International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Kharadi KK et al. Int J Reprod Contracept Obstet Gynecol. 2024 May;13(5):1157-1160
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20241058

Original Research Article

Feto-maternal outcome of pregnancy with thrombocytopenia

Kinjal K. Kharadi*, Sapana R. Shah, Kruti J. Deliwala, Purvi M. Parikh

Department of Obstetrics and Gynecology, SVPIMSR, NHL Municipal Medical College, Ahmedabad, Gujarat, India

Received: 26 February 2024
Revised: 28 March 2024
Accepted: 29 March 2024

***Correspondence:**
Dr. Kinjal K. Kharadi,
E-mail: kinjalkharadi123@gmail.com

ABSTRACT

Background: Thrombocytopenia is the second most haematological abnormality in pregnancy where the platelets count below 1,50,000/µl. Gestational thrombocytopenia is most common cause of thrombocytopenia, accounts for 70% of thrombocytopenia in pregnancy.
Methods: It is retrospective study with 30 antenatal women at any gestational age having thrombocytopenia, platelet count less than 1,50,000/µl at SVP Hospital, Ahmedabad during duration of May 2023-November 2023. All the pregnant women who attend OPD and admitted in SVP Hospital, Ahmedabad were included in the study.
Results: The present study found that gestational thrombocytopenia (53.34%) accounted for most common cause of thrombocytopenia, followed by hypertensive disorders (10.0%), HELLP syndrome (6.67%), dengue and malaria (6.67%), DIC (6.67%) and ITP (3.34%) in which 53.34% women has mild, 36.67% has moderate and 10% has severe thrombocytopenia. In this study vaginal delivery accounts for 33.34% and caesarean delivery accounts for 66.67%. In present study 50.0% patient of gestational thrombocytopenia didn't required any treatment. About 6.67% patients required transfusion of PRC and 33.34% of neonates needed NICU admission. Neonatal mortality due to complications like prematurity, septicemia was seen in 10.0% of the cases.
Conclusions: Outcome of pregnancy with moderate to severe thrombocytopenia depends mainly on the etiology of thrombocytopenia. Early interdisciplinary evaluation of thrombocytopenia during pregnancy can help in optimizing care as fetal outcomes and management depend on the etiology.

Keywords: Gestational thrombocytopenia in pregnancy, Thrombocytopenia

INTRODUCTION

Platelets are non-nucleated cells derived from megakaryocytes in the bone marrow and they play a key role in haemostatic system. The normal range platelets in non-pregnant women are 1,50,000-4,00,000/mm^3. Platelet abnormalities are common and may precede pregnancy, develop coincidentally during pregnancy, or be induced by pregnancy.[1] Thrombocytopenia defined by platelet count below 1,50,000/µl.[1] It is the second most haematological abnormality in pregnancy.[2] Due to haemodilution of plasma volume, platelets count may decrease by approximately 6-7% during third trimester, though absolute platelets count remain with in normal reference range in most patients. The normal increased splenic mass of pregnancy also may contribute.[3] Thrombocytopenia may be inherited or idiopathic, acute or chronic, and primary or associated with other disorders.[1] Thrombocytopenia can be classified as mild with a platelet count of 1,00,000-1,50,000/mm^3, moderate with 50,000-1,00,000/mm^3 and severe with less than 50,000/mm^3.[4]

In pregnancy, most cases are due to gestational thrombocytopenia, severe preeclampsia, HELLP syndrome or idiopathic thrombocytopenia purpura. Other cause include malaria, dengue, viral infection (HIV, Ebstein-Barr virus), SLE, APLA syndrome, connective

tissue disorders, acute fatty liver of pregnancy, aplastic anemia, leukaemia and drug induced thrombocytopenia.

Gestational thrombocytopenia is considered as the most common cause of thrombocytopenia, accounts for 70% of thrombocytopenia in pregnancy. Preeclampsia and HELLP syndrome accounts for 20% cases. Incidence of HELLP syndrome is 0.2-0.6% overall and 10-20% in cases of severe preeclampsia. Immune thrombocytopenic purpura accounts for less than 3% of all cases.

Objective of present study was to find incidence, aetiology and clinical profile to evaluate different modalities of management and for study feto-maternal outcome in women with thrombocytopenia in pregnancy.

METHODS

It is retrospective study with 30 antenatal women at any gestational age having thrombocytopenia, platelet count less than 1,50,000/µl at SVP Hospital, Ahmedabad during duration of May 2023-Nov 2023.

Inclusion criteria

The eligibility criteria for selection of cases were all the pregnant women who attend OPD and admitted in SVP Hospital, Ahmedabad were tested for complete blood check-up.

Exclusion criteria

The study excluded women those with normal platelet count. Thirty pregnant women with thrombocytopenia at any gestational age, platelet count less than 1,50,000/µl were recruited into the study and the maternal & perinatal outcome were studied.

A detailed history and thorough general physical, systemic and obstetrical examination were performed. To find the aetiology, all patients were investigated for complete blood count, bleeding time, clotting time, PT/APTT, HIV, HBsAg, VDRL, glucose challenge test, liver function test, serum electrolytes, urine routine and microscopy and obstetrical ultrasound. Lupus anticoagulant antibody, anticardiolipin antibody and antinuclear antibody were also done by ELISA method. Bleeding manifestation before delivery, intra partum complications and also modes of delivery like normal delivery or LSCS were evaluated. At delivery, cord blood sample was collected to evaluate the effect of maternal thrombocytopenia on fetal platelet count. All new born babies were evaluated at birth and were observed up to 7 days of life for any bleeding complication. Various treatment modalities were studied and evaluated.

RESULTS

According to present study, gestational thrombocytopenia (53.34%) accounted for most common cause of thrombocytopenia, followed by hypertensive disorders (10.0%), HELLP syndrome (6.67%), dengue and malaria (6.67%), DIC (6.67%) and ITP (3.34%) as shown in Table 1.

Table 1: Aetiology of thrombocytopenia.

Cases for thrombocytopenia	No. of cases (%)
Gestational thrombocytopenia	16 (53.34)
Hypertensive disorder	3 (10.0)
HELLP syndrome	2 (6.67)
DIC	2 (6.67)
ITP	1 (3.34)
Dengue and malaria	4 (13.34)
Others (aplastic anemia, harris platelet syndrome)	2 (6.67)

In present study, 53.34% women had mild, 36.67% had moderate and 10.0% had severe thrombocytopenia as shown in Table 2.

Table 2: Severity of thrombocytopenia.

Total platelet count (/µl)	No. of cases (%)
<50,000 (severe)	3 (10.0)
50,000-1,00,000 (moderate)	11 (36.67)
>1,00,000 (mild)	16 (53.34)

In this study vaginal delivery accounts for 33.34% and caesarean delivery accounts for 66.67% as shown in Table 3. All the caesarean sections were performed for obstetrics/medical causes and none for thrombocytopenia. Thrombocytopenia per se is not an indication for caesarean section.

Table 3: Mode of delivery.

Mode of delivery	No. of cases, (%)
Vaginal delivery	10 (33.34)
Caesarean section	20 (66.67)

In present study 50% patient of gestational thrombocytopenia didn't required any treatment. Out of 11 cases of moderate thrombocytopenia 6.67% patients required transfusion of PRC. PCV required in 40% women with anemia. In present study, 46% women required different component of blood transfusion as platelet count was <1,00,000/µl and low HB. ITP found in 1 case (3.33%) and was treated by oral corticosteroids as shown in Table 4.

In present study, 33.34% of neonates needed NICU admission due to prematurity (23.34%), respiratory distress syndrome, meconium aspiration syndrome (10%) etc. Neonatal mortality was seen in 10.0% of cases as shown in Table 5. In present study, neonatal thrombocytopenia was not noted in any cases.

Table 4: Treatment modalities.

Treatment	No. of cases, (%)
No treatment in case of GT	15 (50.0)
Corticosteroids	1 (3.33)
Platelet transfusion	2 (6.67)
Blood transfusion	12 (40.0)

Table 5: Neonatal outcome.

Neonatal outcome	No. of cases, (%)
Prematurity	7 (23.34)
FGR	1 (3.34)
Meconium stained liquor	3 (10.0)
NICU admission	10 (33.34)
Neonatal mortality	3 (10.0)

Maternal complications

In present study, ICU admission of 6 cases (20%), DIC in 2 cases (6.67%) noted as maternal complications. In the current study, no incidence of post-partum haemorrhage or maternal deaths was reported.

DISCUSSION

The present study was aimed to evaluate causes of thrombocytopenia in pregnancy and its feto-maternal outcome. In pregnant women with thrombocytopenia, prevalence rate is 10%.[5] The present study shows the prevalence rate of mild, moderate and severe thrombocytopenia was 53.34%, 36.67%, 10.0% respectively. Dwived et al observed prevalence of 4.08% having severe thrombocytopenia in their study.[6] Desired platelet count should be maintain for successful delivery with minimal or without any complications. In present study, gestational thrombocytopenia (53.34%) is accounted for the most common causes of thrombocytopenia followed by hypertensive disorder (10%) and HELLP syndrome (6.67%) followed by dengue, malaria (13.34%) and ITP (3.34%). In a study conducted by Vyas et al in Ahmedabad, the most common aetiology (44.6%) was gestational thrombocytopenia.[12] Parnas et al discovered that the most common cause of thrombocytopenia were gestational thrombocytopenia (59.3%), ITP (11.05%), preeclampsia (10.05%) and HELLP syndrome (12.06%).[13] Forgerty et al state in their study that the cases of ITP were 1-4% out of cases of thrombocytopenia in pregnancy.[7] Michael Parnas et al observed 10% incidence due to ITP.[8] Moderate to severe thrombocytopenia is observed mainly in pre-eclampsia, eclampsia and HELLP syndrome and is associated with complications like placental abruption, PPH, ICU admission, mortality and fetal complications.

Thrombocytopenia is not an absolute indication for caesarean section. In present study, vaginal delivery was performed on 33.34% of the women and cesarean delivery was performed on 66.67% of the women. Singh et al, discovered that 48% of patients were delivered with LSCS and 52% via vaginal birth.[9] According to Sibai, the rate of cesarean section with HELLP syndrome is significant, especially when the pregnancy is shorter than 34 weeks.[10] The cesarean section rate in pregnancies fewer than 30 weeks is 87.0%.[11] Maternal complications due to bleeding tendencies like placental abruption, postpartum haemorrhage were not evident in the study population, only 2 cases of DIC and 6 cases of ICU admission noted as maternal complication. Dwivedi et al noted 4.2% post-partum haemorrhage, 2.4% placental abruption.[6] According to Sumanthy et al, atonic PPH occurred in 7.1% of cases, abruption in 2.7%, eclampsia in 2.1%, DIC in 2.1%, ARDS in 0.5%, and incisional site leaking in 0.5%.[11] Sibai et al, conducted a retrospective cohort analysis in which 38% of pregnant women with HELLP had DIC (13%).[14] Audibert et study 1.5% cerebral haemorrhage noted.[15] Foetal complications were significantly higher in the study group. NICU admissions due to various complications of prematurity like low birth weight, respiratory distress, neonatal jaundice, meconium aspiration syndrome were seen in 33.34% of the cases. Neonatal mortality due to complications like prematurity, septicemia was seen in 10.0% of the cases. Neonatal thrombocytopenia was not found in present study. Singh et al, discovered that 40% of the cases had severe thrombocytopenia, with 10% of the new borns having severe thrombocytopenia.[9]

CONCLUSION

Outcome of pregnancy with moderate to severe thrombocytopenia depends mainly on the etiology of thrombocytopenia. gestational thrombocytopenia is associated with better feto-maternal outcomes compared with other etiologies. Patient with gestational thrombocytopenia doesn't require any treatment unless platelet count is less than 50,000/ µl or associated with any acute condition. Early interdisciplinary evaluation of thrombocytopenia during pregnancy can help in optimizing care as fetal outcomes and management depend on the etiology.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Williams obstetrics. American College of Obstetricians and Gynaecologists: Thrombocytopenia in pregnancy. 26th ed. Practice Bulletin No.207; 2019c.
2. KashyapR, Garg A, Pradhan M. Maternal and foetal outcomes of pregnancy in patients with immune thrombocytopenia. J Obstet Gynaecol India.2021;71(2):124130.
3. Maymon R, Strauss S, Vaknin Z, Weinraub Z, Herman A, Gayer G. Normal sonographic values of

maternal spleen size throughout pregnancy. Ultra Medi Biol. 2006;32(12):1827-31.
4. Sharma JB. Textbook of obstetrics. Chapter: 35 American College of Obstetricians and Gynecologist (ACOG): Thrombocytopenia in pregnancy. 3rd ed. Practice Bulletin no. 207; 2019.
5. Kam PC, Thompson SA, Liew AC. Thrombocytopenia in the parturient. Anesthesia. 2004;59(3):255-64.
6. Dwivedi P, Puri M, Nigam A, Agarwal K. Fetomaternal outcome in pregnancy with severe thrombocytopenia. Euro Rev Medi Pharmacol Sci. 2012;16(11).
7. Fogerty AE. Thrombocytopenia in pregnancy: mechanisms and management. Transfus Med Rev. 2018;32(4):225-9.
8. Parnas M, Sheiner E, Shoham-Vardi I, Burstein E, Yermiahu T, Levi I, et al. Moderate to severe thrombocytopenia during pregnancy. Eur J Obstet Gynecol. 1990;162(3):163-68.
9. Singh J, Kumari K, Verma V. Study of thrombocytopenia in pregnancy: clinical presentation and outcome at tertiary care rural institute. Int J Repord Contracept Obstet Gynecol. 2020;9:1622-6.
10. Pandey A, Singh R. Thrombocytopenia in pregnancy: an institutional based prospective study of one year. Int J Res Med Sci. 2017;5(8):3502-05.
11. Sumathy V, Devi C, Padmanaban S. Prospective study of thrombocytopenia in pregnancy. Int J Clin Obstet Gynaecol. 2019;3(1):17-21.
12. Vyas R, Shah S, Yadav P, Patel U. Comparative study of mild versus moderate to severe thrombocytopenia in a tertiary care hospital. NHL J Med Sci. 2014;3(1).
13. Parnas M, Sheiner E, Shoham-Vardi I, Burstein E, Yermiahu T, Levi I, et al. Moderate to severe thrombocytopenia during pregnancy Eur J Obstet Gynecol Reprod Biol. 2006;128(1-2):163-8.
14. Sibai BM, Taslimi MM, El-Nazer A, Amon E, Mabie BC, Ryan GM. Maternal-perinatal outcome assosciated with the syndrome of hemolysis, elevated liver enzymes, and low platelets in severe preeclampsia- eclampsia. Am J Obstet Gynecol. 1986;155(3):501.
15. Audibert F, Friedman SA, Frangieh AY, Sibai BM. Clinical utility of strict diagnostic criteria for the HELLP(hemolysis, elevated liver enzymes, and low platelets) syndrome. Am J Obstet Gynecol. 1996;175(2):460-4.

Cite this article as: Kharadi KK, Shah SR, Deliwala KJ, Parikh PM. Feto-maternal outcome of pregnancy with thrombocytopenia. Int J Reprod Contracept Obstet Gynecol 2024;13:1157-60.