

# Thrombocytopenia as a Predictor of Hypertensive Disorders of Pregnancy

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**Abstract:** Hypertension during pregnancy is one of the leading causes of maternal morbidity and mortality affecting around 8 - 10% of pregnancies. Prediction of pre - eclampsia has been a challenge for the obstetrician for ages but till today no definite factor has been established which can be a predictor for hypertension. The aim of the study is to determine the utility of low platelet count as a predictor of hypertensive disorders of pregnancy in Assam Medical College and Hospital. **Background:** This study aims to estimate the risk of developing hypertensive disorders of pregnancy in pregnant women with thrombocytopenia in early pregnancy in comparison to the pregnant women without thrombocytopenia. **Methods:** It is a hospital based prospective study with a sample size consisting of 74 antenatal patients up to 20 weeks of gestation with thrombocytopenia and 74 antenatal patients with normal platelet count. These women were followed up every 8 weeks up till 48 hours post - delivery to observe for developing hypertensive disorders of pregnancy. **Results:** In my study 21.62% of pregnant women with low platelet count developed gestational hypertension which was quite high as compared to the results in pregnant women with normal platelet count which was 8.11%. **Conclusion:** In our study proportion of hypertensive disorders of pregnancy in thrombocytopenic pregnant women was 21.62%. The demographic diversity of the catchment area of this tertiary care hospital along with inclusion of tea garden community of Upper Assam (they are economically poor, nutritionally deprived with low educational background) may have adverse influence on the results of this study.

**Keywords:** thrombocytopenia, gestational hypertension, pre - eclampsia, eclampsia

## 1. Introduction

Prediction of pre - eclampsia has been a challenge for the obstetrician for ages but till today no definite factor has been established. Histologically placenta reveals that during early stages of pregnancy platelets are trapped by endovascular trophoblast aggregates formed inside the spiral arterioles. Platelets are likely to be activated and may release several soluble factors, that promote the invasive capacity of the extravillous trophoblasts. Hence, maternal platelets may be a factor that attracts extravillous trophoblasts into the spiral arterioles and encourages maternal vascular remodelling during early placentation process.

## 2. Materials and Methods

### Study Design

Hospital based prospective study.

### Place of Study

Department of Obstetrics and Gynaecology AMCH, Dibrugarh

### Study Period

July 2021 - July 2022

### Inclusion Criteria

All pregnant women with gestational age less than <20 weeks.

### Exclusion Criteria

Other systemic causes of low platelet count.

### Sample Size

Considering 95% confidence interval with power 80% and

risk ratio as 0.63, the sample size for my study was calculated to be 148 pregnant women.

Group A: Consisting of 74 antenatal patients up to 20 weeks of gestation with thrombocytopenia. Group B: Consisting of 74 antenatal patients with normal platelet Count.

### Statistical Analysis

Chi square test was used to find the association between two attributes, risk ratio and 95% confidence interval were also calculated. A p - value of less than 0.05 was considered to be statistically significant.

## 3. Methodology

As per our inclusion and exclusion criteria, all thrombocytopenic pregnant women and pregnant women without thrombocytopenia of gestational age less than or equal to 20 weeks of gestation attending antenatal outpatient department who planned to deliver in AMCH were included in this study after getting their informed consent and Patient information sheet were given to them and they were followed every 8 weeks up till 48 hours of delivery.

### Ethical Considerations

Clearance certificate from the Institutional Ethics Committee (H) of AMCH was taken for undertaking the study.

### Objective

To estimate the risk of developing hypertensive disorders of pregnancy in pregnant women with thrombocytopenia in early pregnancy in comparison to the pregnant women without thrombocytopenia.

#### 4. Results

21.62% of pregnant women with low platelet count developed gestational hypertension which was quite high as

compared to the results in pregnant women with normal platelet count which was 8.11%. Rest 78.38% and 91.89% of pregnant women with low platelet count and normal platelet count respectively did not develop hypertension

**Table 1:** Development of Gestational Hypertension in Groups With and Without Thrombocytopenia

	Thrombocytopenic women developing hypertension	Percentage	Non thrombocytopenic women developing hypertension	Percentage
Eclampsia	1	6.25	1	16.66
Pre - eclampsia	11	68.75	1	16.66
Gestational hypertension	4	25	4	66.68
Total	16	100	6	100

**Table 2:** Development of Gestational Hypertension

		Hypertensive disorders of pregnancy		p value
		Yes	No	
Thrombocytopenia	With	16 (21.62%)	58 (78.38%)	=0.037
	Without	6 (8.11%)	68 (91.89%)	
Risk ratio (RR) =2.67; 95% Confidence Interval (CI) =1.105 - 6.437				

#### 5. Discussion

In our hospital based prospective study low platelet count in early pregnancy was a predictor of hypertensive disorders of pregnancy.

Dadhich et al.<sup>3</sup> in the 2012 concluded that the frequency and intensity of maternal thrombocytopenia was directly proportional to severity of hypertension. Nabi et al.<sup>4</sup> reported thrombocytopenia complicating pregnancy is relatively frequent in severe preeclampsia with occurrence ranging at 11 to 29%.

#### 6. Conclusion

In our study it was evidently proved that the pregnant women having low platelet count in early pregnancy were more vulnerable to develop hypertensive disorders of pregnancy in the later part of pregnancy. Unlike the other quoted studies that have performed serial monthly assessment of platelet count and platelet indices from the 20th week of gestation, our study recorded the platelet count and platelet only at the first assessment and then they were followed up. The demographic diversity of the catchment area of this tertiary care hospital along with inclusion of tea garden community of Upper Assam (they are economically poor, nutritionally deprived with low educational background) may have adverse influence on the results of this study. Thus, the results available cannot be applicable to the population as a whole and it is envisaged that additional long term comprehensive studies will help to assess the usefulness of these parameters in developing hypertensive disorders in pregnancy.

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