

Incidence of Thrombocytopenia in Pregnancy at Tertiary Health Center and Its Outcome

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Abstract

Background: Thrombocytopenia is a common hematologic abnormality during pregnancy. Pregnant women with thrombocytopenia have a higher risk of bleeding during or after childbirth, particularly if they need to have a cesarean section or other surgical intervention during pregnancy, Labor or in the puerperium. The main aim of this study was to determine the incidence of thrombocytopenia at GGG hospital Jamnagar among pregnant women attending antenatal care service.

Objectives: To access incidence of thrombocytopenia in pregnancy and its outcome. To access the incidence of thrombocytopenia among pregnant women a cross sectional study was used on pregnant women attending antenatal care service GGG Hospital, Jamnagar from January to December 2018. A total of 9328 pregnant women taken visit 1110 diagnosed had thrombocytopenia. 100 were included in the study. Blood samples were collected for platelet count and other platelet parameters.

Result: A total of 9328 women receiving antenatal care service at GGG Hospital, Jamnagar participated in the study. Thrombocytopenia among 1110 pregnant women showed incidence of 11.9%. The mean \pm standard deviation platelet count was $238.85 \times 10^9/L$ (± 74.57). Thrombocytopenia was significantly associated with age group 20-25 year.

Conclusion: The incidence of thrombocytopenia was 11.9% predominantly with mild type of thrombocytopenia. Thrombocytopenia was higher among pregnant women who belongs to age group

20-25 year. Health care providers should screen routinely for thrombocytopenia to avoid excessive bleeding during pregnancy, especially in women who belongs to 20-25 year of age.

Keywords: Thrombocytopenia; pregnant women; antenatal care; Jamnagar.

Introduction

Thrombocytopenia, defined as platelet count less than $150,000 \mu l^{-1}$ ^{1,2} is a common hematological disorder. It is most common hematological abnormality in pregnancy after anemia.³ It usually results in bleeding into mucus membranes presenting as ecchymoses, petechiae, gingival bleeding, epistaxis etc. However, bruising, hematuria, gastrointestinal bleeding and rarely intracranial hemorrhage can also occur. Magann et al.⁴ divided thrombocytopenia according to severity into mild ($\geq 100,000$ to $< 150,000 \mu l^{-1}$), moderate ($\geq 50,000$ to $< 100,000 \mu l^{-1}$) and severe ($< 50,000 \mu l^{-1}$) thrombocytopenia. The majority of thrombocytopenic pregnant women is healthy, was incidentally diagnosed by blood testing.

This condition, called Gestational Thrombocytopenia (GT), usually has no influence on pregnancy, labor & delivery or on the newborn. There may not be a risk of severe hemorrhage in GT, but, HELLP syndrome, preeclampsia

and ITP (Immune Thrombocytopenic Purpura) expose child and mother to potentially life threatening complications. Other rare causes of thrombocytopenia like Hemolytic Uremic Syndrome (HUS), Thrombotic thrombocytopenic Purpura (TTP), von Willebrand disease IIB (vWD IIB) and Disseminated Intravascular Coagulopathy (DIC) are also associated with severe complications.

An accurate etiological diagnosis is essential for optimal therapeutic management. Thrombocytopenia is divided according to etiology into obstetric (hypertensive disorders, DIC, multifetal gestation.) gestational, medical (ITP, hepatic disorder, hypersplenism) thrombocytopenia. Thrombocytopenia in pregnancy is an Undiagnosed condition in Indian women, so the study was planned to find out the causative factors and incidence of thrombocytopenia in pregnancy for best fetomaternal outcome to review management strategies.

Materials and Methods

In this study, 9328 pregnant women were recruited from Department of Obstetrics and Gynecology, M P Shah Medical College, Jamnagar after approval from Institutional Ethical Clearance Committee from January 2018 to December 2018. Written consent was taken from all women recruited for study. Antenatal women were enrolled in the study at first visit, at 3rd trimester. Platelet count assessment was done through automated blood

count analyzer and routine antenatal hematological evaluation of the patient. Women with low platelet counts were taken as cases women with normal platelet counts were taken as a control.

The detailed work up of all cases of thrombocytopenia was done to diagnose the cause of thrombocytopenia. History of bruising, petechiae, viral infection, drug usage, thrombocytopenia in previous pregnancy was taken. Obstetric and general systemic examination was done to find any signs of thrombocytopenia. All women were subjected to blood test for Hb, bleeding time, clotting time, TLC, DLC, LFT, HIV and HbsAg. Women with fever were tested for Dengue IgM, patients with sign and symptom of DIC were tested for Coagulation tests (PT, APTT, INR). All the thrombocytopenic cases were watch for complications related to low platelet count throughout the antenatal period till delivery.

Platelet counts were repeated once in each trimester and in the postpartum period at 1 & 6 weeks. Standard statistical methods, ANOVA, student's "t"-test, were used to find the association between different causes and severity of thrombocytopenia with hemorrhagic complications.

Result

Out of 9328 antenatal cases studied, 1110 were found thrombocytopenic, giving an incidence of 11.9%. 100 cases are included for study. There were 66% cases of mild thrombocytopenia, 23% of moderate thrombocytopenia and 11% with severe

Table 1: Maternal Complication Associated with Maternal Thrombocytopenia.

| | GT | Infection | Eclampsia | PE, PE+ABR | ITP |
|------------------------|----|-----------|-----------|------------|-----|
| Bleeding manifestation | 14 | 4 | 2 | 10 | 2 |
| PPH | 1 | 0 | 0 | 4 | 0 |
| Renal failure | 0 | 2 | 0 | 0 | 0 |
| Partial HELLP | 0 | 0 | 1 | 1 | 0 |
| HELLP | 0 | 0 | 0 | 2 | 0 |
| DIC | 1 | 0 | 0 | 1 | 0 |
| MICU | 2 | 2 | 0 | 5 | 0 |
| Pul.edema | 0 | 0 | 0 | 1 | 0 |
| Sepsis | 1 | 0 | 0 | 0 | 0 |

Table 2: Analysis of Mode of Delivery and Period of Gestation.

| Mode of Delivery | | Period of Gestation | | Total |
|------------------|-------------|---------------------|-----------|-------|
| | | <37 weeks | >37 weeks | |
| Vaginal Delivery | Spontaneous | 4 | 12 | 16 |
| | Induced | 20 | 12 | 32 |
| LSCS | Elective | 0 | 7 | 7 |
| | Emergency | 30 | 15 | 45 |

thrombocytopenia. The mean platelet count at admission was 1.10 lakh/ μ L and at the time of discharge it was 1.5 lakh/ μ L.

The distribution of 100 cases of thrombocytopenia according to maternal complication associated with etiology of thrombocytopenia. Out of 100 thrombocytopenia, 26 were treated with steroids, blood transfusion and platelet transfusions. One case of DIC (obstetric thrombocytopenia) was also managed with transfusion of blood, platelets and FFP but no medical or surgical intervention was required in any case of GT.

Comparison of treatment used in 100 cases delivered during the study of different type of thrombocytopenia in pregnancy. 46% delivered at term and 54% delivered preterm. 48% had normal vaginal delivery, 52% had CS. All the cesarean sections were performed for obstetric/medical causes and none for thrombocytopenia.

Incidence of PPH was 5% among cases.

Discussion

Thrombocytopenia is a common problem during pregnancy, often under diagnosed and mismanaged. In the present study, incidence of thrombocytopenia during pregnancy is 11.9%. according to Burrows², thrombocytopenia is 6% and Sainio et al.⁵ reported a 7.3% prevalence of thrombocytopenia in a population-based surveillance study.

The mean platelet count of 180,000 μ L⁻¹ among controls of this study is significantly lower than that reported (213,000 μ L⁻¹) for healthy antenatal women.⁶ Among the cases also, the platelet counts (90,000–130,000 μ L⁻¹) were lower than the reported 116,000–149,000 μ L⁻¹. Karim et al.⁷ Thus, Indian women have lower platelet counts during pregnancy with or without thrombocytopenia. Ajzenburg et al.⁸ assumed Gestational thrombocytopenia is normally due to inhibition of megakaryocytopoiesis and secondary to increase platelet consumption within the placental circulation. Silver⁹ & Aster et al.¹⁰ reported that mostly GT is detected incidentally and women have no symptoms. Sainio et al.⁵ reported that cases of GT have no impact on either the mother or the fetus. GT was the most common cause in this study with a platelet count ranging from 65,000 to 135,000 μ L⁻¹. 88.52% had platelet counts \geq 100,000 μ L⁻¹. It followed a benign course without any adverse effect and need for intervention during pregnancy.

ITP affects only 2 of every 100 pregnancies.

Incidence of ITP was relatively higher in the present study. All 2 cases of ITP were being treated before pregnancy and so had mild thrombocytopenia. Platelets are transfused to ITP cases for bleeding complications or to raise platelet counts to 10,000 for delivery and 50,000 for LSCS.^{15,16} ACOG¹³ recommended serial assessment of maternal platelet more frequently for thrombocytopenia cases of ITP, and in every trimester in asymptomatic patient and women in remission. All ITP cases were managed as per ACOG guidelines during antenatal period.

ACOG¹³ recommended that the patient of maternal thrombocytopenia in the setting of PIH with HELLP syndrome primary treatment is delivery. In these women Platelet transfusions are less effective because of accelerated platelet destruction. Fonseca¹⁴ found no benefit of steroids in HELLP syndrome. Among obstetric thrombocytopenia cases, one case of abruptio placentae with DIC had purpura all over body, petechiae and platelet count of 59,000 μ L⁻¹. She required 2 units of blood, 4 units of platelets and 4 units of FFP.

We found a positive association between lscs and period of gestation <37 wks with *chi*-square of lscs 8.4, vaginal delivery 4.5 Had positive association and the association had a significant p value 0.001 and 0.008. This was due to the associated obstetric and medical complications that indicate preterm delivery. patients of medical thrombocytopenia needed predelivery platelet transfusions. This is in line with recommendations from Richard Fischer¹² who found that bleeding associated with surgery is uncommon unless the platelet counts are lower than 50,000 μ L⁻¹.

Nadine Shehata¹ reported that in Gestational thrombocytopenia, platelet count typically returned to normal within 6 weeks of delivery.

Conclusion

The incidence of gestational thrombocytopenia in our study was 8.9%. This figure is similar to that of 7.2% reported by Sainio et al. 2000.

Among 100 thrombocytopenia patients most common cause for thrombocytopenia was found to be gestational thrombocytopenia (51%), followed by preeclampsia (31%), eclampsia, partial HELLP, HELLP, ITP and infections (1%), and abruptions. 66% (66) of them mild thrombocytopenia, 23% (23) had moderate thrombocytopenia, 11% (11) had severe thrombocytopenia.

The group in whom thrombocytopenia was found

before 37 wks of gestation was the group which is associated with more obstetric complications and hence more number of emergency LSCS in the group.

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