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## Thrombocytopenia in pregnancy and its correlation with fetomaternal outcome in a tertiary care hospital

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### ABSTRACT

**Aims:** To study thrombocytopenia in pregnancy and its correlation with fetomaternal outcome in a tertiary care centre.

**Methods:** Observational descriptive study conducted in Medical College Kolkata from 1<sup>st</sup> January 2019 to 30<sup>th</sup> June 2020 taking pregnant women having platelet count less than 1,50,000/L.

**Results:** Total 70 cases with mild, moderate and severe thrombocytopenia were seen in 77.1%, 8.6% and 14.3% patients respectively. Gestational thrombocytopenia was the most common cause (58.6%) followed by Pre-eclampsia (21.4%) and ITP (5.7%). Vaginal delivery was the preferred route of delivery (65.7%). Treatment (platelet transfusion/ IVIG / steroids) was required only in 11.42% cases. Maternal complications were postpartum haemorrhage (20%), episiotomy site hematoma (9.8%), placental abruption (8.6% ) and rectus sheath hematoma (4.5%); and there was no maternal mortality. Fetal outcomes were low birth weight (18.6%), IUGR (14.3%), IUFD (1.4%). Apgar score <7 at 5 minutes (13.2%), neonatal thrombocytopenia (1.5%) and ICU admission (19.1%). Early Neonatal death was seen in 2.9% babies.

**Conclusions:** One-third of cases had hemorrhagic complication and one in ten cases received specific medical treatment for thrombocytopenia.

**Keywords:** fetal, maternal, outcome, thrombocytopenia

### INTRODUCTION

Thrombocytopenia complicates 7-8% of all pregnancies, most of which is seen in the third trimester of pregnancy.<sup>1</sup> It is divided into mild (100–150 x 10<sup>9</sup>/L), moderate (50–100 x 10<sup>9</sup>/L) and severe (< 50 x 10<sup>9</sup>/L) thrombocytopenia.<sup>2</sup> Most thrombocytopenic pregnant women are healthy and commonly diagnosed during routine prenatal complete blood count termed as gestational thrombocytopenia (GT) and usually has no adverse fetomaternal effect. Other causes like pre-eclampsia and Immune Thrombocytopenic Purpura (ITP) may expose mother and child to

potentially life-threatening complications. An accurate etiological diagnosis is essential to ensure optimal therapeutic management.<sup>3</sup> Owing to the scarcity of evidence on the fetomaternal outcome in antenatal patients with thrombocytopenia in our country, this study was undertaken to study the various causes, complications and review the outcomes in the mother and the baby in patients of thrombocytopenia.

## METHODS

The study was a single centre, hospital based prospective study conducted in the Department of Obstetrics and Gynaecology, Medical College, Kolkata for 1½ years from 1st January 2019 to 30th June 2020 with ethical clearance. Platelet count of under 1.5 lakhs per microlitre in antenatal patients were taken with written informed consent. Patients with known history of bleeding disorders other than due to thrombocytopenia, those with medical complications such as diabetes mellitus, liver or renal impairment, cardiac diseases, collagen disorders, epilepsy, tuberculosis, pancytopenia, bone marrow suppression and women on drugs known to cause thrombocytopenia were excluded from the study.

Laboratory test reports taken were LFT, RFT, Coagulation Profile, DCT, thyroid profile, vit B12, viral screening, tests for auto antibodies and abdominal ultrasound. These patients were categorized into mild, moderate and severe based on the platelet counts and were followed up till delivery and 48 hours postpartum period for any adverse fetomaternal outcome. Neonates from these mothers were evaluated for adverse outcome till discharge. All the analysis was carried out using SPSS 16.0 version (Chicago, Inc., USA).

## RESULT

Out of 70 enrolled, 47.1% were between 26-30 years ( $25.04 \pm 3.36$ ). Majority had mild form of thrombocytopenia [Table-1].

**Table-1:** Distribution patients by severity of thrombocytopenia at diagnosis (N=70)

Severity	Platelets/cmm	N	%
Mild	$1-15 \times 10^5$	54	77.1
Moderate	$0.5-1.5 \times 10^5$	6	8.6
Severe	$<0.5 \times 10^5$	10	14.3
Mean $\pm$ SD: $1.165 \times 10^5/\text{cmm} \pm 34423$			

Gestational thrombocytopenia was the most common cause of thrombocytopenia followed by Pre-eclampsia and ITP respectively [Table-2].

**Table-2:** Distribution of patients by causes of thrombocytopenia (N=70)

Causes	Frequency	Percent
Gestational thrombocytopenia	41	58.6
Pre-eclampsia	15	21.4
ITP	4	5.7
HELLP syndrome	3	4.3
Malaria	2	2.9
SLE	2	2.9
AFLP	1	1.4
Dengue	1	1.4
Undetermined	1	1.4

Majority of patients with gestational thrombocytopenia (90.2%) and Pre-eclampsia (80%) had mild thrombocytopenia, while all patients of ITP had severe thrombocytopenia only. In patients of HELLP syndrome distribution of mild, moderate and severe thrombocytopenia was equal [Table-3].

Vaginal delivery was conducted in 46 (65.7%) and Cesarean Section 24 (34.3%) of patients. Most patients (9 in 10) did not require any treatment [Table-4].

PPH was the commonest maternal complication and there was no maternal death; and 37% had some form of complication all together. [Table-5].

**Table-3:** Causes of thrombocytopenia with severity at diagnosis (N=70)

Causes of Thrombocytopenia	Frequency	Mild		Moderate		Severe	
		N	%	N	%	N	%
Gestational Thrombocytopenia	41	37	90.2	2	4.9	2	4.9
Pre-eclampsia	15	12	80.0	2	13.3	1	6.7
ITP	4	-	-	-	-	4	100.0
HELLP syndrome	3	1	33.3	1	33.3	1	33.3
SLE	2	1	50.0	-	-	1	50.0
Malaria	2	1	50.0	1	50.0	-	-
AFLP	1	1	100.0	-	-	-	-
Dengue	1	-	-	-	-	1	100.0
Undetermined	1	1	100.0	-	-	-	-

**Table-4:** Distribution of patients according to treatment received (N=70)

Treatment	Frequency	Percent
No treatment	62	88.6
Platelet	4	5.7
Platelet + steroids	3	4.2
IVIg	1	1.4

**Table-5:** Distribution of patients according to Maternal complications

Maternal complications	Frequency	Percent
PPH (n=70)	14	20.0
Placental abruption (n=70)	6	8.6
Episiotomy site hematoma (n=51)	5	9.8
Rectus sheath hematoma (n=22)	1	4.5

One third of the babies were healthy without any adverse outcome; and ICU admission, low birth weight, IUGR and low Apgar score were the common perinatal outcome [Table-6]

**Table-6:** Distribution of patients by perinatal outcome (N=70)

Perinatal outcome	Frequency	Percent
SNCU / NICU Admission	13	18.5
Low Birth Weight	13	18.6
IUGR	10	14.3
Apgar <7 at 5 minutes	9	12.8
Neonatal Death	2	2.9
IUFD	1	1.4
Neonatal Thrombocytopenia	1	1.4

## DISCUSSION

In our study mild thrombocytopenia was seen in 77.1%, moderate thrombocytopenia in 8.6% and severe thrombocytopenia in 14.3%. In a similar study by Zutshi<sup>4</sup> et al (2019), 62% had mild thrombocytopenia, 31% were in moderate thrombocytopenia group, and 7% had severe thrombocytopenia which was consistent with the present study.

We found that gestational thrombocytopenia was the most common cause of thrombocytopenia (58.6%) followed by Pre-eclampsia (21.4%) and ITP (5.7%), other causes being <5%. These findings were comparable with the study conducted by Singh et al (2012)<sup>5</sup> where gestational thrombocytopenia was the most common cause (64.2%) followed by hypertensive disorders (21.05%) and ITP ( 5.26%). Nazeer et al (2019)<sup>6</sup> found that gestational thrombocytopenia was seen in 64.73% cases followed by pre- eclampsia and eclampsia 24% and HELLP syndrome 6.92% In our study, vaginal delivery was the common mode of delivery in 65.7% patients. Cesarean section was performed for obstetrical indications only. This corroborated with the study by Singh et al (2012), where LSCS was done in 36% and vaginal delivery in 63%. Treatment in the form of platelet transfusion / IVIG infusion / oral or intravenous steroids was required in 11.42% patients in this study,

thus majority of patients did not receive any treatment. In a study by Zutshi et al (2019), Blood transfusion including platelet transfusion was needed in around 6.5% women. In a study done by Chauhan et al (2016)<sup>7</sup>, 4.6% subjects required blood transfusion. In terms of maternal complications, postpartum hemorrhage was seen in 20% patients followed by episiotomy site hematoma in 9.8% and placental abruption in 8.6%. There was no maternal mortality. Thus, the most common maternal complication was found to be postpartum hemorrhage in our study which was higher than in most of the other studies. In a study by Sumathy et al (2019)<sup>8</sup>, atonic PPH occurred in 7.1%, abruption in 2.7% and incisional site oozing in 0.5% cases. In another study by Arora et al (2017)<sup>9</sup>, placental abruption in 6.6%, PPH in 4.3% and wound hematoma in 3.6% was noted.

In our study, 30% of the babies were healthy without any complication. However, 18.6% were low birth weight with a mean birth weight of  $2.50 \pm 0.29$  kgs, this finding being consistent with that of Bouzari et al (2013)<sup>10</sup> ( $2.58 \pm 0.8$  kg). In the study by Onisai et al (2012)<sup>11</sup>, the mean birth weight was  $2.9 \pm 0.23$  kg which was higher than in the present study; 18.5% babies were admitted in SNCU /NICU which was higher than a study conducted by Vyas et al (2014) where 13.20% neonates were admitted to NICU whereas Elvedi-Gašparović et al (2016)<sup>12</sup> reported only 4% NICU admission. 14.3% babies had intrauterine growth restriction that corroborated with a study by Dwivedi et al (2012)<sup>13</sup>, (14.9%) and 12.8% had low APGAR score. In the study by Lin et al (2013)<sup>14</sup>, 0.3% Neonate had APGAR score <7 at 5 minutes which is significantly lower as compared to the present study. Neonatal thrombocytopenia was noted in 1.4% and was consistent with the findings of Singh et

al (2012) (1.09%) . In a study by Elvedi-Gašparović et al (2016), the incidence was 8% whereas the it was 4.3% in a study by Arora et al (2017). Neonatal death occurred in 2.9% which was comparable to the findings of studies by Chauhan et al (2016) and Nazeer et al.

## CONCLUSIONS

Mild thrombocytopenia was the most prevalent form of thrombocytopenia with gestational cause the commonest one. Specific medical treatment like platelet transfusion, immunoglobulin or steroid therapy required by one in ten patients indicates the need of specific service available in the service center. Around one-third had hemorrhagic complication like PPH, abruption and surgical site hematoma. Neonatal thrombocytopenia found in 3% of cases but not analyzed to come to a conclusion.

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