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Research Article

**A DESCRIPTIVE CROSS-SECTIONAL STUDY ON THE  
CAUSES AND FREQUENCY OF THROMBOCYTOPENIA IN  
PREGNANCY**<sup>1</sup>Dr. Kamran Sajjad Hashmi, <sup>2</sup>Dr. Ambreen Hussain Cheema, <sup>3</sup>Sana Fatima<sup>1</sup>Medical Officer DHQ Hospital Sheikhupura<sup>2</sup>Rafique Anwar Memorial Trust Hospital Gujranwala<sup>3</sup>Mayo Hospital Lahore**Abstract:****Purpose:** To determine thrombocytopenia causes in pregnancy with maternal and neonatal outcomes.**Study Design:** A descriptive cross-sectional study.**Place and Duration:** The study was held at the Obstetrics and Gynecology Department of Mayo Hospital, Lahore for the period of one year from July 2016 to July 2017.**Method:** Eighty-seven pregnant women were included in the study. Blood samples were taken and analyzed for whole blood count, LFT, PT and APTT.**Findings:** The mean age of the women was  $26.91 \pm 5.28$ . (16.1%), preeclampsia (16.1%), HELLP (12.0%), DIC (3.4%) and thrombocytopenic purpura (3.3%) syndrome followed by pregnancy thrombocytopenia (57.5%). maternal outcome was 16.0% of prenatal bleeding cases, postpartum hemorrhage 41.3% and maternal mortality 8.0%. Newborn results showed that 77.0% reached full swing and 22.9% were premature. In general, 77.1% of newborns were live, 16.0% were RIA and 6.9% were IUGG.**Conclusion:** Thrombocytopenia is associated with maternal and neonatal morbidity and mortality in pregnancy. For this reason, we recommend that you carefully monitor these thrombocytopenic mothers and their infants to ensure timely etiology and appropriate intervention.**Key words:** Gestational thrombocytopenia, thrombocytopenia, HELLP syndrome, eclampsia.**\* Corresponding author:****Dr. Kamran Sajjad Hashmi,**

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**INTRODUCTION:**

Platelet count below 150,000 /  $\mu$ L is defined as Thrombocytopenia. In moderate cases reduced 100,000 /  $\mu$ L to 150,000 /  $\mu$ L and /  $\mu$ L is significantly reduced from 50,000 to 100,000. General thrombocytopenia is seen in eight percent of total pregnancies and this frequency is reduced to 5.1%. Patients with medical or obstetric impairment were not included. In normal pregnancy the cause of reduced platelet count is not known till now, but the occurrence of low platelets may be due to platelet "regeneration". In one study, it was determined that thrombocytopenia main cause was pregnancy immune thrombocytopenic purpura (11.0%), thrombocytopenia (59.3%), help syndrome (12.0%) and preeclampsia (10.0%). Thrombocytopenia was associated with higher placental abruption, premature birth, intrauterine growth restriction and intrauterine fetal death. In Pakistan, previous studies have shown that about 75% of pregnancy-related thrombocytopenia cases are gestational thrombocytopenia, affecting about 6% of pregnancy-induced pregnancy thrombocytopenia in pregnancy. The platelet count is reduced by about 10%, which is usually seen in the third trimester and reaches normal levels within the next 6 weeks after birth. In 0.01-0.05% of pregnancies Immune thrombocytopenia was found. Fibrinolysis, a procoagulant state caused by high levels of factor VIII, fibrinogen, von Willebrand (VWF) and factor VIII has been suppressed and thus a decreased thrombocyte count of protein S activity is generally less symptomatic due to the procoagulant condition reduced during pregnancy. We designed this study to determine the thrombocytopenia etiology in pregnancy and its results on fetomaternal outcome.

**MATERIALS AND METHODS:**

This descriptive cross-sectional study was held at the Obstetrics and Gynecology Department of Mayo

Hospital, Lahore for the period of one year from July 2016 to July 2017. A sample size of 87 patients per 95% confidence interval of 95% with an absolute confidence level of 95% confidence level was calculated. all pregnant women who applied in an emergency and without fulfilling the participation criteria were taken after the information was provided. including pregnant women with platelets  $<150 \times 10^9 / L$ . pre-existing health problems such as diabetes mellitus, liver failure, kidney disorders, heart disease and malignancies, and pregnant women. Patients with thrombocytopenia were not included in this study. Data collection procedure: Appropriate pregnant women were included. All patients were subjected to a detailed history and review. Detailed history as antipartum haemorrhage and postpartum haemorrhage in previous pregnancies and previous pregnancies, hypertension in pregnancy with any complication of age, weight, parity, LMP, gestational age, prenatal hemorrhage. Blood samples were taken and analyzed for peripheral blood smear and whole blood counts with KCFT, PT and APTT. The above information was recorded by the investigator. The study was approved by the institute's ethical review committee.

**RESULTS:**

During the study, 87 (6.0%) pregnant women were included in this study and patients with thrombocytopenia were recorded. The average age of women was  $26.91 \pm 5.28$ , which ranged from 16 to 42 years. Median age was 26 years. 45.9% [n = 40] of women were at least 25 years old, n, 26 and 35% and only 5.7% of women [age = 42] 48.2% were age 35 years old. Mean gestational age was  $35.63 \pm 4.17$  weeks; The minimum gestational week was 22 weeks, the maximum gestational week was 41 weeks (Table I).

Statistics	Results
Mean gestational age	35.63 $\pm$ 4.17 weeks
Minimum gestational age	22 weeks
Maximum gestational age	41weeks
Mean platelets counts	117 $\times 10^9/l$
Median count	128 $\times 10^9/l$
Minimum platelets count	35 $\times 10^9/l$
Maximum platelets count	141 $\times 10^9/l$

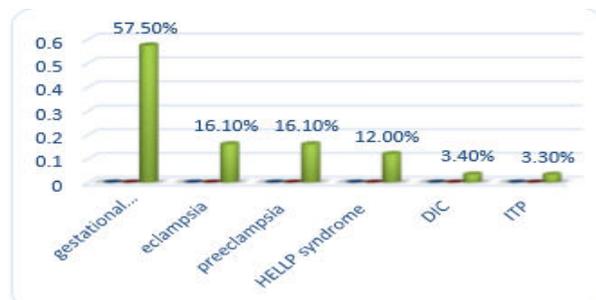


Figure 1. Causes of Thrombocytopenia in Pakistani Pregnant Patients

Most of the women were primigravida in 72.3% of cases and 27.59% of multipara. Mean platelet count was  $117 \times 10^9 / l$ , mean  $128 \times 10^9 / l$ . The minimum platelet count was  $35 \times 10^9 / l$  and the maximum was  $141 \times 10^9 / l$ . In this study, thrombocytopenia was the most common cause of gestational thrombocytopenia (57.5%), eclampsia (16.1%), preeclampsia (16.1%), HELLP syndrome (12.0%), DIC (3.4%) and immunologic thrombocytopenic purpura as shown in FIG, maternal outcome was 16.0% of prenatal bleeding cases, postpartum hemorrhage 41.3% and maternal mortality 8.0% (Table II).

Maternal outcomes	percentages
Antepartum bleeding	16.0%
Post partum bleeding	41.3%
Maternal mortality	8.0%

Newborn results reached 77.0%, while 22.9% gave up on persimmons. The results of neonates were 14 healthy (16%) RIA and 6 (6.9%) IUGR.

Statistics		Apgar Score
Mean		6.59
95% Confidence Interval for Mean	Lower Bound	6.33
	Upper Bound	6.85
Median		7
Std. Deviation		1.10
Minimum		4
Maximum		8
Inter quartile Range		1

The neonatal outcome at 5 minutes in terms of mean Apgar score is 7 (IQR = 1) as shown in Table III.

## DISCUSSION:

The incidence of thrombocytopenia in pregnancy is 8% and is the leading cause of gestational thrombocytopenia representing 70% of all cases. Thrombocytopenia is more common in the third trimester, when platelet counts are generally kept above  $110 \times 10^9 / L$  and healthy pregnant women rarely have a low rate of  $70 \times 10^9 / l$ . Hypertensive disorders such as preeclampsia and HELLP syndrome constitute 21% of the cases. The number of platelets in the mother reaches normal levels within 3-5 days after birth. Low platelets are responsible for maternal deaths and dead fetuses resulting from placental abortion and premature birth. Other mild common causes include systemic lupus erythematosus, antiphospholipid syndrome, DIC, thrombotic thrombocytopenic purpura, fatty liver, human immunodeficiency virus (HIV) infection, and medications. Although based on the increase in plasma volume observed in pregnancy, the basis of gestational thrombocytopenia is uncertain. Idiopathic

thrombocytopenic purpura (ITP) is an autoimmune disease characterized by the destruction of platelets bound to circulating antibodies, particularly by the spleen reticuloendothelial system. In pregnant women, the antibody passes the placenta, which puts the baby at risk for thrombocytopenia. A similar result was reported in a study that found that in Pakistan, thrombocytopenia was the main cause of gestational thrombocytopenia (59.3%), 0.7%, gestational thrombocytopenia was the main cause of gestational thrombocytopenia and approximately 6% of these pregnancies were affected and pregnancy-related thrombocytopenia 75% of cases. The platelet count tends to decrease by about 10%; This is more prominent in the third trimester and is recovered after 6 weeks of birth. Immune thrombocytopenia complicates 0.01-0.05% of pregnancies. It is believed that pregnancy thrombocytopenia is associated with increased activation and environmental uptake, with pathophysiology being unknown. The second cause of thrombocytopenia was eclampsia (16.1%) and preeclampsia (16.1%). A similar result was reported in a previous study. Thrombocytopenia is usually moderate and the platelet count is rarely less than 20,000 / well. Thrombocytopenia is always associated with the severity of the disease in preeclampsia patients. HELLP affects 0.5-0.9% of all pregnancies and develops in 10% of preeclampsia<sup>19</sup>. In our study, it affects 12.0% of patients. Similar findings have been reported in previous studies (12.06%). Hemolysis is characterized by high liver enzymes and low platelets. Pathophysiology is similar to preeclampsia, with endothelial damage and tissue factor release and coagulation activation. In a recent study, mutations in genes regulating the alternative complex system have been identified, suggesting that overcomplicated activation may play a role in pathogenesis similar to atypical hemolytic uremic syndrome (atypical HUS). Immune thrombocytopenia is seen in 1 of 1000-1000 gestations that make up 3% of all gravidarum thrombocytopenia. Thrombocytopenia is the most common cause in the first and second trimester. This is 3.3% in the study. In a comparison of the newborn outcomes, in our study, Apgar scores were determined in our study, with the previous report showing intrauterine growth retardation and stillbirths more likely to be observed in infants with thrombocytopenia for 5 minutes in infants <7. thrombocytopenia such as thrombotic thrombocytopenic purpura, antiphospholipid antibody (APLA) and myeloproliferative disease syndrome are rare, but these adverse outcomes are found in patients with pregnancy thrombocytopenia. thrombocytopenia in pregnancy is caused by accelerated platelet or hemodilution, consumption

antiplatelet antibodies; However, their presence or absence can not determine immunological thrombocytopenic purpura disorder or its differentiation. They usually have to wait till the postpartum period to separate each other from pregnancy pregnancy thrombocytopenia, which only after delivery does not reveal delivery or after immunological thrombocytopenia. Even the most common cause of thrombocytopenia in our study was gestational thrombocytopenia, which is a positive outcome of pregnancy in the third trimester of pregnancy.

### CONCLUSION:

Thrombocytopenia in pregnancy is associated with maternal and neonatal morbidity and mortality. For this reason, we recommend the careful monitoring of these thrombocytopenic mothers and babies for advice and advice on a strong, appropriate and timely interventional etiology.

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