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Frequency of Cesarean Deliveries in Women with Gestational Thrombocytopenia

Zartasha Riasat[1], Bushra[2], Shafaq[3], Mahrukh[4]

[1-4]Department of Obstetrics & Gynecology, KRL Hospital, Islamabad, Pakistan.

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Correspondence to: Zartasha Riasat, Department of Obstetrics & Gynecology, KRL Hospital, Islamabad, Pakistan.
Email: Sarahashraf087@gmail.com

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ABSTRACT

Objectives: To determine the frequency of cesarean deliveries in women with gestational thrombocytopenia. **Study type:** cross sectional study. **Settings:** Department of Obs & Gynae, Khan Research Laboratories (KRL) Hospital Islamabad. **Duration of study:** 25th February 2025 to 24th May 2025. **Methodology:** Eighty women with singleton pregnancies, no structural abnormalities on obstetrical ultrasound, and gestational thrombocytopenia between the ages of twenty and forty were included. The following conditions were excluded: history of anti-phospholipid anti-body syndrome, immune thrombocytopenia purpura or systemic lupus erythematosus, history of chronic hypertension, diabetes mellitus, liver or renal disease, human immunodeficiency virus infection, hepatitis C infection, or hepatitis B infection; pregnancies complicated by gestational hypertensive disorders, including pre-eclampsia and eclampsia; pregnancies complicated by HELLP (Hemolysis elevated liver enzymes low platelet) syndrome. Every patient underwent obstetrical ultrasonography, which was carried out by a single, skilled CPSP fellow radiologist. One skilled gynecologist, a fellow of the CPSP, performed cesarean deliveries. **Results:** The study's participants ranged in age from 20 to 40 years, with a mean age of 28.54 ± 5.93 years. Mean gestational age was 33.43 ± 3.52 weeks. Mean platelet count was 123509.43 ± 45638.43/µL. 31 (38.75%) women with gestational thrombocytopenia had undergone cesarean delivery. **Conclusion:** This study concluded by highlighting the serious fetal problems linked to gestational thrombocytopenia. A tendency toward higher maternal morbidity is indicated by the rising rate of cesarean deliveries.

INTRODUCTION

A condition known as gestational thrombocytopenia (GT) occurs when a pregnant woman's blood platelet count is less than 150,000 per microliter.[1] This is the most common cause of decreased platelet counts during pregnancy, occurring in about 10% of pregnancies.[2,3] Pregnant women who have previously had GT are more likely to conceive multiple babies.[4,5] One study by Nair and colleagues found that 75.6% of pregnancy-related reduced platelet counts are caused by GT. Other potential reasons include idiopathic thrombocytopenia [ITP] (6.1%) and preeclampsia (15.2%).[6]

According to some research, the platelet count can decrease during the second trimester of pregnancy and may not fully recover even after deliveries.[7] Increased fluid retention, larger platelets that break down more quickly, and higher levels of thromboxane A2, which promotes blood clotting, can all cause platelet counts to decline. Increased blood clots, platelet disintegration, and thus lower platelet counts can arise from these factors. Low platelet counts in subsequent pregnancies are more common in women with hemolysis increased liver enzyme and low platelet (HELLP) syndrome, severe GT, or low blood levels of anti-thrombin-III.[8] GT can be classified as severe (platelet count fewer than 50,000), moderate (platelet count 50,000-100,000), or mild (platelet count 100,000-150,000). About 7.6% of pregnancies result in mild thrombocytopenia, and most of these women have no other known reason for low platelet counts. Pregnant women with platelet counts below 100,000 should have a thorough investigation to rule out any other potential medical causes of their low platelet counts before being diagnosed with GT.[9]

Worldwide, the number of cesarean deliveries has been increasing. The frequency of cesarean deliveries in women with GT, however, is not well documented in the local literature. Additionally, the technique of delivery can have a significant impact on the health outcomes of both mothers and newborns.[10,11] More research is required to determine whether GT is

linked to a higher risk of caesarean deliveries and how it affects the manner of delivery. The findings of the study will aid in directing clinical judgment and enhancing general care for mothers and newborns.

METHODOLOGY

This descriptive, cross-sectional study was approved by the ethical review committee and was carried out from February 25 to May 24, 2025, at the Department of Obs & Gynae, Khan Research Laboratories (KRL) Hospital Islamabad. Eighty women with singleton pregnancies, no structural abnormalities on obstetrical ultrasound, and gestational thrombocytopenia (defined as a platelet count of less than 150,000 per microliter in the blood, occurring from week 27 to the end of pregnancy, counted from the first day of the last menstrual period) between the ages of twenty and forty were included. The WHO calculator was used to determine the sample size under the following assumptions: absolute precision = 10%, expected population proportion = 28.7%[10], and confidence level = 95%. The following conditions were excluded: history of anti-phospholipid anti-body syndrome, immune thrombocytopenia purpura or systemic lupus erythematosus, history of chronic hypertension, diabetes mellitus, liver or renal disease, human immunodeficiency virus infection, hepatitis C infection, or hepatitis B infection; pregnancies complicated by gestational hypertensive disorders, including pre-eclampsia and eclampsia; pregnancies complicated by HELLP (Hemolysis elevated liver enzymes low platelet) syndrome.

Through the outpatient and inpatient departments, all patients who satisfied the inclusion criteria were enrolled in the study. Strict exclusion criteria were used to reduce bias and confounders in the study's findings. Every patient provided written, informed consent. Medical history, physical examination, and standard laboratory tests, such as complete blood count, blood sugar, serum creatinine, liver enzymes, blood group, urinalysis, and viral serology, were used to assess the patients. Every patient underwent obstetrical ultrasonography, which was carried out by a single, skilled CPSP fellow radiologist. One skilled gynecologist, a fellow of the CPSP, performed cesarean deliveries. The trainee herself entered all of the data into a proforma that had already been created.

SPSS version 25 was used to analyze the data. Mean + Standard Deviation was used to define numerical variables such as age, platelet count, and gestation week. Frequencies and percentages were used to define categorical data such as patient type, GT severity, and cesarean delivery. To determine the impact of these factors on the frequency of cesarean deliveries, the frequency of cesarean deliveries was stratified by patient type, age, gestational week, and severity of GT. Using a post-stratification chi square test, a p-value of less than 0.05 was considered significant. Tables and graphs were used to display the data.

RESULTS

The study's participants ranged in age from 20 to 40 years, with a mean age of 28.54 ± 5.93 years. According to Table I, the majority of the patients, 43 (53.75%), were between the ages of 20 and 30 years. Mean gestational age was 33.43 ± 3.52 weeks. Mean platelet count was 123509.43 ± 45638.43/µL. Distribution of patients according to different variables is shown in Table I.

According to Figure I, 31 (38.75%) women with gestational thrombocytopenia had undergone cesarean delivery. Stratification of cesarean delivery with respect to effect modifiers is shown in Table II.

Table I

Distribution of patients according to different variables (n=80)

		Frequency	%age
Age (years)	20-30	43	53.75
	31-40	37	46.25
Gestational age (weeks)	≤24	32	40.0
	>24	48	60.0
Patient type	Unbooked	41	51.25
	Booked	39	48.75
Severity of GT	Mild	23	28.75
	Moderate	35	43.75
	Severe	22	27.50

Figure I

Frequency of cesarean deliveries in women with gestational thrombocytopenia (n=80).

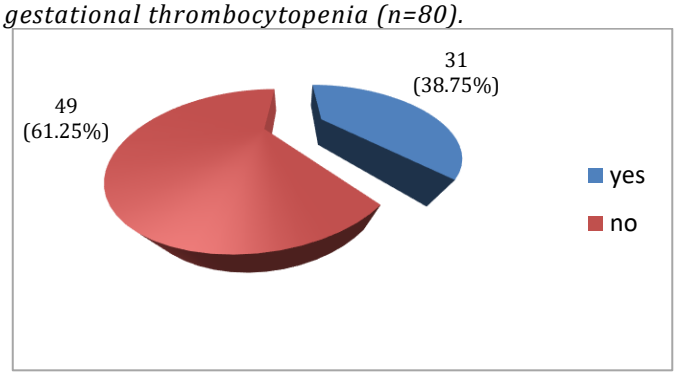

Table II

Stratification of cesarean delivery with respect to effect modifiers.

		Yes (n=31)	No (n=49)	P-value
Age (years)	20-30	20 (46.51%)	23 (53.49%)	**0.124**
	31-40	11 (29.73%)	26 (70.27%)	
Gestational age (weeks)	≤24	14 (43.75%)	18 (56.25%)	**0.453**
	>24	17 (35.42%)	31 (64.58%)	
Patient type	Unbooked	21 (51.22%)	20 (48.78%)	**0.019**
	Booked	10 (25.64%)	29 (74.36%)	
Severity of GT	Mild	06 (26.09%)	17 (73.91%)	**0.253**
	Moderate	14 (40.0%)	21 (60.0%)	
	Severe	11 (50.0%)	11 (50.0%)	

DISCUSSION

The examination of the effects of prenatal thrombocytopenia on maternal outcomes demonstrates complex connections between different adverse maternal events and the severity of thrombocytopenia. Our results confirm and expand on other studies, demonstrating that severe thrombocytopenia is a crucial indicator of elevated

maternal risk. Thirty-five (43.75%) of the women in our study had moderate thrombocytopenia, followed by mild thrombocytopenia (23, 28.75%) and severe thrombocytopenia (27.50%). In their study, Singh N et al.[12] found that the prevalence of mild, moderate, and severe thrombocytopenia was 74.7%, 17.9%, and 7.4%. In their study, Borna et al.[13] found that the prevalence of mild, moderate, and severe thrombocytopenia was 54%, 30%, and 16%, respectively. According to Chauhan V et al[14], mild thrombocytopenia affected 63% of the women, whereas moderate and severe thrombocytopenia affected 35.4% and 1.5% of the women, respectively.

Thirty-one (38.75%) of the women with gestational thrombocytopenia in our study had cesarean deliveries. According to a study by Kadiyala T et al[15], 2.17% had vacuum-assisted vaginal delivery (VAVD), 52.17% had spontaneous vaginal delivery (SVD), and 45.7% had Caesarean section (CS). Another study[16] found that there was a significant difference between the mode of delivery and the state of thrombocytopenia (p value < 0.0001). When compared to patients with thrombocytopenia, the percentage of patients receiving LSCS was much greater (56.76% vs. 20.35%), while the rate of NVD was significantly lower (43.24% vs. 79.65%).

The prevalence and results of GT in 3500 pregnancies were assessed by Fogerty et al. They discovered that GT happened in 12% of pregnancies, with 71.3% of vaginal births and 28.7% of cesarean deliveries. They discovered that women with GT and controls did not have different delivery methods.[10] Maternal and fetal outcomes in women with GT were also assessed by Sadulla et al. Additionally, their study showed that 28.7% of the patients had a cesarean section, most frequently due to obstetrical grounds (failure of labor progress, fetal distress, and oligohydramnios), while 71.3% of the patients had a normal vaginal delivery.[11]

Lower baby weights and earlier deliveries were among the major prenatal problems linked to severe thrombocytopenia that Taş et al. described; our analysis likewise showed this pattern, suggesting that severe thrombocytopenia may lead to earlier and more complex deliveries.[17] In line with our findings of increased complications with increasing thrombocytopenia severity, Mumtaz et al. found that thrombocytopenia greatly increased the probability of severe maternal outcomes such as placental abruption and the requirement for blood transfusions.[18]

Our findings are further contextualized by Sumathi et al. and A Dar et al., who emphasize the wider range of thrombocytopenia's effects on maternal health and emphasize how crucial it is to control it during maternity care.[19,20] In their discussion of thrombocytopenia difficulties in Indian pregnant women, Harde et al. point out a strong association with infectious causes and preeclampsia, which is an important factor that supports our findings about the difficulty of treating thrombocytopenia.[21] Last but not least, Chauhan et al. stress the frequency and treatment challenges of thrombocytopenia in Indian women, emphasizing the necessity of severity-based management measures that are comparable to the conclusions drawn from our study.[22]

Limitations

Because this study is cross-sectional, it is unable to conclusively prove causal correlations. The analysis would also be strengthened by additional information about the particular thrombocytopenia treatment techniques used and their effects on pregnancy outcomes. Although our research sheds light on thrombocytopenia during pregnancy, there are still a number of unanswered questions about the diagnosis and treatment of this illness. These include insufficient information on long-term results, the effectiveness of various forms of treatment, and risk factors for unfavorable outcomes. To assess the long-term effects, treatment effectiveness, and predicting factors, more research is required.

Implementation are suggested as a way to close these gaps. These include creating standardized protocols, implementing education and awareness campaigns, and forming multidisciplinary care teams, particularly with senior obstetricians, doctors, and hematologists.

Suggestions for future research include starting clinical trials, carrying out long-term follow-up investigations, and putting public health measures into action. Healthcare systems can improve the care and results of pregnant patients with thrombocytopenia by filling in these gaps and putting the suggested measures into practice, which will eventually improve the health of the mother and fetus.

CONCLUSION

This study concluded by highlighting the serious fetal problems linked to gestational thrombocytopenia. A tendency toward higher maternal morbidity is indicated by the rising rate of cesarean deliveries. These results highlight the necessity of closely monitoring and treating pregnant patients with gestational thrombocytopenia in order to reduce negative consequences. To improve maternal and newborn health outcomes, future research should concentrate on creating focused therapies and enhancing prenatal care procedures.

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