive disorders of pregnancy with thrombocytopenia attending Government Maternity Hospital.

### Exclusion Criteria

Heart diseases complicating, Gestational Diabetes complicating, Idiopathic Thrombocytopenic purpura. Demographic features, detailed history, presenting complaints if any, findings of general, systemic, and obstetrical examination including pelvic examination were recorded in approved proforma after taking

consent. Baseline investigations like complete blood picture, blood group and Rh typing, bleeding time, clotting time, RBS, HIV, HBsAg, VDRL serology, special investigations like coagulation profile (PT, APTT, FDP, Fibrinogen), RFT, LFT and urine analysis were done if clinically indicated. They were grouped as

Mild thrombocytopenia -1,00,000/ $\mu$ l-1,50,000/ $\mu$ l.

Moderate thrombocytopenia- 50,000/ $\mu$ l-1,00,000/ $\mu$ l.

Severe thrombocytopenia - <50,000/ $\mu$ l.

The gestational age, presentation, amount of liquor and FHS was noted. Participants were observed throughout the labour. Intrapartum patients were monitored with partograph and CTG. All women were followed up to delivery and postpartum period. Patients were monitored for complications like abruption, postpartum haemorrhage, disseminated intravascular coagulation, pulmonary oedema and for other morbidities. The neonates were followed up to early neonatal period in terms of intrauterine foetal growth restriction, birth weight, NICU admission, other complications and early neonatal death.

Data was entered in Microsoft excel and statistical software namely SPSS 22.0 and R environment version 3.2.2 were used for analysis of data. Chi-square and Fisher Exact test have been used to find significance of study parameters between two or more groups. A p-value of less than 0.05 was considered to be statistically significant.

## RESULTS

The study subjects were divided into three groups based on the severity of thrombocytopenia. There were 59 subjects with mild thrombocytopenia, 32 subjects with moderate thrombocytopenia and 9 subjects with severe thrombocytopenia. 56 babies were male and 44 babies were females.

Majority of subjects were in age group 20-30 years (80%), remaining 20% of subjects were in age group 31-35 years. Among the age group of 20-30 years, 46 subjects (57.50%) were with mild thrombocytopenia, 27 subjects (33.75%) were with moderate thrombocytopenia and 7 subjects (8.75%) were with severe thrombocytopenia.

Among the age group of 31-35 years, 13 subjects (65.00%) were with mild thrombocytopenia, 5 subjects (25%) were with moderate thrombocytopenia, and 2 subjects (10%) were with severe thrombocytopenia.

**Table 1: Distribution of subjects according to maternal age and severity of thrombocytopenia.**

Maternal age	20-30 years N (%)	31-35 years N (%)	Total
Mild Thrombocytopenia	46 (57.50%)	13 (65.00%)	59
Moderate Thrombocytopenia	27 (33.75%)	5 (25.00%)	32
Severe Thrombocytopenia	7 (8.75%)	2 (10.00%)	9
Total	80	20	100

**Table 2: Distribution of subjects according to booking status and severity of thrombocytopenia.**

Booking Status	Booked N (%)	Unbooked N (%)	Total
Mild Thrombocytopenia	33 (71.74%)	26 (48.15%)	59
Moderate Thrombocytopenia	13 (28.26%)	19 (35.19%)	32
Severe Thrombocytopenia	0 (0%)	9 (16.67%)	9

Total	46	54	100
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Among the booked subjects, 33 subjects (71.74%) were with mild thrombocytopenia, 13 subjects (28.26%) were with moderate thrombocytopenia and there were no subjects with severe thrombocytopenia.

Among the unbooked subjects, 26 subjects (48.15%) were with mild thrombocytopenia, 19 subjects (35.19%) were with moderate thrombocytopenia and 9 subjects (16.67%) were with severe thrombocytopenia.

**Table 3: Distribution of subjects according to gravidity and types of hypertensive disorders of pregnancy.**

Gravidity	Primigravida N (%)	Multigravida N (%)	Total
GHTN	11 (20%)	6 (13.3%)	17
NSP	11 (20%)	13 (28%)	24
SP	28 (50.9%)	21 (46.6%)	49
Eclampsia	5 (9.09%)	5 (11.11%)	10
Total	55	45	100

Among primigravida 11(20%) subjects were with GHTN, 11 (20%) subjects were with NSP, 28 (50.9%) subjects were with SP, and 5 (9.09%) subjects were with eclampsia. Among Multigravida 6

(13.3%) subjects were GHTN, 13 (28%) subjects were with NSP, 21 (46.6%) subjects were with SP, and 5 (11.11%) subjects were with eclampsia.

**Table 4: Distribution of subjects according to gravidity and severity of thrombocytopenia.**

Gravidity	Primigravida N (%)	Multigravida N (%)	Total
Mild Thrombocytopenia	31 (56.36%)	28 (62.22%)	59
Moderate Thrombocytopenia	19 (34.55%)	13 (28.89%)	32
Severe Thrombocytopenia	5 (9.09%)	4 (8.89%)	9
Total	55	45	100

Among the subjects with primigravida, 31 subjects (56.36%) were with mild thrombocytopenia, 19 subjects (34.55%) were with moderate

thrombocytopenia and 5 subjects (9.09%) were with severe thrombocytopenia.

Among the subjects with multigravida, 28 subjects (62.22%) were with mild thrombocytopenia, 13 subjects (28.89%) were with moderate thrombocytopenia and 4 subjects (8.89%) were with severe thrombocytopenia.

**Table 5: Distribution of subjects according to mode of delivery and severity of thrombocytopenia.**

Mode of Delivery	Vaginal delivery N (%)	LSCS N (%)	Total
Mild Thrombocytopenia	38 (64.40%)	21 (51.22%)	59
Moderate Thrombocytopenia	16 (27.11%)	16 (39.02%)	32
Severe Thrombocytopenia	5 (8.47%)	4 (9.76%)	9
Total	59	41	100

The above table represents the data on distribution of subjects according to mode of delivery and severity of thrombocytopenia. Majority of subjects had

vaginal delivery (59%) and remaining subjects had LSCS (41%).

**Table 6: Distribution of subjects according to types of hypertensive disorders of pregnancy and severity of thrombocytopenia.**

Types of hypertensive disorders of pregnancy	GHTN N%	NSP N%	SP N%	Eclampsia N%	Total	P value
Mild Thrombocytopenia	17 (100%)	24 (100%)	17 (34.69%)	1 (10%)	59	0.0001
Moderate Thrombocytopenia	0	0	29 (59.18%)	3 (30%)	32	
Severe Thrombocytopenia	0	0	3 (6.13%)	6 (60%)	9	
Total	17	24	49	10	100	

The calculated p-value was 0.0001 indicating significant statistical difference in severity of hypertensive disorders of pregnancy and severity of

thrombocytopenia. So as severity of hypertensive disorders of pregnancy was increasing there was also increase in severity of thrombocytopenia.

**Table 7: Distribution of subjects according to maternal complications and severity of thrombocytopenia.**

Maternal Complications	Abruption N (%)	HELLP N (%)	PPH N (%)	DIC N (%)	Pulmonary Oedema N (%)	Total	P Value
Mild Thrombocytopenia	1 (11.11%)	0	3 (27.27%)	0	0	4	0.01
Moderate Thrombocytopenia	7 (77.78%)	2 (40%)	7 (63.64%)	1 (50%)	0	17	
Severe Thrombocytopenia	1 (11.11%)	3 (60%)	1 (9.09%)	1 (50%)	2 (100%)	8	
Total	9	5	11	2	2	29	

Maternal complications were seen in 29 subjects (29%) and in 71 subjects (71%) there were no complications. Among the 9 subjects with abruption, 1 subject (11.11%) was with mild thrombocytopenia, 7 subjects (77.78%) were with moderate

thrombocytopenia, and 1 subject (11.11%) was with severe thrombocytopenia. The calculated p-value was 0.01 indicating statistical difference between maternal complications and severity of thrombocytopenia.

**Table 8: Distribution of subjects according to gestational age and severity of thrombocytopenia.**

Gestational age	28-34 weeks N(%)	34-37 weeks N(%)	≥37 weeks N(%)	Total
Mild Thrombocytopenia	1 (14.29%)	10 (62.50%)	48 (62.34%)	59
Moderate Thrombocytopenia	4 (57.14%)	5 (31.25%)	23 (29.87%)	32
Severe Thrombocytopenia	2 (28.57%)	1 (6.25%)	6 (7.79%)	9
Total	7	16	77	100

Majority of subjects 77 (77%) were ≥37 weeks and remaining 23 subjects (23%) were <37weeks. It is

observed that as gestational age was increasing there was increase in incidence of thrombocytopenia.

**Table 9: Distribution of subjects according to birth weight of babies and severity of thrombocytopenia.**

Birth weight	<2.5 kg N (%)	>2.5kg N (%)	Total	P value
Mild Thrombocytopenia	12 (37.50%)	47 (69.12%)	59	0.0099
Moderate Thrombocytopenia	15 (46.88%)	17 (25.00%)	32	
Severe Thrombocytopenia	5 (15.63%)	4 (5.88%)	9	
Total	32	68	100	

32 babies (32%) were <2.5kg and 68 babies (68%) were >2.5kg. The p-value calculated as 0.0099 indicating statistical difference between birth weight

and severity of thrombocytopenia. Hence as severity of thrombocytopenia was increasing there was increase in incidence of low birth weight babies.

**Table 10: Distribution of subjects according to NICU admissions and severity of thrombocytopenia.**

NICU admission	Yes N (%)	No N (%)	P Value
Mild Thrombocytopenia	12(37.5%)	46(75.40%)	0.001
Moderate Thrombocytopenia	14(43.75%)	14(22.95%)	
Severe Thrombocytopenia	6(18.75%)	1(1.63%)	
Total	32	61	

Out of the 93 live births 32 babies (34.40%) required NICU admissions. The p-value was calculated as 0.001 indicating a highly statistical difference between NICU admissions and severity of

thrombocytopenia. It was observed that as the severity of thrombocytopenia increasing there was increase in NICU admissions of babies.

**Table 11: Distribution of subjects according to Apgar scores of babies and severity of thrombocytopenia.**

Apgar scores	At 1 minute < 7 N (%)	At 5 minute < 7 N (%)
Mild Thrombocytopenia	4(28.57%)	1(14.28%)
Moderate Thrombocytopenia	7(50%)	4(57.14%)
Severe Thrombocytopenia	3(21.42%)	2(28.57%)
Total	14	7

The above table gives data on distribution of subjects according to Apgar scores of babies and severity of thrombocytopenia. Out of 93 live births, 14 babies

(15.05%) had Apgar score <7 at one minute and 7 (7.52%) babies had Apgar score <7 at 5 minutes.

**Table 12: Distribution of subjects according to perinatal outcome and severity of thrombocytopenia.**

Perinatal Outcome	IUD N (%)	END N (%)	Healthy N (%)	Total	P Value
Mild Thrombocytopenia	1 (14.29%)	0	58 (65.91%)	59	0.0001
Moderate Thrombocytopenia	4 (57.14%)	3 (60.00%)	25 (28.41%)	32	
Severe Thrombocytopenia	2 (28.57%)	2 (40.00%)	5 (5.68%)	9	
Total	7	5	88	100	

The p-value was calculated as 0.0001 indicating a highly significant difference between perinatal complications and severity of thrombocytopenia. It was observed that as severity of thrombocytopenia increasing there was poor perinatal outcome.

## DISCUSSION

The 100 study subjects with hypertensive disorders of pregnancy with thrombocytopenia were divided into three groups based on the severity of thrombocytopenia. There were 59 subjects with mild

thrombocytopenia, 32 subjects with moderate thrombocytopenia and 9 subjects with severe thrombocytopenia.

In the present study majority of subjects were in age group 20-30 years (80%), remaining 20% of subjects were in age group 31-35 years. Among the age group of 20-30 years, 46 subjects (57.50%) were with mild thrombocytopenia, 27 subjects (33.75%) were with moderate thrombocytopenia and 7 subjects (8.75%) were with severe thrombocytopenia. Among the age group of 31-35 years, 13 subjects (65.00%) were with mild thrombocytopenia, 5 subjects (25%) were with moderate thrombocytopenia, and 2 subjects (10%) were with severe thrombocytopenia. The results of our study were in correlation with studies of Vinodhini and Kumari et al,<sup>[5]</sup> in which majority of women were of age 24-29 years and with Myers B et al,<sup>[6]</sup> in which majority of women were of age 24-30 years.

In the present study majority of subjects 54 (54%) were unbooked and remaining 46 subjects (46%) were booked. Among the booked subjects, 33 subjects (71.74%) were with mild thrombocytopenia, 13 subjects (28.26%) were with moderate thrombocytopenia and there were no subjects with severe thrombocytopenia. Among the unbooked subjects, 26 subjects (48.15%) were with mild thrombocytopenia, 19 subjects (35.19%) were with moderate thrombocytopenia and 9 subjects (16.67%) were with severe thrombocytopenia.

Most of the subjects in the study were primigravida 55 (55%) and multigravida were 45 subjects (45%). Among the subjects with primigravida, 31 subjects (56.36%) were with mild thrombocytopenia, 19 subjects (34.55%) were with moderate thrombocytopenia and 5 subjects (9.09%) were with severe thrombocytopenia. Among the subjects with multigravida, 28 subjects (62.22%) were with mild thrombocytopenia, 13 subjects (28.89%) with moderate thrombocytopenia and 4 subjects (8.89%) with severe thrombocytopenia. The results of study were in correlation with studies by Riazs et al,<sup>[7]</sup> in which incidence of primigravida was 60% and with Amit gupta et al,<sup>[8]</sup> in which primigravida were 58.60%.

In this study most of subjects had vaginal delivery (59%) and remaining subjects had LSCS (41%). Among vaginal delivery subjects, 38 subjects (64.40%) were with mild thrombocytopenia, 16 subjects (27.11%) were with moderate thrombocytopenia and 5 subjects (8.47%) were with severe thrombocytopenia. Among LSCS subjects, 21 subjects (51.22%) were with mild thrombocytopenia, 16 subjects (39.02%) were with moderate thrombocytopenia and 4 subjects (9.76%) were with severe thrombocytopenia. The results of our study were in correlation with Burrows RF et al,<sup>[9]</sup> in which 55% women had vaginal delivery and 45% women had LSCS. In study by Varghese S et al,<sup>[10]</sup> 57.9% women had vaginal delivery and 42.1% women had LSCS.

In 100 subjects with hypertensive disorders of pregnancy, GHTN were 17 (17%), NSP were 24 (24%), SP were 49 (49%) and with eclampsia were 10 (10%). Among gestational hypertension subjects, there were 17 subjects (100%) with mild thrombocytopenia, and there were no subjects with moderate and severe thrombocytopenia. Among non-severe pre-eclampsia subjects, there were 24 subjects (100%) with mild thrombocytopenia and there were no subjects with moderate and severe thrombocytopenia. Among severe pre-eclampsia subjects, 17 subjects (34.69%) were with mild thrombocytopenia, majority of subjects were 29 subjects (59.18%) were with moderate thrombocytopenia and 3 subjects (6.13%) were with severe thrombocytopenia. Among the eclampsia subjects, only 1 subject (10%) was with mild thrombocytopenia, 3 subjects (30%) were with moderate thrombocytopenia and majority 6 subjects (60%) were with severe thrombocytopenia. The calculated p-value was 0.0001 indicating significant statistical difference in severity of hypertensive disorders of pregnancy and severity of thrombocytopenia. So as severity of hypertensive disorders of pregnancy was increasing there was also increase in severity of thrombocytopenia. Similar findings were observed by Ellora Devi et al,<sup>[11]</sup> and by Kasturi V. Donimath et al,<sup>[12]</sup> Srivastava et al,<sup>[13]</sup> Jambhulkar et al,<sup>[14]</sup> Joshi et al,<sup>[15]</sup> and J.Davies et al,<sup>[16]</sup> in their studies.

Maternal complications were seen in 29 subjects (29%) and in 71 subjects (71%) there were no complications. Maternal complications seen in the study were abruption, HELLP, PPH, DIC and pulmonary oedema. No maternal deaths were noted. In the present study abruption was seen in 9% of subjects which is similar to study by Parnas et al,<sup>[17]</sup> in which abruption noted was 8.5% and low when compared to study by Shazly et al,<sup>[18]</sup> in which abruption noted was 25%. Among the 9 subjects (9%) with abruption, 1 subject (11.11%) was with mild thrombocytopenia, 7 subjects (77.78%) were with moderate thrombocytopenia, and 1 subject (11.11%) was with severe thrombocytopenia. The incidence of HELLP syndrome was 5% in present study which is consistent with study of Riaz et al,<sup>[19]</sup> who reported an incidence of 5%. Among 5 subjects (5%) with HELLP, there were 2 subjects (40%) with moderate thrombocytopenia, 3 subjects (60%) with severe thrombocytopenia and there were no subjects with mild thrombocytopenia.

Most common complication observed was PPH (11%) which is similar to observations by Meshram et al,<sup>[20]</sup> (8.5%). Among 11 subjects with PPH, there were 3 subjects (27.27%) with mild thrombocytopenia, 7 subjects (63.64%) with moderate thrombocytopenia, and 1 subject (9.09%) with severe thrombocytopenia.

DIC was seen in 2% of the subjects. Similarly, the incidence of DIC has been reported as 3.19% by Meshram et al.<sup>[20]</sup> Among 2 subjects (2%) with DIC, there was 1 subject (50%) with moderate



thrombocytopenia, 1 subject (50%) with severe thrombocytopenia and no subjects with mild thrombocytopenia.

Pulmonary oedema was observed in 2% of the subjects. Among subjects with pulmonary oedema, there were 2 subjects (100%) with severe thrombocytopenia and no subjects with moderate and mild thrombocytopenia. In present study it is observed that as severity of thrombocytopenia increasing, there was also increase in maternal morbidity with p-value 0.01 indicating significant statistical difference. Similar findings was seen in the study conducted by Shazly et al.<sup>[18]</sup>

Majority of subjects 77 (77%) were  $\geq 37$  weeks and remaining 23 subjects (23%) were  $< 37$  weeks. It is observed that as gestational age was increasing there was increase in incidence of thrombocytopenia. Among the gestational age group of 28-34 weeks, 1 subject (14.29%) was with mild thrombocytopenia, 4 subjects (57.14%) were with moderate thrombocytopenia and 2 subjects (28.57%) were with severe thrombocytopenia. Among the gestational age group of 34-37 weeks, 10 subjects (62.50%) were with mild thrombocytopenia, 5 subjects (31.25%) were with moderate thrombocytopenia and 1 subject (6.25%) was with severe thrombocytopenia. Among the age group of  $\geq 37$  weeks, 48 subjects (62.34%) were with mild thrombocytopenia, 23 subjects (29.87%) were with moderate thrombocytopenia, 6 subjects (7.79%) were with severe thrombocytopenia.

In the present study 32 babies (32%) were  $< 2.5$  kg and 68 babies (68%) were  $> 2.5$  kg. Among 32 subjects with babies weighing  $< 2.5$  kg, 12 subjects (37.50%) were with mild thrombocytopenia, 15 subjects (46.88%) with moderate thrombocytopenia, and 5 subjects (15.63%) with severe thrombocytopenia. Among 68 subjects with babies weighing  $> 2.5$  kg, 47 subjects (69.12%) were with mild thrombocytopenia, 17 subjects (25%) with moderate thrombocytopenia, and 4 subjects (5.88%) with severe thrombocytopenia. The p-value calculated as 0.0099 indicating statistical difference between birth weight and severity of thrombocytopenia. Hence as severity of thrombocytopenia was increasing there was increase in incidence of low birth weight babies.

In the present study, out of the 93 live births 32 babies (34.40%) required NICU admissions. Various reasons for NICU admissions were preterm, IUGR, respiratory distress. Among the 32 subjects with babies requiring NICU admissions, 12 subjects (37.5%) were with mild thrombocytopenia, 14 subjects (43.75%) were with moderate thrombocytopenia and 6 subjects (18.75%) were with severe thrombocytopenia. In study by Vyas et al,<sup>[21]</sup> 13.20% neonates were admitted to NICU which was less compared to present study. Among the 61 subjects with babies not requiring NICU admissions, 46 subjects (75.40%) were with mild thrombocytopenia, 14 subjects (22.95%) were with moderate thrombocytopenia, 1 subject (1.63%) was with severe thrombocytopenia. The p-value was

calculated as 0.001 indicating a highly statistical difference between NICU admissions and severity of thrombocytopenia. It was observed that as the severity of thrombocytopenia increasing there was increase in NICU admissions of babies.

Out of 93 live births, 14 babies (15.05%) had Apgar score  $< 7$  at one minute and 7 babies (7.52%) had Apgar score  $< 7$  at 5 minutes. In study 16.8% babies had Apgar score  $< 7$  at one minute and 8.7% babies had Apgar score  $< 7$  at 5 minutes which is similar to present study.<sup>[16]</sup>

In the present study 7(7%) babies were IUD and 5 (5%) babies had early neonatal death and 88 (88%) babies were healthy. Among 7 subjects with IUD, 1 subject (14.29%) was with mild thrombocytopenia, 4 subjects (57.14%) with moderate thrombocytopenia and 2 subjects (28.57%) with severe thrombocytopenia. Similar findings were observed in study, in which IUD was seen in 7.7% of cases.<sup>[22]</sup> Among 5 subjects with early neonatal death, 3 subjects (60%) were with moderate thrombocytopenia, followed by 2 subjects (40%) with severe thrombocytopenia and no subjects from mild thrombocytopenia. The findings in present study are comparable to study by Shahla K et al,<sup>[22]</sup> in which neonatal deaths were in 6.1% cases. Among 88 subjects with healthy babies, majority of subjects were 58 subjects (65.91%) with mild thrombocytopenia, followed by 25 subjects (28.41%) with moderate thrombocytopenia and 5 subjects (5.68%) with severe thrombocytopenia. The p-value was calculated as 0.0001 indicating a highly significant difference between perinatal complications and severity of thrombocytopenia. It was observed that as severity of thrombocytopenia increasing there was poor perinatal outcome.

## CONCLUSION

Preeclampsia imposes significant risk to the maternal and fetal life. In present study it is observed that as severity of thrombocytopenia was increasing in hypertensive disorders of pregnancy there was higher rates of maternal and perinatal morbidity and mortality.

Screening for thrombocytopenia should be done in all hypertensive disorders of pregnancy as early diagnosis and timely intervention can improve maternal and perinatal outcome.

Careful follow up during and after pregnancy is recommended. In the present study majority of cases were unbooked. So, all pregnant woman should be advised to register in first trimester and regular antenatal visits should be advised that helps in early identification of thrombocytopenia in hypertensive disorders of pregnancy and early intervention can be done which can help to decrease the incidence of complications. Screening for thrombocytopenia in hypertensive disorders of pregnancy should be done at level of primary health care centre and timely referral to higher centre should be done which can

help to reduce complications due to severity of thrombocytopenia in hypertensive disorders of pregnancy and improve maternal and perinatal outcome which further helps in decreasing maternal and perinatal morbidity and mortality.

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