

CLINICAL PROFILE OF THROMBOCYTOPENIA IN 3RD TRIMESTER OF PREGNANCY AND MATERNAL AND FETAL OUTCOME IN GESTATIONAL THROMBOCYTOPENIA

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Abstract

Background: Thrombocytopenia is the second leading cause of blood disorders in pregnancy. It complicates 7 – 10% of pregnancies. Gestational thrombocytopenia, a mild thrombocytopenia occurring in the third trimester with spontaneous resolution in the post-partum, is the most common cause in pregnancy. The present study aimed to determine the clinical profile of thrombocytopenia in the third trimester and maternal and foetal outcomes in gestational thrombocytopenia. **Materials and Methods:** The study is a hospital based prospective study conducted in the Department of OBG, Government Medical College Kottayam for a period of fifteen months. The study was conducted on 164 antenatal women in their third trimester of pregnancy with thrombocytopenia. Data was collected using a proforma and the course of the pregnancy and investigation profile was monitored. The etiological factors of thrombocytopenia and the maternal and foetal outcomes of gestational thrombocytopenia were analyzed. Statistical analysis was done using SPSS version 24. **Result:** 164 antenatal women in their third trimester with thrombocytopenia were followed up. 37.2% of the study population belonged to 26 to 30 years old. 45.7% were primigravidae. 72.6% had mild thrombocytopenia only. 3.7% had severe disease. The most common cause of thrombocytopenia was gestational thrombocytopenia (75.6%). The second common cause was preeclampsia-HELLP syndrome. Preterm deliveries comprised of 15.3% of gestational thrombocytopenia ($p < 0.001$). There was significant association between gestational thrombocytopenia with abruptio placenta ($p < 0.003$), with mild post-partum haemorrhage ($p < 0.008$), with blood product transfusion ($p < 0.001$). While analyzing the foetal outcome, though there were no still- births, there was significant association with foetal growth restriction and birth asphyxia in the study. There was no significant association with neonatal thrombocytopenia. **Conclusion:** It is concluded that gestational thrombocytopenia is the most common of thrombocytopenia in the third trimester of pregnancy and that significant maternal and foetal adverse outcomes is to be anticipated in such cases.

INTRODUCTION

Thrombocytopenia is defined as blood platelet count less than 1,50,000. It is the second leading cause of blood disorders in pregnancy, the first being anemia. It complicates 7 – 10 % of all pregnancies.^[1] It is classified as mild with a platelet count of 1 to 1.5 lakhs, moderate with a count of 50000 to 1 lakh and severe when the count is less than 50000.^[2] Though most cases are mild, with severe thrombocytopenia, it can lead to maternal

and fetal life-threatening conditions. Causes include Gestational thrombocytopenia (most common), Idiopathic thrombocytopenia (ITP): a pre-existing cause, HELLP syndrome and severe Pre-eclampsia, Acute fatty liver of pregnancy (AFLP), other rarer causes like Thrombotic thrombocytopenic purpura, Hemolytic Uremic syndrome, Disseminated intravascular coagulopathy, Systemic Lupus Erythematosus, Antiphospholipid antibody syndrome.^[3] Gestational Thrombocytopenia is the most common cause. Exact aetiology is not known

but thought to be related to increased platelet consumption or hormonal inhibition of megakaryocytosis. Typically, a diagnosis of exclusion, it usually occurs during second half of pregnancy and the platelet count is more than 70000.^[4,5] ITP is immune mediated, usually pre-existing, with possible exacerbations during pregnancy with good response to steroids. Pre-eclampsia-HELLP syndrome is the second most frequent cause of thrombocytopenia. Other etiological causes are rare. The study aims to determine the other aetiological factors and clinical profile of thrombocytopenia in third trimester of pregnancy and to assess maternal and foetal outcomes of gestational thrombocytopenic patients.

Objectives

1. To determine the etiological factors of thrombocytopenia in third trimester of pregnancy
2. To assess maternal outcomes of gestational thrombocytopenic patients
3. To assess the fetal outcomes of mothers with gestational thrombocytopenia.

MATERIALS AND METHODS

The study was conducted in 164 antenatal women with thrombocytopenia in the third trimester admitted in the Department of Obstetrics and gynecology Government Medical College Kottayam, a tertiary care center. The study was conducted for a period of fifteen months from July 2019 to October 2020. The study was hospital based prospective observational study. Ethical concerns were cleared from the Institutional review board. Data was collected after informed consent with thorough history and detailed clinical examination. The course of the pregnancy, investigation profile and the outcome were followed up. A preprepared proforma was used as the study tool. The etiological factors of thrombocytopenia and the maternal and fetal outcomes of gestational thrombocytopenia were analyzed. The characteristics analyzed included age distribution, obstetric score, the distribution of severity of disease, etiological factors, period of gestation at delivery, maternal outcomes like abruption, post-partum haemorrhage (PPH), episiotomy site hematoma, caesarean site oozing, blood product transfusion. The fetal outcomes like still births, fetal growth restriction, occurrence of meconium staining, birth asphyxia, occurrence of neonatal thrombocytopenia was analyzed. The same characteristics were studied for the major cause, gestational thrombocytopenia. Description of numerical variables were performed in the form of mean, standard deviation and range. Categorical data was calculated as number and percent. Analysis of numerical variables was performed by using independent student's t-test and categorical data using Chi-square test. Receiver operating characteristic (ROC) curve analysis was

used to establish an optimal cut -off concentration. The results were evaluated with a significance level of $p < 0.05$. The statistical analysis was done using SPSS software version 24.

RESULTS

164 antenatal women in the third trimester with thrombocytopenia were followed up. Age group in the study ranged from 18 to 45 years out of which 37.2% belonged to the age group 26 to 30 years, with a mean age of 28 years. Thrombocytopenia was found more in the primigravidae (45.7%) followed by G2P1L1 (26.2%). 72.6% of the study population had mild thrombocytopenia, 23.8 % had moderate thrombocytopenia while 3.7% had severe disease.

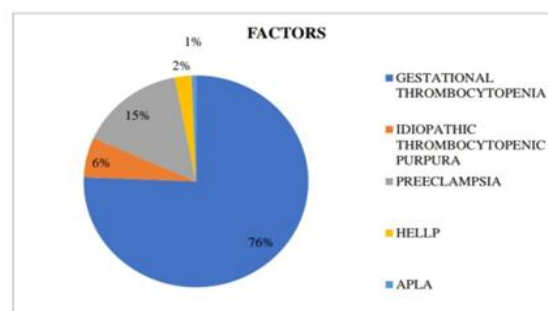


Figure 1: Distribution of factors associated with thrombocytopenia

Gestational thrombocytopenia was leading cause for thrombocytopenia forming 75.6%. The second common cause was pre-eclampsia at 15.2%. 6.1% of cases were due to ITP, 2.4 % cases due to HELLP and 0.6% of cases due to APLA syndrome.

More than three fourth of the study population (76.8) delivered at term gestation and 23.2% delivered pre-term. Abruption placentae occurred in 2 cases (1.6%). 87 % of the study population had no post-partum haemorrhage (PPH) while 13% suffered PPH. In the PPH group, mild PPH were 11% and moderate PPH were 2%. There were no cases of episiotomy hematoma encountered in the study. Caesarean site oozing was found in 1.8 %. 12% of the study population required blood products. There were no still births in the study population. 9.1% of the total cases had foetal growth restriction (FGR). 95.1 % of population did not have meconium staining. Birth Asphyxia was seen in 3% of neonates. Neonatal thrombocytopenia was seen only in 1 case (0.6%).

The same characteristics were studied for major cause, gestational thrombocytopenia.

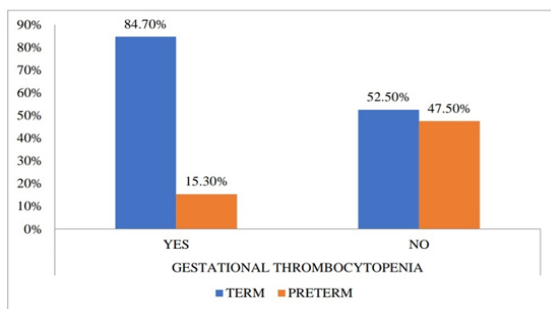


Figure 2: Association of gestational thrombocytopenia and gestational age at delivery

Preterm deliveries comprises of 15.3% cases of gestational thrombocytopenia with a p value of <0.001. So according to our study gestational thrombocytopenia is associated with increased incidence of preterm births.

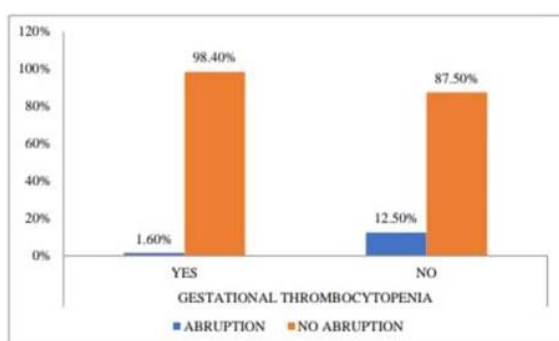


Figure 3: Association of gestational thrombocytopenia and occurrence of abruption.

1.6% of our gestational thrombocytopenia patients had abruption with a p value of 0.003, which is showing a significant association between the two.

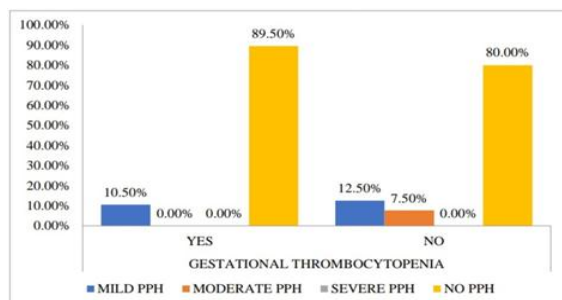


Figure 4: Association of gestational thrombocytopenia and PPH

In our study, gestational thrombocytopenia patients had 10.5% of pph., with a p value of 0.008. All cases of PPH were mild. No cases of moderate or severe PPH were present. Study shows increased incidence of mild PPH among patients with gestational thrombocytopenia.

There were no cases of episiotomy hematoma encountered in the study. Caesarean site oozing among patients with gestational thrombocytopenia group is 1.6% with a p value of 0.716. No significant association between cs site oozing and gestational thrombocytopenia.

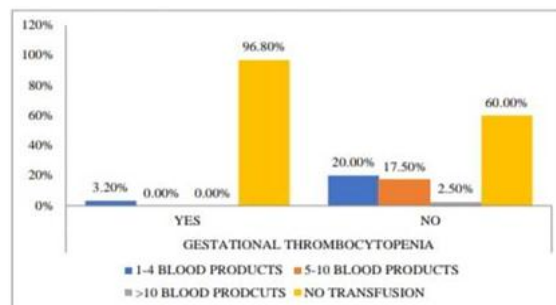


Figure 5: Association of blood transfusions with gestational thrombocytopenia

Need for blood transfusions in gestational thrombocytopenia group was 3.2%. All transfusions for gestational thrombocytopenia patients were limited to 1 to 4 blood products. p value was calculated as <0.001, showing significant association between gestational thrombocytopenia and blood transfusions.

There were no still births in the study population.

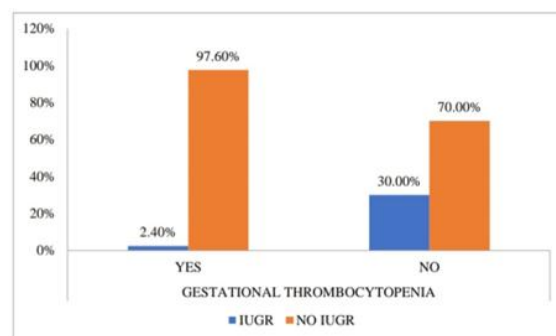


Figure 6: Association of IUGR with maternal gestational thrombocytopenia

Rate of IUGR among gestational thrombocytopenia patients were 2.4%, with a p value of less than 0.001, which shows there is significant association between the two.

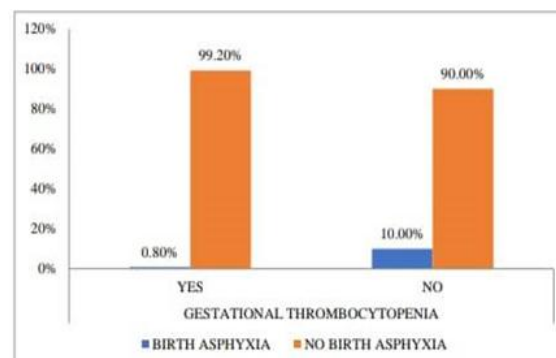


Figure 7: Association of birth asphyxia with maternal gestational thrombocytopenia

0.8% of gestational thrombocytopenia patients had birth asphyxia, p value of 0.003. Hence concluded that there is significant association between the two. No association was found between gestational thrombocytopenia and MSAF. Neonatal thrombocytopenia was found to have no

significance association with gestational thrombocytopenia.

DISCUSSION

In the present study maximum subjects (37.2%) were in the age group 26 to 30 years. In the study done by Vijay Zutshi in New Delhi,^[9] a similar result of 31.5% was obtained. The study which was done by Burrows and Kelton showed maximum occurrence of thrombocytopenia among primigravidae which is similar to our results.^[5] In the present study mild thrombocytopenia formed the majority. This is similar to the results of study by Vijay Zutshi et.al. where 62% had mild disease, 31% had moderate disease and 7% had severe disease.^[9] Gestational thrombocytopenia is the most common cause in the present study, followed by Pre-eclampsia-HELLP syndrome, ITP, respectively. In the study by Burrows and Kelton the gestational thrombocytopenia formed the majority with 75% followed by Pre-eclampsia-HELLP syndrome at 15-22% and ITP at 1-4%. 4 Similar results were also found in the study by Kam et.al.^[2]

The present study showed on analysing the maternal outcomes, preterm deliveries comprised of 15.3% of gestational thrombocytopenia with a p-value of < 0.001. Though many studies usually said that gestational thrombocytopenia doesn't affect preterm births, similar significant results were found in the study of Baptista et al.^[6]

In the present study gestational thrombocytopenia showed significant association with Abruptio placentae, mild post-partum haemorrhage and blood product transfusion. Similar outcome association was seen in Devyani Misra study.^[7] A similar 5% risk of transfusion of product was seen in the Ruggeri study.^[8] Similar blood transfusion rate was seen in the prospective study done by Safdarjung hospital.^[9]

On analysing the foetal outcome, significant association between foetal growth restriction and gestational thrombocytopenia was found in the present study, which was also found in the study by Salil Barsode.^[10] The association of peri-partum asphyxia and gestational thrombocytopenia was significant with similar association seen in Devyani study.^[7] There was no significant association between occurrence of neonatal thrombocytopenia and gestational thrombocytopenia in the present study.

CONCLUSION

Gestational thrombocytopenia comprised the maximum of all the thrombocytopenia, second being preeclampsia, followed by ITP. Thrombocytopenia affected the age group of 26-30 years maximum and maximum affected were primigravidae. The present study shows some significant adverse maternal and foetal outcomes. Significant maternal adverse outcomes were preterm birth, abruptio, mild PPH, and the need for blood product transfusions. There were significant adverse neonatal outcomes like FGR and birth asphyxia. Hence these adverse outcomes are to be anticipated in cases of thrombocytopenia.

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