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Original Research Article

Feto-maternal outcome among cases of thrombocytopenia during pregnancy: an observational study at a tertiary care hospital

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ABSTRACT

Background: Thrombocytopenia is decline in the platelet count and second most common haematological aberration secondary to anaemia during pregnancy complicating 7-10% of all pregnancies. Gestational thrombocytopenia contributes to 70-80% of all cases of thrombocytopenia in pregnancy. Hypertensive disorders accounts for about 15-20% and immune thrombocytopenic purpura for 3-4%. Other etiologies are considered rare in pregnancy. This research work aims to study prevalence, aetiology and feto-maternal outcomes in cases presenting with thrombocytopenia during pregnancy.

Methods: This observational study was conducted over a period of one year from January 2025 to December 2025 at a tertiary care hospital involving 128 pregnant patients visiting indoor of Department of Obstetrics and Gynecology, East Point College of Medical Sciences and Research Centre, Bengaluru. The study includes pregnant women from third trimester with platelet count less than 100000/ul. Any pregnant or non-pregnant woman having diabetes or thrombo-embolic disorders were excluded from the study.

Results: Out of 128 patients, moderate thrombocytopenia was seen in 73.4% cases while severe thrombocytopenia in 26.6% cases. Majority of patients had no symptoms and decrease in platelet count was noted on investigation. There are 66 women with Gestational thrombocytopenia, 34 cases with preeclampsia, 13 cases with HELLP syndrome, 06 cases with ITP (Immune Thrombocytopenia Purpura), 3 cases of Hepatitis E and other etiology was seen in 6 cases. The vaginal delivery was carried in about 68 cases, Cesearean section in 29 cases and no delivery in 31 antenatal patients. 3 maternal deaths were seen due to immense blood loss and foetal death accounted in 2 cases due to prematurity and respiratory distress.

Conclusions: Maternal and foetal outcomes worsen with severity of thrombocytopenia. Hence, earliest detection of thrombocytopenia by investigations facilitates the prompt management. Management of pregnant women with thrombocytopenia requires multidisciplinary approach with collaboration among the obstetrician, haematologist and hepatologist.

Keywords: Thrombocytopenia, Gestational, Immune, Hypertensive, Platelet count, Multidisciplinary

INTRODUCTION

Thrombocytopenia is second most common haematological aberration secondary to anaemia during pregnancy.[1] The diagnosis of thrombocytopenia in pregnancy has accelerated in the last 20 years mostly due to improvised healthcare system and awareness. Thrombocytopenia is decline in the platelet count (i.e-non-nucleated cellular fragments of the megakaryocytes) below 150,000/ul and complicates 7-10% of all pregnancies.[2,13,14] In the course of normal pregnancy plasma volume expansion results in haemodilution leading

to decrease in platelet counts by approximately 10% and most of this decrease occurs during the third trimester. Thrombocytopenia can be classified based on platelet count as mild (100,000-150,000/ul), moderate (50,000-100,000/ul) or severe (less than 50,000/ul).[3]

Table 1: Causes of thrombocytopenia in pregnancy.

Pregnancy related	Not related to pregnancy
Gestational thrombocytopenia	Pseudo thrombocytopenia
Preeclampsia / eclampsia	Immune thrombocytopenic purpura
HELLP syndrome	Thrombotic thrombocytopenic purpura/haemolytic uremic syndrome
Acute fatty liver of pregnancy	Autoimmune diseases: lupus, antiphospholipid syndrome
	Infections: HIV, HBV, HCV, sepsis
	Disseminated intravascular coagulation
	Drug-related causes: heparin
	Von Willebrand disease type II B
	Bone marrow dysfunction
	Hypersplenism
	Nutritional deficiencies: vitamin B12, folate

The pregnancy related physiological thrombocytopenia is usually mild with no feto-maternal adverse effects. A significant thrombocytopenia associated with medical conditions in contrast may cause serious maternal-foetal consequences and hence, specific monitoring and appropriate management is necessary.[4] Vaginal delivery can be considered safe when platelet count is higher than 30,000/µl. Safety consideration for the operative vaginal or caesarean deliveries is with platelet count of at least 50.000 platelets/µl. The estimated platelet number towards safe epidural anaesthesia is still into debate, but most guidelines recommend the reference value of around 75.000-80.000/µl. There exists the risk of epidural hematoma associated to lower platelet values such as occurrence of spontaneous bleeding with less than 20.000 platelets/µl and increased risk of internal bleeding if platelet count falls below 10.000/µl.[5] Gestational thrombocytopenia contributes to 70-80% of all cases of thrombocytopenia in pregnancy. Hypertensive disorders accounts for about 15-20% and immune thrombocytopenic purpura for 3-4%. Other etiologies are considered rare in pregnancy accounting to 1-2%.[4,15,16] Causes are also depicted in table 1. This research work aims to study prevalence, aetiology and feto-maternal outcomes in cases presenting with thrombocytopenia during pregnancy.

METHODS

This observational study was conducted over a period of one year from January 2025 to December 2025 at a tertiary care hospital involving 128 pregnant patients visiting indoor of Department of Obstetrics and gynaecology of East Point College of Medical Sciences and Research Centre, Bengaluru. The study includes pregnant women from third trimester with platelet count less than 100000/ul. Any pregnant or non-pregnant woman having diabetes or thrombo-embolic disorders were excluded from the study. Institutional ethical committee clearance was obtained, valid consent taken followed by documentation of demographic details using preset Performa. A thorough history was taken and a detailed clinical examination was carried out. History of petechiae, bruising, drug usage, viral infection, thrombocytopenia in previous pregnancy, associated any co-morbidities, family history, etc were taken. All the antenatal patients were subjected to routine antenatal investigations and on specific tests like coagulation profile (PT, APTT, FDP and fibrinogen), KFT, LFT and ultrasonography were performed clinically indicated. Platelet count assessment was done through automated blood count analyser. All the cases were followed up keenly and all neonates were tested for thrombocytopenia by cord blood sampling. All enrolled pregnant women were followed up with platelet count till 10th day postpartum. The data obtained was tabulated and statistically analysed with SPSS software.

RESULTS

Table 2: Demographic and history details.

S. no.	Criteria	Sub division	Number of cases	Percentage (%)	Total
1.	Grading	Moderate	94	73.4	128
		Severe	34	26.6	
2	Parity	Primigravida	76	59.4	128
		Multigravida	52	40.6	
3	Booking	Unbooked	65	50.8	128
		Booked	63	49.2	
4	Clinical manifestations	Bleeding	22	17.1	128
		Purpura	08	6.2	
		No symptoms	98	76.7	

In the present study, a total of 128 pregnant women admitted in antenatal ward had thrombocytopenia over 1year time period.

Table 3: Distribution of etiology.

S. no.	Eitilogy	Number of cases	Percentage (%)
1	Gestational	66	51.5
2	Preclampsia	34	26.6
3	HELLP	13	10.1
4	ITP	06	4.7
5	Hepatitis E	03	2.3
6	Others	06	4.7

Table 2 shows the demographic characteristics and clinical profile of the study population. Moderate thrombocytopenia constituted the majority of cases (73.4%), whereas severe thrombocytopenia was seen in 26.6% patients. Primigravida women accounted for 59.4% of the cases. More than three-fourths of women (76.7%) were asymptomatic and thrombocytopenia was detected incidentally during routine investigations. Nearly equal proportions of booked (49.2%) and unbooked (50.8%) antenatal women were observed.

Table 3 illustrates the etiological distribution of thrombocytopenia in pregnancy. Gestational thrombocytopenia was the most common etiology accounting for 51.5% of cases, followed by preeclampsia (26.6%) and HELLP syndrome (10.1%). Immune thrombocytopenic purpura and other causes together contributed to less than 10% of cases, indicating that pregnancy-related causes predominated in the present study.

Table 4 demonstrates the maternal and foetal outcomes among women with thrombocytopenia. Vaginal delivery was the most common mode of delivery (53.1%), while caesarean section was required in 22.7% of cases due to obstetric or medical indications.

Table 4: The various outcomes.

S. no.	Outcomes	Sub division	Number	Percentage (%)	Total
1	Pregnancy outcome	Vaginal	68	53.1	128
		LSCS	29	22.7	
		No delivery	31	24.2	
2	Mortality	Maternal	03	2.3	05
		Foetal	02	1.5	

Maternal mortality was observed in 2.3% cases, mainly associated with severe haemorrhage, whereas foetal mortality occurred in 1.5% cases due to prematurity and respiratory distress.

DISCUSSION

The present study had aim to analysis the maternal and foetal outcomes in pregnancy complicated with thrombocytopenia. The present study showed that moderate thrombocytopenia was more common (73.4%) than severe thrombocytopenia (26.6%) among pregnant women. Similar findings have been reported in previous studies where moderate thrombocytopenia constituted the majority of cases during pregnancy. Most of the patients in the present study were primigravida (59.4%), indicating that thrombocytopenia can occur frequently during first pregnancies. A large proportion of women (76.7%) were asymptomatic, and thrombocytopenia was detected incidentally during routine antenatal investigations. This observation is consistent with earlier reports which suggest that gestational thrombocytopenia is usually mild and asymptomatic and often identified only through routine laboratory screening. In the present study, gestational thrombocytopenia was the most common cause (51.5%), followed by preeclampsia (26.6%) and HELLP syndrome (10.1%). These findings are comparable with previous studies which have reported that gestational thrombocytopenia accounts for approximately 70-80% of thrombocytopenia cases during pregnancy. Hypertensive disorders of pregnancy remain the second most common cause and are often associated with more severe maternal and foetal complications. Immune thrombocytopenic purpura accounted for 4.7% of cases, which is similar to findings reported in other clinical studies. The presence of infectious causes such as Hepatitis E in a small proportion of patients highlights the importance of considering regional infectious etiologies when evaluating thrombocytopenia in pregnancy.

The findings of the present study demonstrate that vaginal delivery was the most common mode of delivery (53.1%), suggesting that thrombocytopenia alone does not necessarily mandate caesarean delivery when platelet counts are adequately monitored. However, 22.7% of patients required caesarean section, mainly due to obstetric indications or complications related to hypertensive disorders. Maternal mortality occurred in 2.3% of cases, primarily due to severe haemorrhage, highlighting the potential severity of thrombocytopenia when associated with underlying pathological conditions. Foetal mortality was observed in 1.5% of cases, mainly due to prematurity and respiratory distress, indicating that adverse perinatal outcomes are more likely in cases associated with severe thrombocytopenia or hypertensive disorders. These findings emphasize the need for early diagnosis and multidisciplinary management to improve both maternal and neonatal outcomes.

The major findings of our study were that thrombocytopenia points to a higher degree of severity of the primary disease (APLA, HELLP, etc.), which is known to increase perinatal complications, both maternal and neonatal. Such complications include placental abruption, preterm deliveries, low Apgar scores, IUGR, and stillbirths. Higher rates of preterm deliveries (<37 weeks) were observed among parturients with moderate to severe thrombocytopenia. Since the management of preeclampsia and HELLP syndrome includes early delivery of foetus, labour induction could be a confounder for this association.[6] However, the relationship between thrombocytopenia and preterm delivery remained significant even after controlling for labour induction. It is interesting that even while dealing with moderate to severe thrombocytopenia, major bleeding requiring blood and platelet transfusion was rare, and occurred in only six patients. These patients had either DIC or HELLP syndrome. It is probably the result of careful surveillance and treatment. Indeed, since there were very few occurrences of massive bleeding, it seems that severe thrombocytopenia is a marker of a grave medical condition, more than the cause.

Adverse perinatal outcome was mostly associated with preeclampsia, HELLP syndrome, and the group of rarer causes, including DIC, familial TTP, APLA syndrome, and myeloproliferative disease. McCrae concluded that hypertensive disorders are associated with more severe cases of IUGR.[7] Likewise, Aslan et al found a significant difference in the incidence of IUGR in pregnant women with HELLP syndrome compared with women without HELLP syndrome.[8] Placental abruption, low Apgar scores (<7) at 1and 5 min, and stillbirth were found in the group of rarer causes. Similarly, Shamseddine et al investigating the pregnancy outcome of patients with TTP, found that TTP was complicated by IUGR and death, and McCrae suggested that APLA syndrome may be associated with recurrent neonatal losses.[7,9] In general, the GT and ITP groups had a favourable pregnancy outcome in our analysis. It is known that GT is not associated with an increased incidence of pregnancy-related complications or with the delivery of a thrombocytopenic offspring.[7,10] Women with ITP and severe thrombocytopenia may have bleeding complications, which were not observed in our study population, probably due to strict surveillance and treatment. Thrombocytopenia in the neonate, as reported by McCrae and Cook et al was rare and treated promptly without any bleeding complications.[7,10]

Patients with moderate to severe thrombocytopenia were significantly older than women without thrombocytopenia (30.75.9 versus 28.75.7; p= 0.001). This finding, although statistically significant, does not seem to have clear clinical implications. Lee investigated the pregnancies of women with ITP and concluded that ITP tends to occur in younger women. Hence, it commonly affects women in the childbearing age group.[11]

Likewise, Webert et al found that the median age of women with ITP at the time of delivery was 29 years.[12] Indeed, the mean maternal age in our whole population was very similar to that in the above studies. In conclusion, the common cause of moderate to severe thrombocytopenia in pregnancy is mainly GT, while ITP, preeclampsia, and HELLP syndrome are less common. Patients with GT and ITP have favourable maternal and perinatal outcomes. On the other hand, preeclampsia and HELLP syndrome are associated with IUGR. The rarer and more serious group of causes of thrombocytopenia, including DIC, familial TTP, APLA syndrome, and myeloproliferative disease, are associated with placental abruption, low Apgar scores (<7) at 1 and 5 minutes, and stillbirths. Careful surveillance is required for these pregnancies in high-risk units for early detection and treatment of possible complications, in order to try to reduce maternal and neonatal morbidities. Further prospective studies among these high-risk populations with moderate to severe thrombocytopenia should investigate the efficacy of possible surveillance programs.

CONCLUSION

Thrombocytopenia in pregnancy occurs secondary to variety of causes. In Indian, women have platelet count towards lower baseline predisposing to thrombocytopenia. During pregnancy with increase in gestational age there is decline in platelet count. Maternal and foetal outcomes worsen with severity of thrombocytopenia. Hence, earliest detection of thrombocytopenia by investigations facilitates the prompt management. Management of pregnant women with thrombocytopenia requires multidisciplinary approach with collaboration among the obstetrician, haematologist and hepatologist.

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