

## Frequency of Thrombocytopenia in Pregnant Females

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### ABSTRACT

**Objective:** This study was aimed to assess the frequency of thrombocytopenia in pregnant females.

**Study design:** Descriptive cross-sectional study

**Place and duration of study:** Rashid Latif Medical College, Lahore, From November, 2021 to April, 2022.

**Methods:** A total of 380 pregnant females were enrolled to examine. Blood samples from pregnant women were taken to measure the platelet counts by using hematology analyzer. For statistical significance, proportions were analyzed with the Chi square. Detailed socio-demographics of enrolled cases included age, residence, occupational status, educational status, reproductive and related characteristics and BMI were recorded after taking informed written consent. SPSS-21 was used to analyze the data.

**Results:** In this study, 380 pregnant females were included with mean age 28.1 years. Majority of the females 228/380 (60%) had rural residence, 160 (42.1%) were in third trimester of their pregnancy. Frequency of thrombocytopenia was recorded in 40 pregnant females as 10.5%. Females in their third trimester had moderate thrombocytopenia of about 81.0%, in second trimester 76.0% and in first trimester 74.0% respectively.

**Conclusion:** Thrombocytopenia is a frequent complication of pregnancy. In the third trimester of pregnancy, thrombocytopenia was shown to affect a disproportionately high number of the women. Most patients are asymptomatic, hence it is important to assess for it by checking the peripheral smear and platelet count often throughout pregnancy, especially in the third trimester.

**Keywords:** Thrombocytopenia, pregnant females, third trimester.

### INTRODUCTION

Platelet counts below 150,000 per millilitre are considered indicative of thrombocytopenia. During pregnancy, hematopoietic systems undergo a number of changes. Among hematologic abnormalities, thrombocytopenia is second only to anaemia in prevalence during pregnancy. It's estimated that 7–8% of all pregnancies are affected by this [2]. Platelet counts of less than 100,000 per millilitre (ml), between 50,000 and 100,000 ml (ml), and less than 50,000 ml (ml) are considered mild, moderate, and severe, respectively, according to [3] research. [4]

Approximately 7-11% of pregnant women throughout the world experience thrombocytopenia [5,6], making it a significant haematological disorder. Thrombocytopenia is disproportionately prevalent in low-income regions. Among pregnant women, the prevalence of thrombocytopenia was found to be 8.4% worldwide, with the highest prevalence found in Africa (15.3%) and the lowest prevalence found in Taiwan [7].

Most studies suggest that platelet counts drop throughout pregnancy, with levels at term being around 10% lower than those before pregnancy.

Accelerated platelet breakdown and dilutional effects through the placenta are hypothesised to be the causes of this [8]. Thrombocytopenia can also result from a number of different conditions that might arise during pregnancy. In most cases of Thrombocytopenia diagnosed during pregnancy, both the mother and the unborn child fare well. [9] The platelet count in the 8 out of 10 pregnant moms with Thrombocytopenia is between 100 and 150 G/l. There may be a more serious underlying disease at play when newborn difficulties are accompanied by moderate to severe secondary thrombocytopenia [10]. Neonatal moms with moderate to severe thrombocytopenia had an increased risk of having babies with poor Apgar scores, low IUGR scores, and stillbirths. Neither GE nor ITP were present, although these women did suffer from pregnancy-related PE, DIC, HELLP syndrome, familial TTP, myeloproliferative illness, or antiphospholipid syndrome. An increased risk of mortality is associated with these conditions, making early diagnosis, clinical monitoring, and medical treatment imperative. [11]

Multiple epidemiological studies found that thrombocytopenia was a major problem among pregnant women in

Libya[12] (19%), Uganda[13] (15.8%), and India (8.8-10.5%). [6,14,15] The prevalence of thrombocytopenia during pregnancy is notably different in our demographic, and this study helps to determine the extent to which it is inadequately diagnosed and mismanaged in pregnant women. Obstetricians can benefit from the magnitude that has been documented.

### MATERIAL AND METHODS

This descriptive cross-sectional study was conducted as Rashid Latif Medical College, Lahore, From November, 2021 to April, 2022 and comprised of 380 pregnant females. Following informed written consent, participants had their complete socio-demographic information collected, including age, domicile, employment, level of education, reproductive and associated factors, and body mass index (BMI). Those who did not offer written agreement included pregnant women under the age of 17, those who were using antiretroviral medication or nonsteroidal anti-inflammatory medicines, or who had heart failure, hypertension, splenomegaly, or a bleeding condition. All pregnant women in the research had singleton pregnancies, and the participants ranged in age from 17 to 37 years.

There was a need to determine the platelet count, thus a blood sample was acquired from pregnant ladies to use in the haematology analyzer. The anti-cubital vein was utilised to draw blood with little stasis using a disposable dry needle and syringe. The blood was dispensed in 3-ml increments using EDTA anticoagulant tubes. Positive results for thrombocytopenia were defined as a platelet count of less than 150 x 10<sup>9</sup> per litre. Mild thrombocytopenia was classified as a platelet count between 100 and 150 x 10<sup>9</sup>/L, moderate as 50 to 99 x 10<sup>9</sup>/L, and severe as 50 x 10<sup>9</sup>/L. The Chi-square test was used to see if any of the observed patterns in the proportions were statistically significant. Data analysis was performed using SPSS-21.

### RESULTS

A total of 380 pregnant women were included in this study with a response rate of 100%. The mean age of the enrolled participants was 28.1 years (age ranges from 17 to 37 years). Majority of the study participants 211 (55.5%) were < 28 years of age. In order to view the residence of participants, majority 228 (60%) was of rural

residence and 152(40%) had urban residency. There were 285(75%) housewives while the rest 95(25%) working women. 74(19.5%) had history of miscarriage. Women with third trimester were 160(42.1%), with second trimester 121(31.8%) and with first trimester 99(26.1%) respectively. (Table 1)

Table 1: demographic characteristics of the pregnant females.

Variables		Frequency	Percentage
Age	< .28	211	55.5
	>28	169	44.5
Residence	Urban	152	40
	Rural	228	60%
Occupational status	Housewives	285	75
	Working women	95	25
History of miscarriage	No	306	80.5
	Yes	74	19.5
Trimester	First trimester	99	26.1
	Second trimester	121	31.8
	Third trimester	160	42.1
BMI	<-30	200	52.6
	>30	180	47.4

In order to observe the severity, women with first trimester had 25.7% mild, 74.3% moderate and 0.0% severe thrombocytopenia. Women with second trimester had 19.8% mild, 76.0% moderate and 4.2% severe thrombocytopenia. Women with third trimester had 11.7% mild, 81.0% moderate and 7.3% severe thrombocytopenia. (Fig 1)

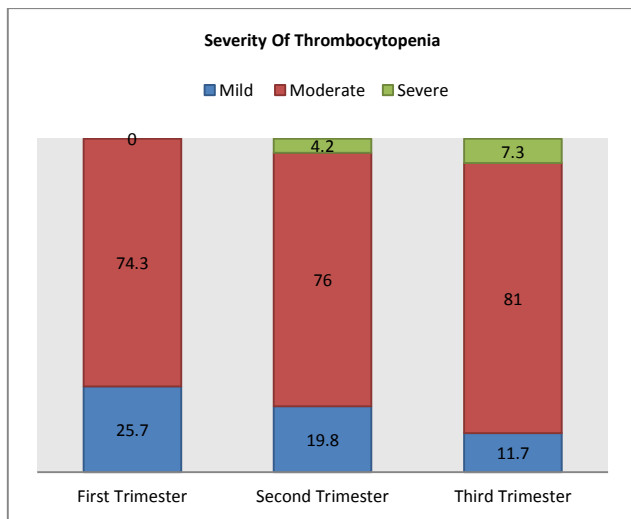


Fig 1: Severity of thrombocytopenia among pregnant females at different trimesters.

Out of 380 pregnant females, 40 were found to be thrombocytopenic giving a frequency of 10.5%. 15/40 showed 3.9% mild, 17/40 showed 4.5% moderate and 8/40 showed 2.1% severe thrombocytopenia respectively. (Table 2)

Table 2: frequency of thrombocytopenia according to its severity

Thrombocytopenia	Frequency	Percentage
No	340	89.5
Yes		
Mild	15	3.9
Moderate	17	4.5
Severe	8	2.1

**DISCUSSION**

Platelet abnormalities are common in pregnant women and have harmful effects on both the mother and the unborn child. [7,16]. The purpose of this investigation was to quantify the extent and prevalence of thrombocytopenia in pregnant women.

Thrombocytopenia is a common complication of pregnancy, although its aetiology and cause remain poorly understood. There is a gap in our understanding of this phenomenon, which is notably pronounced on the Indian subcontinent. The primary purpose of this research was to determine the frequency of thrombocytopenia during pregnancy and evaluate the results against the international literature.

Our research found that thrombocytopenia was present in 10.5% of the population. This percentage was similar to the 11.6% and 7.2% reported by Boehlen et al. in 2006 [18] and 2000 [17], respectively. Again, because only full-term pregnant women were included in the study by Sainio et al. [17], they may have overlooked some pregnant women who experienced thrombocytopenia earlier in their pregnancies. So, the greater incidence may be due to the inclusion of pregnant women in all trimesters. The purpose of this study was to confirm that the prevalence of thrombocytopenia in pregnant women is much lower in the published data than it is in our community. In this study, mean age of the patients was 28.1±5.3 years. Similarly, Brohi ZP et al [19] reported that the average age of the patients was 30.8±5.594 years. In another Indian study reported that the average age of the females was 23.9±2.6 years.

It was shown that 10.5% of pregnant women in this research had thrombocytopenia. These results are consistent with those shown by Ijaz T et al.20, who found that 16.5% of pregnant women experienced thrombocytopenia, and by Brohi ZP et al.19, who found that thrombocytopenia affected 24(33.8%) of pregnant women. However Natu N et al.21 showed that thrombocytopenia was detected at a frequency of 8% throughout pregnancy.

It was shown that the incidence of thrombocytopenia rises as the pregnancy progresses. Sixty-one percent of pregnant women were in their third trimester; these women had a mild thrombocytopenia rate of 74.3% in their first trimester, 76.00% in their second, and 81.00% in their third. Consistent with reports by Asif N et al.22 and Mazhar SB et al.23, which state that platelet count drops by around 10% in the third trimester and returns to normal within 6 weeks postpartum, we find that this decline is most often observed in the first few weeks after giving birth.

**CONCLUSION**

Thrombocytopenia is a frequent complication of pregnancy. In the third trimester of pregnancy, thrombocytopenia was shown to affect a disproportionately high number of the women. Most patients are asymptomatic, hence it is important to assess for it by checking the peripheral smear and platelet count often throughout pregnancy, especially in the third trimester.

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