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Associations between Severity of Thrombocytopenia & Pregnancy Induced HTN in a Tertiary Care Hospital: An Observational Study

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Abstract

Background: Hypertension is a common complication of pregnancy and contributes significantly to maternal and perinatal morbidity and mortality. Without intervention, pregnancy-induced hypertension can progress to eclampsia, which is characterized by hypertension, proteinuria, edema and convulsions requiring immediate termination. Thrombocytopenia is one of the remarkable haematological changes that occur during pregnancy and, at times, is life-threatening. Therefore, platelet count can be used as an early, simple, and rapid test to assess the severity of pre-eclampsia and prevent progression to HELLP syndrome and DIC.

Aim of the study: The study aims to find out the association between the severity of thrombocytopenia and pregnancy hypertension

Methods: This observational study was conducted at the Dhaka Medical College Hospital from April 2018 to June 2019. The calculated sample size was 384, but due to time constraints and less availability of pregnancy-induced hypertensive patients, 65 patients attending the OBS & GYN department for delivery purposes were included in the study. After getting informed consent, all the subjects underwent blood investigations, i.e. complete blood cell count for Platelet count using EDTA anticoagulant blood and analyzed on Mindray, Automated Hematology Analyzer".

Result: Out of 65 pregnancy-induced HTN patients, 29% had Gestational HTN, 8(12.3%) were suffering from mild pre-eclampsia, and 22(33.85%) were having severe pre-eclampsia. Sixteen patients had eclampsia. Among all of the study subjects, 27 had thrombocytopenia with further fragmentation as mild thrombocytopenia (40.5%), moderate thrombocytopenia (40.5%), severe thrombocytopenia (19%), and the rest 38 had normal platelet counts. Twenty per cent in the age group of 21-25 years were having thrombocytopenia. Out of 65 pregnancy-induced hypertension patients, 32(49%) were prim gravida, and 30 (46%) were multigravida. Three patients suffered from postnatal pregnancy-induced hypertension. Fourteen out of 32 prim gravida cases had thrombocytopenia in varying degrees. Twelve of 30 multigravida subjects suffered from thrombocytopenia. Fifty-six per cent of patients had elevated liver enzymes. Maternal morbidity with thrombocytopenia was 13.8%, whereas overall foetal morbidity was 31%. Maternal mortality was found to be 4%, all of which were associated with severe thrombocytopenia, whereas overall foetal mortality was calculated to be 26%

Conclusion: This study and the results show that the assay of platelets can be considered as one of the early, simple, and rapid tests to assess the severity of pre-eclampsia and prevent progression to further complication

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Keywords: Association; Severity; Thrombocytopenia; Pregnancy; HTN

Introduction

Platelets are produced in the bone marrow and remain in blood for about 2 weeks before they are destroyed in the reticuloendothelial system. The normal platelets count ranges between 150 and 450 × 103/µl, which is also the same as that is mostly recorded during a normal pregnancy [1]. Gestational thrombocytopenia (GT) thrombocytopenia during pregnancy (pregnancy-induced thrombocytopenia) occurs in late gestation with an increased frequency during the last few weeks of the second trimester. PIT is commonly mild (>100 × 103/µl) and resolves usually completely after delivery; however, severe thrombocytopenia (<70 × 103/µl) rarely occurs. During pregnancy, fluid retention occurs because of sodium and water retention under estrogen and progesterone hormone effects, leading to hemodilution. This leads to lower hematocrit (dilution or pseudo-thrombocytopenia). Burrows and Kelton reported that the frequency of PIT was 5 %, while Kaplan et al. observed PIT in about 7 % of pregnancies [2,3]. This increase was claimed to be related to previously acquired or inherited diseases or pregnancy-related complications such as preeclampsia, sepsis, or pregnancy-induced disseminated intravascular coagulation [3]. The underlying cause of GT cannot usually be identified in about 75 % of the cases. In such cases, GT is generally assumed secondary to increased platelet consumption within the placental circulation and hormonal inhibition of megakaryocytopoiesis. This type of thrombocytopenia is known as asymptomatic thrombocytopenia; it, however, does not cause any clinical adverse effects in the mother or the baby [2,3]. Asymptomatic thrombocytopenia is reported in 5 % of normal pregnancies at preterm, whereas about 15 % of pregnant women develop severe thrombocytopenia if they develop preeclampsia during the last trimester [2]. Thrombocytopenia occurs more severely in twin pregnancies than in singleton pregnancies [4]. The criteria to diagnose gestational thrombocytopenia are as follows: platelets count is normal outside pregnancy, occurs late in gestation, no fetal/neonatal thrombocytopenia and complete recovery with normal platelets count and function after delivery. GT is considered a benign condition during pregnancy, and it does not require greater intensive care than routine obstetrical care. Thrombocytopenia can be due to idiopathic thrombocytopenic purpura (ITP), which is caused mostly by the formation of autoimmune antibodies. Most of GT's manifestations are similar to ITP. Differentiating ITP from gestational thrombocytopenia by antibodies immunoassays is difficult, while at least one or two ITP-induced antibodies are present in pregnancy-induced thrombocytopenia. GT is usually not severe and has no significant effect on neonatal thrombocyte count. On the contrary, ITP is usually severe during pregnancy, but it improves after delivery in mothers, and severe thrombocytopenia may occur in about 5–10 % of offspring of the affected mothers [5,6]. Preeclampsia prevalence is variable; the estimated incidence is 5–10 % of all pregnancies, with a higher incidence in the first pregnancy especially in women aged less than 20 years [6]. The frequency and severity of thrombocytopenia increase with the severity of preeclampsia and are greater in patients with HELLP syndrome or in those who have a full-blown eclampsia with disseminated intravascular coagulation [7]. Profound changes in the coagulation and fibrinolytic system occur during normal pregnancy causing a hypercoagulable state. There is a definite exaggeration of the hypercoagulable state of pregnancy during Pregnancy Induced Hypertension (PIH). These pregnancies are also associated with qualitative changes suggesting increased platelet production and destruction. 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 frequency and intensity of maternal thrombocytopenia vary and are dependent on the intensity of the disease process and duration of PIH syndrome [8]. Overt thrombocytopenia, defined by a platelet count less than 100,000/L, indicates severe disease [9]. In general, the lower the platelet counts, the higher the maternal and fetal morbidity and mortality. In most cases, delivery is indicated because the platelet count continues to decrease. A variety of haematological abnormalities may occur in women with PIH, of which thrombocytopenia is the most common. No screening test would help in identifying which pregnancy will be associated with PIH or assess its severity [10]. Some investigators have proposed biochemical markers to predict the severity of PIH, like Placental tissue protein and Endoglin, but these tests cannot be used for simple, low-cost screening [13]. Therefore, there is a need to identify a simple test specifically designed for routine use in a hospital environment, in particular those suitable for a rural setup [11]. This study was done to estimate the prevalence of thrombocytopenia in pregnant women diagnosed with PIH and to correlate the severity of PIH with the degree of thrombocytopenia.

Methodology & Materials

This observational study was conducted at the Dhaka Medical College Hospital from April 2018 to June 2019. This study was carried out in a short period, and the availability of pregnancy-induced hypertension patients was less, so 65 patients were studied. The calculated sample size was 384, but due to time constraints and less availability of pregnancy-induced hypertensive patients, 65 patients attending the OBS & GYN department for delivery purposes were included in the study. After getting informed consent, all the subjects underwent blood investigations, i.e. complete blood cell count for Platelet count using EDTA anticoagulant blood and analyzed on Mindray, Automated Hematology Analyzer".

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The test was conducted within 1 hour of sample collection, maintaining at room temperature to minimize variation due to sample ageing. Clinical details were collected from all the cases, which included the demographic data, symptoms, and examination findings.

Inclusion criteria:

- Gestational age more than 28 weeks.
- All newly diagnosed PIH patients.

Exclusion criteria:

- Gestation age <28 weeks.
- Pre-existing renal disease, diabetes.
- Pre-existing endocrine disorders.
- Idiopathic thrombocytopenic purpura, Thrombotic thrombocytopenic purpura, Antiphospholipid syndrome, Systemic Lupus Erythematosus Patients on medications, which are known to cause thrombocytopenia.
- Patients with chronic hypertension.

Operational Definitions:

Labelling of PIH will be based on the following:

- **Gestational hypertension:** pregnancy-induced hypertension of 140/90 mmHg and above after the 20th weeks of gestation in a previously normotensive patient
- **Preeclampsia:** pregnancy-induced hypertension of 140/90 mmHg and above after the 20th weeks of gestation in a previously normotensive patient with proteinuria
- **Severe preeclampsia:** Severe preeclampsia is characterized by blood pressure >160/110 mm Hg with any of nephrotic range proteinuria, sudden oliguria, abdominal pain neurologic symptoms like headache, visual problems and laboratory tests demonstrating thrombocytopenia, haemolysis, or abnormal liver function.

Thrombocytopenia:

Thrombocytopenia is classified as Mild when platelet count was found to be 1-1.5 lakh/cumm, Moderate at 50,000-1 lakh/cumm and Severe with <50000/cumm [12].

The procedure of preparing and organising materials:

The attending physicians who were requested to inform me about the patients received patients. Proper history was taken from the patients or attendants with thorough physical examinations, and I properly filled out the data collection sheet. All data collection sheets were checked very carefully to identify any errors in the collecting and processing of data. Data processing work consists of registering the schedule, editing, coding, and computerization, preparing dummy tables, and analyzing and matching data. I looked at the technical matters of editing, encoding, and computerization.

Information was collected from those who had given consent and participated willingly. The sample size was 65. The duration of the study period was approximately 1 year. All the data were checked after collection. Then, data is entered into the computer, with the help of Microsoft Excel for Windows 7 program version. An analysis plan was developed, keeping in view the objectives of the study. Frequency distribution and normal distribution of all continuous variables were calculated.

Result

Most affected cases of thrombocytopenia were in the 21-25 age group. Out of the total 65 study population, 27 (42%) had thrombocytopenia, and the remaining 38 (58%) did not have thrombocytopenia. Among them, only 8% were severely thrombocytopenic (Table 1). Out of 65 subjects, 8 (12.3%) were suffering from mild pre-eclampsia, and 22 (33.85%) were having severe pre-eclampsia. Nineteen (29%) of them suffered from Gestational hypertension, and the rest 16 (25%) were suffering from eclampsia. Out of 22 severe pre-eclampsia cases, 10 had thrombocytopenia to varying degrees, whilst the other 12 did not suffer from thrombocytopenia (Table 2). Out of 65 pregnancy-induced hypertension patients, 32 (49%) were primigravida, and 30 (46%) were multigravida. Three patients suffered from postnatal pregnancy-induced hypertension. Out of 32 primigravida cases, 14 had thrombocytopenia in varying degrees, and 18 did not suffer from thrombocytopenia. Out of 30 multigravida cases, 12 suffered from thrombocytopenia. The remaining 18 had a normal platelet count (Table 3). Out of the total 65 pregnancy-induced hypertension patients, 32 (49%) were of 28-34 gestational age, 20 (31%) were of 35-37 gestational age, and the rest 13 (20%) were of >37 gestational age. Out of 32 in the 28-34 weeks gestational age group, 13 had thrombocytopenia in varying degrees; the other 19 did not suffer from thrombocytopenia. Out of 20 of the 35-37 weeks gestational age group, 8 suffered from thrombocytopenia, and the rest 12 had normal platelet count. From 13 of more than 37 weeks, the gestational age group, 6 were thrombocytopenic, and the rest were normal (Table 4). Out of 65 pregnancy-induced hypertension patients, 48 (74%) had Vaginal Delivery, and 17 (26%) had LSCS. Out of 48 VD mode patients, 18 had thrombocytopenia in varying degrees, and the other 30 did not suffer from thrombocytopenia. Out of 17 LSCS mode of delivery cases, 9 suffered from thrombocytopenia, and the rest, 8 had normal platelet count (Table 5). Out of 65 pregnancy-induced hypertension patients, 29 (45%) had elevated liver enzymes, and 36 (55%) cases were normal. Out of 29 cases of elevated liver enzymes, 15 had thrombocytopenia in varying degrees, and the other 14 did not suffer from thrombocytopenia. Out of 36 cases of normal liver enzymes, 12 suffered from thrombocytopenia, and the rest 24 had normal platelet count (Table 6). Out of the 65 pregnancy-induced hypertension patients, 52 (80%)

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improved, 10 (15%) were suffering from various morbidity and the rest, 3 (5%), died. Out of 52 improved cases, 15 had thrombocytopenia in varying degrees, and 37 did not suffer from thrombocytopenia. Out of 10 morbid patients, 9 suffered from thrombocytopenia, and the rest 1 had a normal platelet count. All 3 deceased patients had severe thrombocytopenia (Table 7). Out of 65 subjects, 3 patients died, 6 suffered from PPH, 1 patient had renal Acute kidney injury. 2 patients suffered DIC, whereas 1 suffered pulmonary oedema (Table 8). Out of the total 65 study subjects, 28 (43%) delivered healthy babies, 20 (31%) delivered babies with various morbidity and the rest, 17 (26%) baby did not survive. Out of 28 delivering healthy babies, 8 mothers had thrombocytopenia in varying degrees. Out of 20 delivering morbid babies, 10 mothers had thrombocytopenia. Among 17 having deceased babies, 9 mothers had thrombocytopenia (Table 9).

Table 1: Distribution of the study patients by age group and thrombocytopenia relationship (n=65)

Age groups by years	Thrombocytopenia					Total
	With				Without	
	Mild	Moderate	Severe	Total		
<21	4	5	1	10	10	20
21-25	5	5	3	13	19	32
26-30	1	1	0	2	8	10
≥31	1	0	1	2	1	3
Total	11(17%)	11(17%)	5(8%)	27(42%)	38(58%)	65

Table 2: Distribution of the study patients by different pregnancy-induced HTN and thrombocytopenia relationship (n=65).

Pregnancy-induced hypertension	Thrombocytopenia					Total
	With				Without	
	Mild	Moderate	Severe	Total		
Gestational hypertension	3	2	1	6	13	19(29%)
Mild Preeclampsia	2	1	1	4	4	8(12.3%)
Severe Preeclampsia	5	4	1	10	12	22(33.85%
Eclampsia	1	4	2	7	9	16(25%)
Total	11(17%)	11(17%)	5(8%)	27(42%)	38(58%)	65

Table 3: Distribution of the study patients by Gravidity index and thrombocytopenia relationship (n=65)

Gravidity index	Thrombocytopenia					Total
	With				Without	
	Mild	Moderate	Severe	Total		
Primigravida	7	5	2	14	18	32(49%)
Multigravida	4	6	2	12	18	30(46%)
Postnatal	0	0	1	1	2	3(5%)
Total	11(17%)	11(17%)	5(8%)	27(42%)	38(58%)	65

Table 4: Distribution of the study patients by gestational age and thrombocytopenia relationship (n=65)

Gestational Age (in weeks)	Thrombocytopenia					Total
	With				Without	
	Mild	Moderate	Severe	Total		
28-34	5	5	3	13	19	32(49%)
35-37	4	3	1	8	12	20(31%)
>37	2	3	1	6	7	13(20%)
Total	11(17%)	11(17%)	5(8%)	27(42%)	38(58%)	65

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Table 5: Distribution of the study patients by mode of delivery and thrombocytopenia relationship (n=65)

Mode of delivery	Thrombocytopenia					Total
	With				Without	
	Mild	Moderate	Severe	Total		
VD	8	7	3	18	30	48(74%)
LSCS	3	4	2	9	8	17(26%)
Total	11(17%)	11(17%)	5(8%)	27(42%)	38(58%)	65

Table 6: Distribution of the study patients by elevation of liver enzymes and thrombocytopenia relationship (n=65)

Liver enzymes	Thrombocytopenia					Total
	With				Without	
	Mild	Moderate	Severe	Total		
Elevated	6	5	4	15	14	29(45%)
Normal	5	6	1	12	24	36(55%)
Total	11(17%)	11(17%)	5(8%)	27(42%)	38(58%)	65

Table 7: Distribution of the study patients by maternal outcome and thrombocytopenia relationship (n=65)

Maternal outcome	Thrombocytopenia					Total
	With				Without	
	Mild	Moderate	Severe	Total		
Improved	9	5	1	15	37	52(80%)
Morbidity	2	6	1	9	1	10(15%)
Mortality	0	0	3	3	0	3(5%)
Total	11(17%)	11(17%)	5(8%)	27(42%)	38(58%)	65

Table 8: Distribution of the maternal outcomes (mortality & morbidity)

Maternal outcome	
Mortality	3
PPH	6
Renal failure	1
DIC	2
Pulmonary Oedema	1

Table 9: Distribution of the study patients by foetal outcome and thrombocytopenia relationship (n=65)

Foetal outcome	Thrombocytopenia					Total
	With				Without	
	Mild	Moderate	Severe	Total		
Healthy	7	1	0	8	20	28(43%)
Foetal Morbidity	3	6	1	10	10	20(31%)
Foetal Mortality	1	4	4	9	8	17(26%)
Total	11(17%)	11(17%)	5(8%)	27(42%)	38(58%)	65

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Discussion

Pregnancy-induced hypertension is one of the most common causes of both maternal and neonatal morbidity and mortality. A variety of haematological abnormalities may occur in women with pregnancy-induced hypertension, of which thrombocytopenia is the most common. Platelet count is a simple, low-cost, and rapid routine screening test. Varied conclusions have been drawn linking platelet count to the severity of pregnancy-induced hypertension. This study was done to estimate the prevalence of thrombocytopenia in pregnant women diagnosed with pregnancy-induced hypertension and to correlate the severity of pregnancy-induced hypertension with the degree of thrombocytopenia.

A total of 65 patients admitted to the Department of Obstetrics & Gynecology of Dhaka Medical College Hospital between July 2018 and June 2019, fulfilling the inclusion criteria categorized as pregnancy-induced hypertension, were included in this study. These study findings were discussed and compared with previously published relevant studies. From this study, it was revealed that out of a total of 65 pregnancy-induced hypertension patients, 27 (42%) had thrombocytopenia, and the rest, 38 (58%) did not have thrombocytopenia. A total of 32 out of 65 (49%) patients of pregnancy-induced hypertension patients were enrolled in this study who were of 21-25 years of age. Most affected cases (20%) of varying degree of thrombocytopenia in pregnancy-induced hypertension was from the 21-25 years age group in this study. Among them, only 5% were severely thrombocytopenic. Vinodhini and Kumari showed that the 24-29 years age group is the most prevalent group developing pregnancy-induced hypertension and thrombocytopenia [13]. In contrast, another study showed the mean age of patients with Preeclampsia was 24.55 years and eclampsia 24.30 years with thrombocytopenia.33In this study, it was found that out of a total of 65 pregnancy-induced hypertension patients, 30 (46%) were suffering from Preeclampsia, 19 (29%) from Gestational hypertension and the rest 16(25%) were suffering from Severe Preeclampsia. Out of 30 cases of mild and severe Preeclampsia, 14 had thrombocytopenia in varying degrees, and the other 16 did not suffer from thrombocytopenia. Low platelet count was seen in 29.31% of cases with Preeclampsia and 44.44% of cases with eclampsia in a study by Meshram et al. Out of 19 gestational hypertension patients, 6 were suffering from thrombocytopenia among whom 3 had severe thrombocytopenia [14]. In contrast, the other 13 patients did not suffer from thrombocytopenia. In a study from Bhopal by Anand and Kirshnanand et al majority of the cases had Preeclampsia (66.36%) and the rest eclampsia (33.64%)[15]. Wolde et al. studies showed Preeclampsia as the most common hypertensive disorder of pregnancy (51.9%), followed by eclampsia (23.4%), HELLP syndrome (8.9%), mild Preeclampsia (7.6%), and simple gestational hypertension (5.1%) [16]. Studies showed that most cases belonged to the mild Preeclampsia (56%) group, followed by cases with severe Preeclampsia (30%) [14]. The incidence of eclampsia, however, was much lower in that study (6%). These differences could be due to the small sample size of our study and the social, ethnic, and cultural differences in a group of the population studied, as noted by Wolde et al. , who quoted the black race as one of the risk factors for pregnancy-induced hypertension [17]. In this study, it was observed that out of a total of 65 pregnancy-induced hypertension patients, 32 (49%) were primigravida, and 30 (46%) were multigravida. Out of 32 primigravida cases, 14 had thrombocytopenia in varying degrees, and 18 did not suffer from thrombocytopenia. Out of 30 multigravida cases, 12 suffered from thrombocytopenia. Rest 18 had normal platelet count. In a study from Ethiopia, 66.7% of cases with pregnancy-induced hypertension studied by Wolde et al. were nulliparous, which is similar to our study, where 63% of cases were primigravida, and studies by Riaz, where 60% of the cases were primigravida [16,18]. More severe forms of PIH were found to be more common in nulliparous ladies, as seen in our study. The preponderance of primigravida cases accounts for the young age group of the present study group. This study also showed that out of a total of 65 pregnancy-induced hypertension patients, 32 (49%) were of 28-34 gestational age, 20 (31%) were of 35-37 gestational age, and the rest, 13 (20%) were of >37 gestational age. Out of 32 in the first gestational age group, 13 had thrombocytopenia in varying degrees, and the other 19 did not suffer from thrombocytopenia. Out of 20 patients in the second gestational age group (35-37 weeks of pregnancy) in Table 3.4, eight patients had thrombocytopenia, whilst the 12 patients had normal platelet count. Of 13 of the third gestational age group (>37 weeks of pregnancy), 6 were thrombocytopenic, and the rest were normal. Another study showed that 15% of pregnancy-induced hypertension occurred in the mid-trimester, 8% between 17 and 20 weeks, 7% between 20 and 26 weeks gestation, and 18% per cent of patients had symptoms at term.38 three patients suffered from postnatal pregnancy-induced hypertension in our study [19]. This study revealed that out of a total of 65 pregnancy-induced hypertension patients, 48 (74%) had Vaginal Delivery, and 17 (26%) had LSCS. Out of 48 VD mode patients, 18 had thrombocytopenia in varying degrees; the other 30 did not suffer from thrombocytopenia. Out of 17 LSCS mode of delivery cases, 9 suffered from thrombocytopenia, and the rest, 8 had normal platelet counts. Another study38 showed that Out of the 7 cases of thrombocytopenia in the gestational age of above 37 weeks, 2 (13%) had a vaginal delivery, and 5 (71%) underwent LSCS delivery. Regarding the distribution of the study patients by elevation of liver enzymes and thrombocytopenia relationship, this study showed that out of a total of 65 pregnancy-induced hypertension patients, 29 (45%) had elevated liver enzymes, and 36 (55%) cases were

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normal. Out of 29 cases of elevated liver enzymes, 15 had thrombocytopenia in varying degrees, and the other 14 did not suffer from thrombocytopenia. Out of 36 cases of normal liver enzymes, 12 suffered from thrombocytopenia, and the rest 24 had normal platelet count. In this study, out of a total of 65 pregnancy-induced hypertension patients, 52 (80%) were improved, 10 (15%) were suffering from various morbidity and rest 3 (5%) died. Out of 52 of the improved cases, 15 were having thrombocytopenia in varying degrees; the other 37 did not suffer from thrombocytopenia. This study reveals that out of 10 morbid patients, 9 suffered from thrombocytopenia, and the rest 1 had a normal platelet count. All 3 deceased patients had severe thrombocytopenia. Six others suffered from PPH, and 1 patient had renal Acute kidney injury. 2 patients suffered DIC, whereas 1 suffered pulmonary oedema. The prevalence of PPH as a complication in pregnancy-induced hypertension was found to be 9% in our study. In contrast, the incidence rate is around the same as observed by Meshram et al. (8.5%) and Ludec et al. (10.20%). Similarly, the incidence of DIC has been reported as 3.19% by Meshram et al. and 3% by Ludec et al. as compared to 3% in our study [14,20]. The incidence of maternal mortality in our study was 4%, which well co-relates with that conducted by Shazia Riaz et al. 3.1% and Meshram et al. 2.12% [14,18]. One study showed that the incidence of PPH was significantly high (9.89%) among cases of pregnancy-induced thrombocytopenia, whereas our study revealed that 9% of cases have PPH from pregnancy-induced hypertension [21].A recent study conducted in an advanced centre in New Delhi showed no fatality among 200 cases of gestational thrombocytopenia , whereas our study had around a 4% death rate [22]. These differences could be due to the social and cultural differences in the population group studied. Out of a total of 65 pregnancy-induced hypertension patients, 28 (43%) delivered healthy babies, 20 (31%) delivered babies with various morbidity and the rest, 17 (26%) babies did not survive. Out of 28 delivering healthy babies, 8 had thrombocytopenia in varying degrees, and the other 20 did not suffer from thrombocytopenia. Out of 20 delivering morbid babies, 10 suffered from thrombocytopenia, and the remaining 10 had normal platelet counts. Among 17 deceased babies, 9 had thrombocytopenia, whereas 8 were normal in respect of platelet count. Studies by Odegard et al. have shown pregnancies complicated by severe Preeclampsia to have infants born with low birth weights, being around 12% below expected. In contrast, pregnancies with mild Preeclampsia show no significant difference from the expected range [23].In our study, the incidence of IUGR in preeclamptic patients was found to be 16%, which was comparable to Ludec et al. (21%) and Meshram et al. (19.14%). The previous studies showed a poorer fetal outcome, but our study reports better fetal outcomes due to prompt administration of steroids and better management of neonatal care [14,20].

Limitations of the Study

Every hospital-based study has some limitations and the present study undertaken is no exception to this fact. The limitations of the present study are mentioned. Therefore, the results of the present study may not be representative of the whole of the country or the world at large. The number of patients included in the present study was less in comparison to other studies. Because the trial was short, it was difficult to remark on complications and mortality.

Conclusion and Recommendations

Thrombocytopenia in hypertensive disorders of pregnancy carries a definite risk to the mother and fetus. There is a relation between thrombocytopenia and associated complications of pregnancy-induced hypertension like abruption, intrauterine fetal demise, septicemia and DIC. This is seen especially more in early onset hypertension and carries severe risk of morbidity and mortality to the mother and fetus. It is observed that mild thrombocytopenia is common in the third trimester and most often has a benign course. Early diagnosis and appropriate early treatment of pregnancy-induced hypertension results in better maternal and fetal outcomes, ensuring a good health care system in the population. There comes the tremendous potentiality of platelet count in predicting and early addressing management requirements, thereby reducing the morbidity and mortality of pregnancy-induced HTN patients. Varied conclusions have been drawn linking platelet count to the severity of PIH. Since a normal count does not rule out a severe disease, our study shows that platelet count alone cannot be relied upon to assess the severity of PIH. Uniformity in the utilization of classification and categorization of cases with PIH is also needed for a better understanding of the disease process. Worldwide, the search for one marker that would identify and gauge the severity of PIH continues. Analysing the observations of our study and from the literature review, we can conclude that thrombocytopenia worsens as PIH progresses from gestational hypertension to eclampsia, so it can be advised to monitor platelet count, which is simple, economical and rapid investigation to monitor the progress of PIH. Estimation of platelet count, thus, can be used as an early, simple, and rapid procedure in the assessment of the severity of pre-eclampsia and prevent progression to HELLP syndrome and DIC.

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Ethical approval:

The study was approved by the Institutional Ethics Committee.

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