

STUDY OF THE PLATELET COUNT & COAGULATION PROFILE IN PATIENTS WITH PREGNANCY-INDUCED HYPERTENSION

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ABSTRACT

Background: Pregnancy-induced hypertension is an important hypertensive disorder of pregnancy and is associated with significant maternal and fetal morbidity. Hematological and coagulation abnormalities are commonly seen in PIH and may worsen with increasing severity.

Aim: To study the platelet count and coagulation profile in patients with pregnancy-induced hypertension.

Materials and Methods: A hospital-based observational comparative study was conducted in the Department of Pathology in collaboration with the Department of Obstetrics and Gynaecology at a ACS Medical College and Hospital teaching hospital. The study included pregnant women attending the antenatal clinic or admitted to the obstetrics ward with pregnancy-induced hypertension. The study was conducted over a period of 12 months, from 01/01/2025 to 01/02/2026. A total of **100 pregnant women with PIH** were included in the study.

Results: The majority of cases were in the 26–30 years age group. Gestational hypertension was the most common type of PIH. Thrombocytopenia was observed in **52%** of cases. Platelet count decreased with increasing severity of PIH, while MPV and PDW increased and plateletcrit decreased. The association between thrombocytopenia and severity of PIH was statistically significant ($\chi^2 = 42.68$, $p < 0.001$). Coagulation parameters including bleeding time, clotting time, PT, APTT, and INR showed progressive prolongation from gestational hypertension to eclampsia and were statistically significant ($p < 0.05$).

Conclusion: Platelet count and coagulation profile are useful laboratory indicators for assessing severity of PIH. Decreasing platelet count, altered platelet indices, and prolonged coagulation parameters correlate with worsening PIH. Routine evaluation of these parameters can help in early detection of complications and timely management to reduce maternal and fetal morbidity.

KEYWORDS: Pregnancy-induced hypertension, platelet count, thrombocytopenia, coagulation profile, preeclampsia, eclampsia.

INTRODUCTION

Pregnancy-induced hypertension is one of the important hypertensive disorders of pregnancy and remains a major cause of maternal and perinatal morbidity and mortality. It usually develops after 20 weeks of gestation and includes a spectrum of conditions ranging from gestational hypertension to preeclampsia and eclampsia. The severity of the disease depends not only on the level of blood pressure but also on the extent of involvement of various organ systems, especially the hematological, renal, hepatic, neurological, and coagulation systems.^{1,2} Normal pregnancy is associated with several physiological hematological changes, including increased plasma volume, changes in platelet function, and activation of the coagulation system. In pregnancy-induced hypertension, these changes become exaggerated due to widespread endothelial dysfunction, vasospasm, platelet activation, and increased consumption of platelets and clotting factors^{3,4}. As a result, abnormalities in platelet count and coagulation profile are commonly observed in patients with PIH.

Platelet count is one of the most useful and easily available hematological parameters in the assessment of PIH. Thrombocytopenia is commonly seen in severe preeclampsia and eclampsia and may indicate disease progression^{5,6}. A falling platelet count reflects increased platelet activation, aggregation, and consumption in the microcirculation. Therefore, platelet count can serve as an important marker for assessing the severity of PIH and predicting maternal complications. Coagulation abnormalities are also important in PIH. Parameters such as bleeding time, clotting time, prothrombin time, activated partial thromboplastin time, and INR may show changes due to activation of the coagulation cascade and consumption of clotting factors⁷. In severe cases, these changes may progress to disseminated intravascular coagulation, which is a serious and potentially life-threatening complication. Early detection of coagulation abnormalities is therefore essential for timely management and prevention of maternal and fetal complications.⁸

Aim of the study

To study the platelet count and coagulation profile in patients with pregnancy-induced hypertension.

Objectives

1. To determine platelet count and platelet indices in PIH patients.
2. To evaluate bleeding time, clotting time, PT, APTT, and INR in PIH patients.
3. To correlate platelet count and coagulation abnormalities with the severity of PIH.

MATERIALS AND METHODS

Ethical Clearance: The study was conducted after obtaining approval from the Institutional Ethics Committee. Written informed consent was taken from all participants before sample collection.

Study Design: A hospital-based observational comparative study was conducted to evaluate the platelet count and coagulation profile in pregnancy-induced hypertension.

Study Area: The study was carried out in the Department of Pathology in collaboration with the Department of Obstetrics and Gynaecology at a tertiary care teaching hospital ACS Medical College and Hospital.

Study Period: The study was conducted over a period of 12 months, from 01/01/2025 to 01/01/2026.

Study Population: Pregnant women attending the antenatal clinic or admitted to the obstetrics ward with pregnancy-induced hypertension were included in the study.

Sample Size calculation: The sample size was calculated using Kumar et al study⁹ as the reference article Using this formula

$$n = Z^2pq/d^2,$$

where $Z = 1.96$ at 95% confidence interval,

$p = 50\%$ was taken as the expected proportion of thrombocytopenia or coagulation abnormality among PIH cases, $q = 1 - p$, and $d = 10\%$ was taken as the allowable error. Substituting these values, the calculated sample size was 96.04.

Hence, after rounding off, a total of **100 pregnant women diagnosed with pregnancy-induced hypertension** were included in the study.

A total of 100 pregnant women with PIH were included in the study.

Inclusion Criteria

Pregnant women with:

1. Gestational age more than 20 weeks
2. Blood pressure $\geq 140/90$ mmHg recorded on two occasions at least 4 hours apart
3. Clinical diagnosis of pregnancy-induced hypertension, preeclampsia, or eclampsia

Exclusion Criteria

1. Pre-existing chronic hypertension
2. Diabetes mellitus
3. Renal disease
4. Liver disease
5. Cardiac disease
6. Autoimmune disorders
7. Bleeding disorders
8. History of anticoagulant therapy
9. Abruptio placentae
10. Intrauterine fetal death
11. Known thrombocytopenia before pregnancy

Data Collection

A detailed history was taken from each participant, including: Age, Gestational age, Gravida and parity, Blood pressure recording, History of headache, blurring of vision, epigastric pain, edema, convulsions, Past obstetric history, Medical history, Drug history.

Clinical examination was performed, and relevant obstetric findings were recorded.

The PIH group further classified into:

Category	Criteria
Gestational hypertension	BP $\geq 140/90$ mmHg after 20 weeks of gestation without proteinuria
Mild preeclampsia	BP $\geq 140/90$ mmHg with proteinuria
Severe preeclampsia	BP $\geq 160/110$ mmHg with significant proteinuria and/or symptoms
Eclampsia	Preeclampsia associated with convulsions

Sample Collection

Under aseptic precautions, 5 mL of venous blood was collected from each participant.

The blood sample was divided as follows:

Sample	Anticoagulant	Test
2 mL blood	EDTA vial	Platelet count
3 mL blood	3.2% sodium citrate vial	Coagulation profile

For coagulation studies, blood was collected in a citrate vial in the ratio of 9:1 blood to anticoagulant.

Laboratory Investigations

The following parameters were studied:

1. Platelet Count

Platelet count was estimated using an automated hematology analyzer. Peripheral smear examination was also performed wherever required to confirm platelet count and morphology.

Platelet count was categorized as:

Platelet Count	Interpretation
>150,000/ μ L	Normal
100,000–150,000/ μ L	Mild thrombocytopenia
50,000–100,000/ μ L	Moderate thrombocytopenia
<50,000/ μ L	Severe thrombocytopenia

2. Bleeding Time: Bleeding time was estimated by Duke's method or Ivy's method, depending on institutional protocol.

3. Clotting Time: Clotting time was estimated by capillary tube method or Lee and White method.

4. Prothrombin Time: Prothrombin time was performed using citrated plasma and thromboplastin reagent. Results were recorded in seconds and compared with control values.

5. Activated Partial Thromboplastin Time: Activated partial thromboplastin time was performed using citrated plasma, APTT reagent, and calcium chloride. Results were recorded in seconds.

6. International Normalized Ratio: INR was calculated from the prothrombin time values.

7. Fibrinogen: Plasma fibrinogen levels were estimated wherever facilities were available.

8. D-dimer: D-dimer estimation was done if required, especially in severe preeclampsia and eclampsia cases.

Statistical Analysis

Data were entered in Microsoft Excel and analyzed using statistical software such as SPSS. Continuous variables were expressed as mean $\pm$ standard deviation. Categorical variables were expressed as percentages. The following statistical tests were used: ANOVA for comparison among multiple groups, Chi-square test for categorical variables, Pearson's correlation test to assess correlation between platelet count and severity of PIH. p -value <0.05 was considered statistically significant.

RESULTS & OBSERVATION

Age Distribution of PIH Cases: In the present study, the majority of Pregnancy-Induced Hypertension (PIH) cases were observed in the **26–30 years age group**, accounting for **40 cases (40%)**. This was followed by the **21–25 years age group**, with **32 cases (32%)**. Women aged **above 30 years** constituted **20 cases (20%)**, while the least number of cases was seen in the **<20 years age group**, comprising **8 cases (8%)**.

Distribution According to Gestational Age: The majority of PIH cases were observed in women with gestational age **>34 weeks**, comprising **54 cases (54%)**. This was followed by the **29–34 weeks gestational age group**, with **34 cases (34%)**. The least number of cases was seen in the **20–28 weeks group**, accounting for **12 cases (12%)**.

Distribution According to Gravida Status: PIH was more commonly observed among **primigravida women**, comprising **64 cases (64%)**. Multigravida women accounted for **36 cases (36%)**.

Distribution of Cases According to Severity of PIH: The most common type of PIH was **gestational hypertension**, observed in **35 cases (35%)**. This was followed by **mild preeclampsia**, seen in **30 cases (30%)**, and **severe preeclampsia**, seen in **25 cases (25%)**. **Eclampsia** was the least common presentation, accounting for **10 cases (10%)**.

Distribution of SBP and DBP: In the present study, blood pressure showed a gradual increase with increasing severity of PIH. The mean systolic blood pressure was lowest in **gestational hypertension** at **144.0 $\pm$ 6.5 mmHg** and highest in **eclampsia** at **175.2 $\pm$ 9.6 mmHg**. Similarly, mean diastolic blood pressure increased from **92.2 $\pm$ 4.4 mmHg** in gestational hypertension to **114.6 $\pm$ 7.2 mmHg** in eclampsia. The overall mean systolic blood pressure among PIH cases was **156.6 $\pm$ 13.9 mmHg**, while the overall mean diastolic blood pressure was **100.4 $\pm$ 9.8 mmHg**. This indicates that both systolic and diastolic blood pressure increased progressively with worsening severity of PIH.

Platelet Count Distribution Among PIH Cases: **48 PIH cases (48%)** had platelet counts **>150,000/ μ L**, indicating a normal platelet count. **32 cases (32%)** had platelet counts between **100,000–150,000/ μ L**, suggesting mild thrombocytopenia. Platelet counts between **50,000–100,000/ μ L** were observed in **16 cases (16%)**, while **4 cases (4%)** had platelet counts **<50,000/ μ L**, indicating severe thrombocytopenia.

Table 1: Distribution of Thrombocytopenia According to Severity of PIH

Type of PIH	Normal Platelet Count	Mild Thrombocytopenia	Moderate Thrombocytopenia	Severe Thrombocytopenia
Gestational hypertension	25	8	2	0
Mild preeclampsia	17	10	3	0

Severe preeclampsia	6	11	7	1
Eclampsia	0	3	4	3
Total	48	32	16	4

In the present study, thrombocytopenia was found to increase with the severity of PIH. Among **gestational hypertension** cases, **25 patients** had normal platelet count, while **8 cases** had mild thrombocytopenia and **2 cases** had moderate thrombocytopenia. None of the gestational hypertension cases showed severe thrombocytopenia. In **mild preeclampsia**, **17 cases** had normal platelet count, **10 cases** had mild thrombocytopenia, and **3 cases** had moderate thrombocytopenia. Severe thrombocytopenia was not observed in this group. Among **severe preeclampsia** cases, only **6 patients** had normal platelet count, while **11 cases** had mild thrombocytopenia, **7 cases** had moderate thrombocytopenia, and **1 case** had severe thrombocytopenia. In **eclampsia**, none of the cases had normal platelet count. **3 cases** had mild thrombocytopenia, **4 cases** had moderate thrombocytopenia, and **3 cases** had severe thrombocytopenia.

Distribution of Platelet indices : The mean platelet volume among total PIH cases was 10.1 ± 1.3 fL. MPV showed a gradual increase with increasing severity of PIH. It was 8.9 ± 0.8 fL in gestational hypertension, 9.6 ± 0.9 fL in mild preeclampsia, 10.8 ± 1.1 fL in severe preeclampsia, and 11.6 ± 1.2 fL in eclampsia. Similarly, platelet distribution width also increased with severity. The overall mean PDW was $15.3 \pm 2.2\%$. It was lowest in gestational hypertension at $13.2 \pm 1.4\%$ and highest in eclampsia at $17.8 \pm 2.1\%$. The mean plateletcrit among PIH cases was $0.18 \pm 0.05\%$. PCT showed a decreasing trend with increasing severity of PIH. It was $0.22 \pm 0.04\%$ in gestational hypertension, $0.20 \pm 0.05\%$ in mild preeclampsia, $0.17 \pm 0.04\%$ in severe preeclampsia, and $0.14 \pm 0.03\%$ in eclampsia.

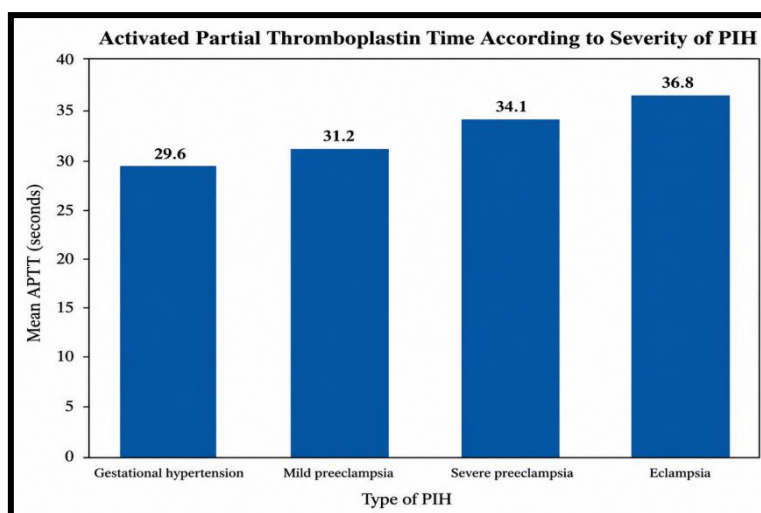
Coagulation Parameters in PIH Cases

Bleeding Time in PIH Cases: Bleeding time showed a gradual increase with increasing severity of PIH. The mean bleeding time was **3.1 minutes** in gestational hypertension, **3.4 minutes** in mild preeclampsia, **3.9 minutes** in severe preeclampsia, and **4.5 minutes** in eclampsia. The mean bleeding time in PIH cases was 3.6 minutes, showing mild prolongation in some cases.

Clotting Time in PIH Cases: the over all mean clotting time among PIH cases was **6.8 minutes**. Clotting time showed a gradual increase with increasing severity of PIH. The mean clotting time was **6.1 minutes** in gestational hypertension, **6.5 minutes** in mild preeclampsia, **7.2 minutes** in severe preeclampsia, and **8.0 minutes** in eclampsia.

Prothrombin Time in PIH Cases: In the present study, the overall mean prothrombin time among PIH cases was **13.8 seconds**. Prothrombin time showed a gradual increase with increasing severity of PIH. The mean prothrombin time was **12.8 seconds** in gestational hypertension, **13.4 seconds** in mild preeclampsia, **14.2 seconds** in severe preeclampsia, and **15.1 seconds** in eclampsia.

Activated Partial Thromboplastin Time in PIH: The overall mean APTT among PIH cases was **32.4 seconds**. APTT showed a gradual increase with increasing severity of PIH. The mean APTT was **29.6 seconds** in gestational hypertension, **31.2 seconds** in mild preeclampsia, **34.1 seconds** in severe preeclampsia, and **36.8 seconds** in eclampsia.



Mean INR in PIH Cases: the mean INR among PIH cases was 1.12 ± 0.18 , indicating a mild rise in INR. INR showed a gradual increase with increasing severity of PIH. It was lowest in **gestational hypertension** and progressively increased in **mild preeclampsia**, **severe preeclampsia**, and **eclampsia**. This mild prolongation may be due to endothelial dysfunction, activation of coagulation pathways, and consumption of clotting factors in severe PIH.

Maternal Complications in PIH Cases: The majority of PIH cases had no maternal complications, accounting for 72 cases (72%). Among the complications observed, eclampsia was the most common, seen in 10 cases (10%). This was followed by postpartum hemorrhage, which was observed in 6 cases (6%), and HELLP syndrome, seen

in 5 cases (5%). Abruptio placentae was noted in 4 cases (4%), while disseminated intravascular coagulation (DIC) was observed in 3 cases (3%). These findings indicate that although most patients did not develop complications, a significant proportion of PIH cases were associated with serious maternal outcomes.

Fetal Outcome in PIH Cases: Term delivery was observed in 52 cases (52%), while preterm delivery occurred in 28 cases (28%). Low birth weight was seen in 30 cases (30%), making it one of the common fetal outcomes associated with PIH. Intrauterine growth restriction (IUGR) was observed in 14 cases (14%), and NICU admission was required in 18 cases (18%). Intrauterine fetal death (IUFD) was reported in 4 cases (4%).

Statistical analysis

There was a statistically significant association between severity of PIH and degree of thrombocytopenia. Normal platelet count was more common in gestational hypertension, whereas moderate and severe thrombocytopenia were more frequently observed in severe preeclampsia and eclampsia. The Chi-square test showed this association to be statistically significant ($\chi^2 = 42.68$, $p < 0.001$).

Platelet indices also showed significant variation with increasing severity of PIH. Mean platelet volume showed a progressive rise from gestational hypertension to eclampsia, and this difference was statistically significant on ANOVA ($p < 0.001$).

Plateletcrit showed a progressive decline with increasing severity of PIH, which was also statistically significant ($p < 0.001$). Pearson's correlation analysis showed a moderate positive correlation between severity of PIH and thrombocytopenia grade ($p < 0.001$), indicating that platelet count tends to decrease as the severity of PIH increases.

Table 2 : Statistical analysis of coagulation parameters and severity of PIH

Coagulation Parameter	Gestational Hypertension	Mild Preeclampsia	Severe Preeclampsia	Eclampsia	p-value
Bleeding Time, min	3.1	3.4	3.9	4.5	<0.05
Clotting Time, min	6.1	6.5	7.2	8.0	<0.05
Prothrombin Time, sec	12.8	13.4	14.2	15.1	<0.05
APTT, sec	29.6	31.2	34.1	36.8	<0.05
INR	Mildly increased	Increased	More increased	Highest	<0.05

One-way ANOVA P value <0.05

Statistical analysis demonstrated a significant derangement of coagulation parameters with increasing severity of PIH. Bleeding time, clotting time, prothrombin time, APTT, and INR showed a progressive rise from gestational hypertension to eclampsia. One-way ANOVA showed that the differences in coagulation parameters among the severity groups were statistically significant ($p < 0.05$). These findings suggest that severe forms of PIH are associated with greater activation of coagulation pathways and consumption of clotting factors, resulting in mild prolongation of coagulation parameters.

There was a significant correlation between **severity of PIH, platelet count reduction, and coagulation abnormalities**. With increasing severity of PIH, platelet count decreased, thrombocytopenia became more severe, and coagulation parameters such as bleeding time, clotting time, prothrombin time, APTT, and INR were progressively prolonged. This suggests that worsening PIH is associated with increased platelet consumption, endothelial dysfunction, activation of coagulation pathways, and consumption of clotting factors.

DISCUSSION

Comparative Studies Related to Age Distribution in PIH Cases

In the present study that PIH was more common among women in the reproductive age group of **21–30 years**, with the highest occurrence in the **26–30 years** age group. The findings of the present study are comparable with those of **Deepa et al¹⁰** who studied **40 PIH cases** and reported a mean maternal age of **25.7 years**. In their study, **77.5% of PIH cases were below 30 years of age**, indicating that PIH was more frequent among younger women of reproductive age. The mean gestational age among PIH cases in their study was **35.2 weeks**. Similarly, **Shailendra et al¹¹** observed that the maximum number of PIH cases belonged to the **26–30 years age group**. In their study, **28 patients (55%)** were aged **26–30 years**, while **23 patients (45%)** were aged **31–35 years**. This finding closely supports the present study, where the highest proportion of PIH cases was also noted in the **26–30 years** age group. **Anamika et al¹²** studied **100 PIH cases** and found that the majority of patients, **36%**, belonged to the **25–30 years age group**. The youngest patient in their study was **20 years**, and the oldest was **40 years**. They also observed that mild and severe preeclampsia were more frequent in the **26–30 years** age group.

2. Comparative Studies Related to Blood Pressure in PIH Cases

In the present study, The overall mean systolic and diastolic blood pressure among PIH cases were **156.6 ± 13.9 mmHg** and **100.4 ± 9.8 mmHg**, respectively. These findings are comparable with **Deepa et al¹⁰** who reported mean systolic and diastolic blood pressure of **151.75 mmHg** and **102.85 mmHg**, respectively. **Shailendra et al** also reported raised mean systolic blood pressure of **151.92 ± 6.07 mmHg** and diastolic blood pressure of **114.35 ± 8.135 mmHg** in PIH cases. Similarly, **Agarwal et al³** observed significantly higher systolic and diastolic blood pressure in PIH cases compared with controls, with mean values of **143.41 ± 16.5 mmHg** and **93.01 ± 11.11**

mmHg, respectively. **Dundy et al.** also reported that clinical parameters, including systolic blood pressure, increased with increasing severity of PIH.

3. Comparative Studies Related to Gravida Status in PIH Cases

In the present study, PIH was more commonly seen among **primigravida women**, accounting for **64%** of cases, while multigravida women constituted **36%**. This finding suggests that first pregnancy is an important risk factor for PIH. Similar observations were reported by **Deepa et al**¹⁰ where **62.5%** of PIH cases were primipara. **Drashti et al**¹³ also found a higher incidence among primiparous women, accounting for **72%** of cases. These findings are in agreement with the present study. **Swetha et al**⁶ reported that gestational hypertension was more common among primigravida women, whereas preeclampsia was more frequently observed among multigravida women. This indicates that although PIH is generally more common in primigravida women, disease pattern may vary with parity.

4. Comparative Studies Related to Platelet Count in PIH Cases

In the present study, **48% of PIH cases had normal platelet count** of $>150,000/\mu\text{L}$, while **52% of cases showed thrombocytopenia**. Among them, **mild thrombocytopenia** was seen in **32%**, **moderate thrombocytopenia** in **16%**, and **severe thrombocytopenia** in **4%** of cases. This shows that thrombocytopenia was a common hematological abnormality among PIH patients. The findings of the present study are comparable with those of **Shailendra et al**¹¹ who reported a reduced mean platelet count of 105.49 ± 24.58 in PIH cases. This supports the observation that platelet count is commonly decreased in patients with pregnancy-induced hypertension. Similarly, **Drashti et al**¹³ observed that platelet count was reduced in PIH patients, while mean platelet volume and platelet distribution width were increased. This indicates increased platelet activation, destruction, and consumption in PIH. **Swetha et al**⁶ also reported a gradual fall in platelet count with increasing severity of PIH. The mean platelet count was **2.0 lakhs/ μL** in gestational hypertension, **1.81 lakhs/ μL** in mild preeclampsia, and **1.66 lakhs/ μL** in severe preeclampsia. This finding is consistent with the present study, where thrombocytopenia was more evident in severe forms of PIH.

5. Comparative Studies Related to Platelet Indices in PIH Cases

In the present study, platelet indices showed progressive alteration with increasing severity of PIH. The mean **MPV** increased from $8.9 \pm 0.8 \text{ fL}$ in gestational hypertension to $11.6 \pm 1.2 \text{ fL}$ in eclampsia. Similarly, **PDW** increased from $13.2 \pm 1.4\%$ to $17.8 \pm 2.1\%$, while **PCT** decreased from $0.22 \pm 0.04\%$ to $0.14 \pm 0.03\%$. These findings are comparable with **Swetha et al**⁶ who reported a gradual rise in MPV with increasing severity of PIH. **Drashti et al**¹³ also observed increased MPV and PDW in PIH cases, indicating platelet activation and consumption. Similarly, **Singh et al**¹⁴ found that MPV and PDW increased, while plateletcrit decreased with increasing PIH severity. **Bawore et al**¹⁵ also reported increased MPV and PDW with decreased platelet count and PCT in severe preeclampsia. **Thalor et al**¹⁶ observed a significant correlation of MPV and PDW with increasing blood pressure, while **Yang et al**¹⁷ suggested that PDW may be useful in predicting the severity of preeclampsia. Overall, the present study is consistent with previous studies and suggests that **rising MPV and PDW, along with falling PCT, reflect increased platelet activation and worsening severity of PIH.**

6. Comparative Studies Related to Coagulation Profile in PIH Cases

In the present study, coagulation parameters showed a gradual prolongation with increasing severity of PIH. The overall mean **prothrombin time (PT)** was **13.8 seconds**. PT increased from **12.8 seconds** in gestational hypertension to **15.1 seconds** in eclampsia. Similarly, the overall mean **APTT** was **32.4 seconds**, showing a progressive rise from **29.6 seconds** in gestational hypertension to **36.8 seconds** in eclampsia. The mean **INR** was 1.12 ± 0.18 , indicating a mild increase. INR was lowest in gestational hypertension and gradually increased in mild preeclampsia, severe preeclampsia, and eclampsia. These findings indicate that coagulation abnormalities become more evident as the severity of PIH increases. The mild prolongation of PT, APTT, and INR may be due to endothelial dysfunction, activation of coagulation pathways, and consumption of clotting factors in severe PIH. The findings of the present study are comparable with those of **Drashti et al**¹⁴ who reported mild prolongation of coagulation parameters such as **PT, APTT, INR, bleeding time, and clotting time** in PIH patients, suggesting altered coagulation status. Similarly, **Anamika et al**¹² observed that **APTT increased with severity of PIH**, with the highest value seen in severe preeclampsia, measuring $31.61 \pm 2.89 \text{ seconds}$. Similar findings were reported by **Bhutani et al**² who observed that platelet count decreased while PT and APTT increased with increasing severity of PIH. **Indora et al**¹⁸ also reported that bleeding time, clotting time, PT, APTT, MPV, and PDW were significantly altered in preeclampsia and eclampsia, suggesting their usefulness in predicting PIH severity. **Tadu et al**⁵ found lower platelet counts and prolonged bleeding time in preeclampsia patients. **Agarwal et al**³ also observed significant changes in platelet count and coagulation parameters among PIH cases compared with normotensive pregnant women. These studies support the present finding that PIH is associated with progressive coagulation abnormalities, especially in severe preeclampsia and eclampsia.

Future research may explore the potential role of artificial intelligence and computational approaches in supporting clinical data analysis and diagnostic decision-making. Previous work has examined AI-based technologies in agricultural settings¹⁹, while research in dentistry has explored deep-learning approaches for classifying oral mucosal lesions²⁰. However, the applicability of these approaches to predicting disease severity in pregnancy-induced hypertension requires dedicated clinical investigation.

CONCLUSION

The present study shows that platelet count and coagulation profile are important indicators of severity in pregnancy-induced hypertension. Thrombocytopenia increased significantly with worsening PIH, and platelet indices showed a rise in MPV and PDW with a fall in plateletcrit. Coagulation parameters such as bleeding time, clotting time, PT, APTT, and INR were progressively prolonged from gestational hypertension to eclampsia. These findings indicate that increasing severity of PIH is associated with platelet consumption, endothelial dysfunction, and activation of coagulation pathways. Hence, routine assessment of platelet count and coagulation profile is useful for early detection of complications, assessment of disease severity, and timely management to reduce maternal and fetal morbidity.

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