VOLUME - 12, ISSUE - 03, MARCH - 2023 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Original Research Paper | Obstetrics & Gynaecology

A STUDY TO EVALUATE THE CAUSES, SEVERITY AND FETO-MATERNAL OUTCOME OF THROMBOCYTOPENIA IN PREGNANCY

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ABSTRACT

Background- Thrombocytopenia is second most common hematologic abnormality during pregnancy after anemia. The incidence of thrombocytopenia is overall 8% among all pregnancies. Thrombocytopenia in pregnancy is commonly diagnosed during routine prenatal complete blood count. Obstetricians need to rule out pathological causes of thrombocytopenia, so that unforeseen feto-maternal complications can be predicted and managed1. **Aim-** To evaluate the causes, severity and feto- maternal outcome of all pregnant patients with thrombocytopenia. **Methods-** This study was conducted in the Department of Obstetrics and Gynaecology at Artemis hospital in Gurugram. This was a prospective observational study on 120 patients. All the pregnant patients who were coming for antenatal checkup at Artemis Health Institute from October 2019 to March 2021 were taken for platelet count test at the first visit and then followed up at 18-20 weeks, 28-30 weeks and 34-36 weeks of POG and before delivery for the platelet count till it came less than < 150 x 109/L. Those patients who had platelet count less than < 150 x 109/L were taken for study and followed up. **Results-** In all 120 women, thrombocytopenia was mild (91.66%) to moderate (8.3%) degree. In our study majority of cases were detected for the first time in third trimester followed by second trimester. Among causes of thrombocytopenia most common cause was gestational thrombocytopenia (87.5%) followed by hypertensive disorder in pregnancy (10%) and dengue (2.5%). **Conclusions-** Gestational thrombocytopenia is the most prevalent cause of thrombocytopenia in pregnancy with mild to moderate thrombocytopenia developing in second and third trimester generally and platelet count comes within normal range by itself post- delivery. Second most common case of thrombocytopenia is hypertensive disorder complicating pregnancy followed by infection

KEYWORDS : Thrombocytopenia in pregnancy,causes of thrombocytopenia ,low platelet in pregnancy

INTRODUCTION-

In India after anaemia, thrombocytopenia is the second most common hematologic abnormality in pregnancy and complicates 7 % to 8% pregnancies, mostly in the third trimester[1].

Causes of thrombocytopenia in pregnancy can be pregnancy specific and non- pregnancy specific. Thrombocytopenia in pregnancy varies from benign to severe with feto-maternal complications depending on grade of thrombocytopenia. Thrombocytopenia is defined as platelet count less than 150 x 10^3/L[2].Thrombocytopenia is graded into – mild, moderate and severe. Platelet counts from 100x10^9 – 150x10^9/L is considered mild, 50x10^9 -100x10^9/L moderate, and less than 50x10^9/L severe[3].

The population based studies have shown that the platelet count decreases by an average of approximately 10% in uncomplicated pregnancies. Platelet count decrease occurs mostly during the third trimester[4,5]. Platelet count decrease during the third trimester as a result of increase of destruction leading to younger and larger platelets which have increased number of platelet granules that enhance platelet function or due to hemodilution. Platelet count over 115 × 10^9/L in late pregnancy in healthy pregnant women, requires no further investigations and may be considered a safe threshold value[5,6].

AIM & OBJECTIVES

To evaluate the causes, severity and feto- maternal outcome of all pregnant patients with thrombocytopenia.

OBJECTIVES

The objective of our study is to know the causes and severity of thrombocytopenia in pregnancy and to study feto -maternal outcome in thrombocytopenia.

METHODS

This study was conducted in the Department of Obstetrics and Gynaecology at Artemis hospital in Gurugram. This was a prospective observational study on 120 patients. All the pregnant patients who were coming for antenatal checkup at Artemis Health Institute from October 2019 to March 2021 were taken for platelet count test at the first visit and then followed up at 18-20 weeks, 28-30 weeks and 34-36 weeks of POG and before delivery for the platelet count till it came less than < 150 x 10^9/L. Those patients who had platelet count less than < 150 x 10^9/L were taken for study and followed up.

The study was started after taking approval from the Scientific Committee and Ethics Committee of Artemis Health Institute. A detailed history was taken and careful clinical examination was performed. The information was collected using a questionnaire to know the socio-demographic and clinical manifestations (like easy bruisability, purpural spots over the body, petechiae, gum bleeding, abdomen pain, ,fatigue, blurring of vision, mouth ulcers, tingling sensations, etc) of all cases. Relevant investigations required was performed in a step wise manner to evaluate the cause of thrombocytopenia depending on clinical presentation.

Complete blood count was done at first antenatal visit, 18-20 weeks, 28-30 weeks and 34-36 weeks of period of gestation and before delivery. Those patients with platelet count less than < 150 x 10^3/L were taken for study.

Platelet counts of patients and their newborns was followed: at birth, post-delivery at 48 hours, 2 weeks and 6 weeks.

The following investigations specific to thrombocytopenia was performed as per the requirement: Complete blood counts with reticulocyte count, peripheral blood smear examination, liver function tests, thyroid function tests, kidney

function tests, vitamin B12 test, antiphospholipid antibodies and lupus anticoagulant ,and serologies for systemic lupus erythematosis (SLE) testing if needed. Coagulation profile was done depending on the requirement.

The maternal and neonatal outcome was evaluated in terms of:-

Maternal Outcome:

1. Period of gestation at time of delivery
2. Complications like postpartum hemorrhage during labour
3. Need of platelet or other blood component transfusion
4. Caesarean versus Normal vaginal delivery

Neonatal Outcome:

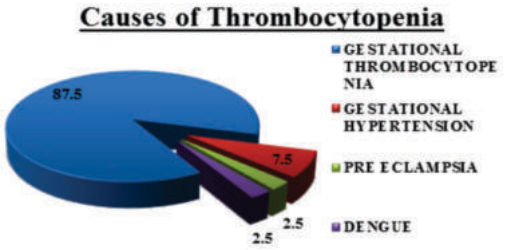
Any complications like jaundice, intracranial hemorrhage or need of platelet transfusion, need of prolonged Neonatal Intensive Care Unit stay.

RESULTS

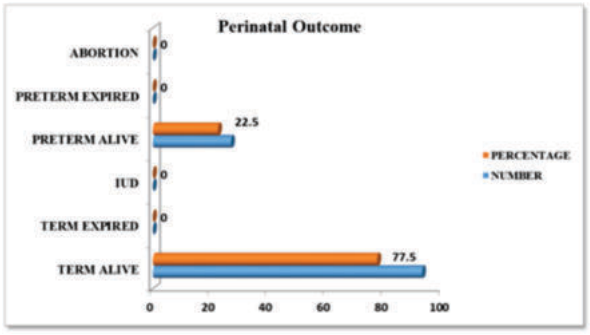
In all 120 women, thrombocytopenia was mild (91.66%) to moderate (8.3%) degree.

In our study majority of cases were detected for the first time in third trimester followed by second trimester.

Among causes of thrombocytopenia most common cause was gestational thrombocytopenia (87.5%) followed by hypertensive disorder in pregnancy (10%) and dengue (2.5%).

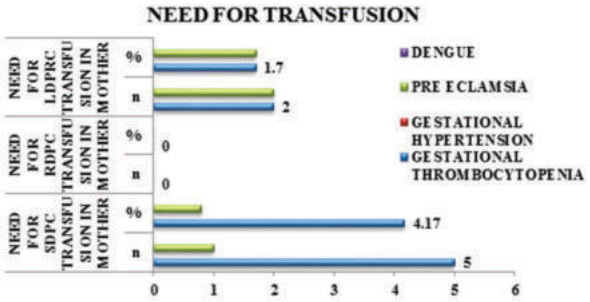


In our study 22.5 % patients had pre-term delivery. All pre-term delivery were late pre-term and delivered due to medical and obstetric complications and not because of thrombocytopenia.



PPH was seen in 12.5 % patients and was managed medically and no cases of episiotomy hematoma, incision site ooze was seen. There was need for SDPC transfusion in 4.97 % cases and need for LDPRC transfusion in 3.4 % cases. Thrombocytopenia associated with preeclampsia were associated with more blood and blood product transfusions as compared to gestational thrombocytopenia. LDPRC transfusion was given in cases of anaemia with postpartum haemorrhage.

In our study among 120 cases of thrombocytopenia, 6 patients received SDPC transfusion and 4 patients received LDPRC transfusion. There were no cases of RDPC transfusion. In cases of thrombocytopenia in pregnancy due to preeclampsia, among total 3 cases of preeclampsia 1 case received SDPC (33.33%) and 2 cases received LDPRC (66.67%) whereas among total 105 cases of gestational thrombocytopenia 5 received SDPC (4.17%) and 2 received LDPRC (1.7%).No cases received RDPC. Thus concluding thrombocytopenia associated with preeclampsia are associated with more blood and blood product transfusions.



In our study 5 neonates had jaundice but there were no cases of prolonged NICU requirement, intracranial hemorrhage (ICH) or need for SPDC transfusion.

In all cases, maternal platelet count recovered to normal range post-delivery within 6 weeks. There was no impact of maternal thrombocytopenia on neonate platelet count.

Maternal thrombocytopenia was not associated with any significant maternal or fetal complications leading to feto - maternal mortality and morbidity.

DISCUSSION

In study by Gaba N et al in 2020 on thrombocytopenic pregnant patients 15.8 % women had primary PPH, 24.5 % had intrapartum complications such as incision site ooze, wound or episiotomy site hematoma and placental abruption, which was not statistically significant[7].

Monica Arora et al also observed only 6 cases of PPH in severe thrombocytopenia, and 9 cases of placental abruption in moderate thrombocytopenia. Also she reported 3.6% wound hematoma[8].In our study, 15 patients (12.5%) had PPH which was managed medically and no cases of episiotomy hematoma, incision site ooze in caesarean section was seen.

In study done by Dr. V Sumathy et al in 2019, among 946 live births there were 3 neonatal death due to pre-maturity. All the neonates had platelet count above 50,000 and none of the neonates had any bleeding complications[9].Minal Harde et al observed 15 neonates required NICU admission, while there was one intrauterine fetal death (IUFD).Transfusion was required in 5 neonates. All mentioned neonatal complications were observed in moderate to severe thrombocytopenia due to preeclampsia, preeclampsia with HELLP and infectious causes like malaria and dengue. No neonatal complications or need for transfusion was seen in neonates of mother who had gestational thrombocytopenia[10].In our study 5 neonates had jaundice but no cases of prolonged NICU requirement, ICH or need for SPDC transfusion was there.Burrows reported that all cases of gestational thrombocytopenia by the seventh postpartum day, had normal or normalizing platelet counts[11].In our study when maternal platelet count follow up was done, in 51.67 % mothers platelet count normalized within 48 hours of birth, and 100 % normalized within 6 weeks. Our study is in concordance with Burrows et al.Gaba N et al observed that the neonatal platelet count was significantly higher than the maternal platelet count and was not related to the severity of thrombocytopenia in mother.In our study neonatal platelet count at birth was within normal range.

CONCLUSIONS

- Gestational thrombocytopenia is the most prevalent cause of thrombocytopenia in pregnancy with mild to moderate thrombocytopenia developing in second and third

trimester generally and platelet count comes within normal range by itself post- delivery. Second most common case of thrombocytopenia is hypertensive disorder complicating pregnancy followed by infection.

- Most common cause of thrombocytopenia is gestational followed by hypertensive disorders in pregnancy.
- Majority of cases were detected for the first time in third trimester.
- Pre-term delivery were late pre-term and delivered due to medical and obstetric complications and not because of thrombocytopenia.
- Mode of delivery was determined by maternal and obstetric conditions alone and was not dependent on the presence of thrombocytopenia.
- Postpartum haemorrhage which was managed medically and no cases of episiotomy hematoma, incision site ooze in caesarean section was seen.
- Thrombocytopenia associated with preeclampsia were associated with more blood and blood product transfusions as compared to gestational thrombocytopenia. LDPRC transfusion was given in cases of anaemia with postpartum haemorrhage.
- Maternal thrombocytopenia does not affect neonatal platelet count.
- Thrombocytopenia in pregnancy is not related to any significant maternal or fetal morbidity or mortality.

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