

## A Clinical Study of Thrombocytopenia in Pregnancy.



### Medical Science

**KEYWORDS :** Thrombocytopenia, gestational thrombocytopenia, maternal and perinatal outcome.

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### ABSTRACT

**OBJECTIVE-** To study the etiology, severity, management and maternal and perinatal outcome of pregnancies complicated with thrombocytopenia.

**METHODS-** This is a prospective study conducted from Apr 1st 2014 to Jan 31st 2015 in the dept of O&G, MAMC and Lok Nayak Hospital. The history, etiology, severity, management and maternal and perinatal outcome of pregnant women with thrombocytopenia were noted.

**RESULTS-** Hundred three women out of 4567 deliveries during the study period were diagnosed to have thrombocytopenia during pregnancy. Most of the cases were gestational thrombocytopenia (80%), hypertensive disorders (15%) & others (5%). Majority of cases (66.02%) were of moderate thrombocytopenia and only 10.68% cases had severe thrombocytopenia. Most of the cases (79.61%) have delivered after 40 weeks of gestation. Most of the cases (96.11%) had vaginal delivery. Sixteen cases required <4 units, 8 cases required 5-8 units and 4 cases required >8 units of platelet transfusion till they discharged from hospital. Ninetythree cases (90.29%) had no maternal complication. Six cases had PostPartum Hemorrhage. Ninty cases had hospital stay of <4 days and only 8.73% of cases had to stay >8 days in the hospital. Nine cases had premature babies. Two cases had intrauterine death of the fetus and two cases had intrauterine growth restriction and 1 baby had developed birth asphyxia.

**CONCLUSION:** Maternal and perinatal outcome is good with gestational thrombocytopenia however thrombocytopenia with HELLP or medical disorder had comparatively poor outcomes.

### INTRODUCTION

Thrombocytopenia is the second most common haematological disorder seen during pregnancy. Prevalence of thrombocytopenia (platelet count <150,000/L) during pregnancy is 6.6 to 11.6 %. Platelet count of <100,000/L, the definition for thrombocytopenia adapted by International Working Group is observed in only 1% of pregnant women. In the majority (70-80%) of cases the cause is gestational thrombocytopenia. Severe preeclampsia accounts for 15-20% cases. Other causes are rare like immune Thrombocytopenic purpura (1-4%), HELLP syndrome (<1%), AFLP (<1%).<sup>1</sup> Thrombocytopenia is diagnosed when platelet counts reduced to <150,000/L. Counts from 100,000 to 150,000 are considered mild, 50,000 to 100,000 considered moderate and less than 50,000 is severe thrombocytopenia.<sup>2</sup>

Treatment of the causes are more important as the morbidity of those conditions are more life threatening. Gestational thrombocytopenia diagnosed by diagnosis of exclusion and management depends on platelet count of the mother, mode of delivery and associated bleeding from any site of mother. Use of routine haemogram with platelet count increases the recognition of gestational thrombocytopenia.<sup>2</sup> Occasionally a low platelet count may be part of a more complex disorder with significant morbidity and may be life threatening.<sup>3</sup>

We have conducted this prospective observational study to find out etiology, severity, management and maternal and perinatal outcome of pregnancies complicated with thrombocytopenia.

### MATERIAL AND METHODS

This is a prospective observational study conducted from Apr 1<sup>st</sup> 2014 to Jan 31<sup>st</sup> 2015 in the department of Obstetrics & Gynecology Maulana Azad Medical College and Lok Nayak Hospital, New Delhi India. All the patient recruited in this study had no history of blood or immune system disease before pregnancy, and thrombocytopenia was diagnosed with platelet counts <150000/dL at least twice during pregnancy. The detail history of the patient noted, etiology and severity of thrombocytopenia identified, management and maternal and perinatal outcome of

pregnant women with thrombocytopenia were noted. All cases were followed up till they discharge from the hospital. The investigations done for all cases include a complete blood count with peripheral smear, tests for coagulation abnormalities (PT, APTT, Fibrinogen level), liver function tests, APLA antibodies, serum Viral screening (Dengu, HIV, Hepatitis B and Hepatitis C).

The management aimed at maintaining platelet count >20X10<sup>9</sup>/L in those without spontaneous bleeding, platelet transfusion would be required when platelet <10X10<sup>9</sup> /L or bleeding occur and RBC packed cell transfusion when hematocrit <25% and hemoglobin <7g/dl. For vaginal delivery platelet count aimed at 50,000/dl and for Cesarean section 80,000/dl. Other treatment were based on etiology. Maternal outcome like mode of delivery, number of platelet transfusion, any complication were noted. Perinatal outcomes include live or still birth, complications like intrauterine growth restriction, birth asphyxia, etc were also noted.

### Results

Hundred three women out of 4567 deliveries during the study period were found to have thrombocytopenia. The prevalence being 2.25%. Table-1 depicts the demographic characteristics of all the cases with thrombocytopenia diagnosed during pregnancy. Maximum number of patients were between 20-30 years of age group. (56.31% were 20-25 yr age group & 27.18% were 25-30 yr age group). Most of the patients under study (80.59%) were from urban area. Most of the patients were from lower (56.31%) & lower middle class (29.13%) socioeconomic status. Eighty three (80.59%) cases were diagnosed to have gestational thrombocytopenia, 15 cases had thrombocytopenia associated with hypertensive disorder. HELLP syndrome was found in one and was managed with platelet transfusion, antihypertensives, steroids and delivery of the baby. Four patients had dengue fever and 1 Case had use of low molecular weight heparin due to double heart valve replacement, probably the associated cause. Dengue fever associated with thrombocytopenia patients were managed conservatively till viral antigen become negative and then delivered. Only one of the four dengue fever patient required platelet

transfusion.

Table-2 depicts the maternal characteristics and outcome of all 103 cases diagnosed with thrombocytopenia during pregnancy. Maximum number of patients (73.79%) were diagnosed to have thrombocytopenia on routine hemogram after 40 weeks of gestation. Eightytwo cases (79.61%) have delivered after 40weeks of gestation. Most of the cases (96.11%) had vaginal delivery. Most of the cases (66.02%)had moderate thrombocytopenia and only 10.68% cases had diagnosed to have severe thrombocytopenia. Sixteen cases required <4 units of platelet transfusion, 8 cases required 5-8 units of platelet transfusion and 4cases required >8 units of platelet transfusion till they discharged from hospital. Ninetythree cases (90.29%) had no maternal complication during delivery or till discharge. Six cases had PostPartumHemorrhage, one case had Intracranial bleed, one case had vulval Hematoma formation, one case had Eclampsia and one case had Cerebral edema. Out of 15 cases associated with hypertensive disorder, four of these hypertensive patients had postpartum hemorrhage, one case had Intracranial bleed, one case had Eclampsia and one case had Cerebral edema which were managed by medical methods and platelet transfusion. Vulval Hematoma was formed in a patient of thrombocytopenia associated with low molecular weight heparin use for double heart valve replacement, which was managed by hematoma drainage and blood and platelet transfusion. Ninty cases had hospital stay of <4 days and only 8.73% of cases had to stay >8 days in the hospital. Those cases who had developed complications required hospital stay of more number of days.

Table-3 depicts perinatal outcome of all the cases. Nine cases had premature babies. All of the premature babies were of mothers with hypertensive disorder. Two cases had intrauterine death of the fetus associated with severe preeclampsia and they had delivered macerated stillbirth babies. Two cases had intrauterine growth restriction associated with hypertensive disorder and 1 baby had developed birth asphyxia.

**Discussion**

**Gestational thrombocytopenia** accounts for 70-80% of cases of thrombocytopenia in mid-second to third trimester of pregnancy and is typically characterized by a platelet count <70,000/dL. Mechanism unknown, but hemodilution and accelerated clearance are postulated.<sup>1</sup> Accelerated platelet activation is suspected to occur at placental circulation. Accelerated consumption of platelets is due to the reduced lifespan of platelet during pregnancy. Platelet counts are slightly lower in women with twins compared with singleton pregnancies, possibly due to increased coagulation system activation in the placenta.<sup>4</sup>

A careful history and simple laboratory tests like- complete blood count, reticulocyte count, peripheral blood smear, liver function tests, viral screening(HIV,HCV,HBV) are needed. If clinically indicated the tests to be considered are antiphospholipid antibodies, Antinuclear antibody, thyroid function tests, H.Pylori testing, DIC testing-prothrombin time(PT), partial thromboplastin time(PTT),fibrinogen, fibrin split products,VWD type IIB testing, direct Coombs test, quantitative immunoglobulins. In most of the cases monitoring of platelet count in the mother and newborn is enough.<sup>5</sup>

Absence of Schistocytes in blood smear will help to exclude thrombotic microangiopathies associated with pregnancy(HELLP syndrome, TTP and HUS). Normal coagulation studies will exclude acute fatty liver and DIC. Thrombocytopenia may be the primary manifestation of viral infections such as HIV, Viral Hepatitis, EBV and CMV. Women who receive low molecular weight heparin or unfractionated heparin are at risk of heparin induced thrombocytopenia. In our study one case was a Rheumatic heart disease with double valve replacement and was on

low molecular weight heparin, she developed a huge vulval hematoma after delivery with platelet count of 60,000/L. Platelet transfusion and after correction hematoma drainage and vaginal packing for 24 hours helped in recovery.

Approximately 0.5-1.5% of severe preeclampsia develop a platelet count<100,000/dl at term while 0.05-0.1%develop a platelet count<50,000/dl.<sup>6</sup>HELLP syndrome affects 0.6%of preeclampsia. However in 15-20% of cases of HELLP syndrome, no hypertension or proteinuria is present,70% of cases occur in late second or third trimester and 30% occur in postpartum.<sup>7</sup>

Acute Fatty Liver of Pregnancy(AFLP)is a rare but serious condition(1 in 20,000 pregnancies).AFLP is characterised by elevated liver enzymes, elevated conjugated bilirubin(>5mg/dL), and coagulopathy and thrombocytopenia in<50%cases. Obstetric management of Severe Preeclampsia, HELLP Syndrome, or AFLP with thrombocytopenia include-delivery as soon as mother stabilized with Prophylactic magnesium sulphate and antihypertensives and if required corticosteroids, platelet transfusion and therapeutic plasma exchange.<sup>1,8</sup>

**Conclusion-** Though the outcome is good one should not neglect gestational thrombocytopenia. Better maternal and perinatal outcomes can be achieved through proper treatment, intensive care for prevention and management of complications.

**Table-1, Demographic characteristics of cases.**

Characteristics	Number(n)	Percentage(%)
• <b>Age distribution :</b>		
• <20yr -		4.85%
20-25yr -	5	56.31%
25-30yr -	58	27.18%
>30yr -	28	11.65%
• Habitat of the cases	12	
Rural -		19.41%
Urban-	20	80.59%
• <b>Socioeconomic distribution:</b>	83	
Lower		
Lower Middle	58	56.31%
Upper Middle	30	29.13%
• <b>Causes :</b>	15	14.56%
• Gestational thrombocytopenia		
• Hypertensive disorders	83	80.59%
• Miscellaneous	15	14.56%
	5	4.85%

**Table -2,Maternal characteristics and outcome of all cases.**

Maternal characteristics and outcome	Number(n)	Percentage(%)
• Gestational age at diagnosis		
<37 week		11.65%
37-40week	12	14.56%
>40week	15	73.79%
• Gestational age at delivery	76	
<37 week		8.73%
37-40week	9	11.65%
>40week	12	79.61%
• Mode of delivery	82	
Vaginal		96.11%
Instrumental	99	0.97%
LSCS	01	2.91%
• Degree of severity of thrombocytopenia	03	
Mild	24	23.30%
Moderate	68	66.02%
severe	11	10.68%
• Number of platelet transfusion required		
▪ <4	16	
▪ 5-8	4	15.53%
▪ >8	2	3.88%
• Complications		1.94%
Nil	93	
PPH	6	90.29%
Intracranial bleed	1	5.82%
Vulval Hematoma	1	0.97%
formation	1	0.97%
Eclampsia	1	0.97%
Cerebral edema	1	0.97%
• Number.of days hospital stay	90	
<4days	4	87.37%
5-8days	9	3.88%
>8days		8.73%

**Table-3, Perinatal outcome of the cases.**

Perinatal Outcome	Number(n)	Percentage(%)
• Premature baby		
• Intrauterine growth restriction	9	8.73%
• Intrauterine death	2	1.94%
• Fresh stillbirth	2	1.94%
• Macerated stillbirth	0	0%
• Neonatal complication-birth asphyxia	2	1.94%
• Neonatal death	1	0.97%
	0	0%

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