

The prevalence of thrombocytopenia in pregnant women in Baghdad: single centre study

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Abstract:

Background: The prevalence of thrombocytopenia in most studies ranges from 7 to 10% of all pregnant females. Although pregnancy is associated with physiological changes that may affect platelet count, several pathological conditions can cause thrombocytopenia which have a significant impact on both the mother and her baby.

Objective: The aim of this study was to determine the prevalence of thrombocytopenia in pregnant women attending an out-patient clinic in Al-Yarmouk Teaching hospital in Baghdad.

Material and Methods: A cross sectional study conducted at Al-Yarmouk Teaching Hospital from 1st October 2016 to 1st July 2017. Five hundred sixty pregnant women randomly selected as the study group and another 100 non-pregnant women as the control group were enrolled in this study. A complete blood count and blood film were done for both the selected groups.

Results: Thrombocytopenia was found in 7.1% of the cases. The most common cause of thrombocytopenia was gestational thrombocytopenia seen in 19(47.5%) patients and PE & HELLP syndrome 9 (22.5%) patients. Most of our cases were asymptomatic and only one case developed heavy vaginal bleeding while there were 2 cases who had platelets below 50,000 considered as severe thrombocytopenia without significant bleeding.

Conclusion: Thrombocytopenia is not a rare condition in pregnancy. Accurate etiological diagnosis is essential for effective management. Most of the cases are mild, self-limiting and rarely cause with complications

Keywords: prevalence, Thrombocytopenia, Pregnancy,

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Introduction:

Thrombocytopenia is defined as a platelet count of less than $150 \times 10^9/L$ as generally is defined in normal individuals and the incidence is around 7–10% in pregnant women (1). The platelet count in pregnancy is slightly lower than non-pregnant women (2). Most studies report a reduction in platelet count during pregnancy around 10% less than non-pregnant women. Thrombocytopenia in pregnancy is relatively a common condition. Although the pregnancy itself is associated with a hypercoagulable states, there are several well-established causes of thrombocytopenia such as pregnancy induced hypertension, preeclampsia, HELLP syndrome, and immune thrombocytopenic purpura(3,4,5,6). However, the majority of thrombocytopenic women are healthy, have no history of thrombocytopenia nor have hypertensive disorders and the platelets level return to normal within three months post-delivery and this reduction in platelet level usually has no effect neither on the mothers nor on their newborns(5). Thrombocytopenia is classified into *mild* where platelet count range from $100-150 \times 10^9/L$, *moderate* form $50-100 \times 10^9/L$, and *severe* with a count less than $50 \times 10^9/L$. *Gestational thrombocytopenia* is

the most prevalent cause, and accounts for about 75% of cases of thrombocytopenia during pregnancy (7). Its aetiology is still unclear, although it might be secondary to increased platelet consumption, plasma volume expansion associated and chronic compensated coagulopathy(8). 15–20% of the cases are secondary to hypertensive disorders which include *pregnancy induced hypertension* (PIH), *Preeclampsia* (PE) and *HELLP* syndrome; 3–4% due to *immune thrombocytopenic purpura* (ITP), and around 1–2% due to infections. Malignancies and constitutional thrombocytopenia (9,10). Rarely it is caused by *thrombotic thrombocytopenic purpura* (TTP), *haemolytic uremic syndrome* (HUS), *disseminated intravascular coagulation* (DIC), *systemic lupus erythematosus* (SLE), *anti-phospholipid syndrome* or drug induced (such as heparin) (7). The current study was carried out in a single centre in Baghdad trying to estimate the prevalence of thrombocytopenia in Iraqi pregnant women.

Materials and Methods

This is a cross sectional, observational study carried out from 1st October 2016 to 1st of July 2017. A total of 560 pregnant women enrolled in this study. They were at different gestational age attended outpatient clinic or admitted to the obstetric ward and delivery room at Al-Yarmouk Teaching Hospital/ obstetrics and gynaecology department. All were screened for thrombocytopenia. There were no exclusion criteria

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all normal and complicated pregnant women were included into this study. Another 100 healthy non-pregnant women during their reproductive life was taken as the control group during the period of this study. The later were mostly out-patient relatives of other patients who agreed to do a complete blood test. A detailed history was taken and a thorough examination was done after obtaining their consent. The study was approved by ethical committee of Al-Yarmouk teaching Hospital

About 2.5 ml blood was taken from each pregnant women and control in an EDTA tube to perform full blood count using auto-analyzer machine (Celltac /Japan) which was calibrated every month by the manufactures controls. In pre-eclamptic women an extra 5ml of blood was taken in a plain tube for the measurement of renal and liver functions. Coagulation tests including Prothrombin time (PT), Partial thromboplastine Time (PTT) and plasma fibrinogen level were assessed for any pregnant women presenting with bleeding manifestation or thrombocytopenia detected on the screening test using the fully automated coagulation STA COMPACT (BIO kits of Biolabo/ France).

Statistical analysis: Statistical analysis was performed using the Microsoft® Excel, Professional Edition 2010. Descriptive statistics (means and percentage) are mostly presented. Statistical significance was calculated using the Chi-square. A p-value of <0.05 was considered statistically significant.

Results:

A total of 560 pregnant women were included in this study, their ages ranged between 17-40 years (mean 28.3 years). The control group included 100 apparently healthy non-pregnant women with ages ranged between 20 and 47 years (mean of 31.6 years). The mean platelets count of the pregnant women was 217.38 and thrombocytopenia was found in 7.1% of them as shown in figure 1 and table 1.

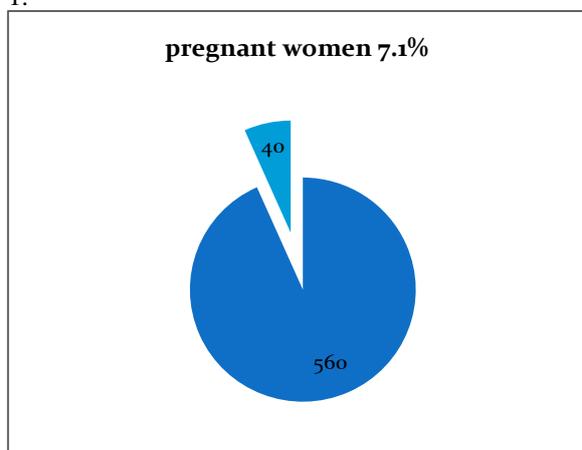


Figure 1: No. of thrombocytopenia in pregnant women.

Table 1: No. of symptomatic pregnant women

No symptoms	39 /40 (97.5%)
Cutaneous bleeding	0
Vaginal bleeding	1 /40 (2.5 %)

Table 2: the relationship between gestational age and thrombocytopenia

Clinical characteristics	Thrombocytopenic women	Non thrombocytopenic
Throughout pregnancy	40/560 (7.1%)	520/560 (92.9%)
trimester 1 <u>st</u>	0 (0%)	123 (100%)
trimester 2 <u>nd</u>	11 /560 (7.9%)	127 (92.1%)
3 <u>rd</u> trimester	29 /560(9.7%)	270 (90.3%)

The chi-square statistic is 10.3853. The p-value is .01556. The result is significant at $p < .05$

Table 3: the relationship between parity and thrombocytopenia

Parity	Thrombocytopenic	Non-thrombocytopenic
P0	5 (3.4 %)	146 (96.6%)
P1-4	35 (9.8 %)	334 (90.2 %)
P5+	0 (0 %)	40 (100 %)

The chi-square statistic is 7.57. The p-value is .022627. The result is significant at $p < .05$

The majority of the pregnant women that were diagnosed with thrombocytopenia were beyond the 2nd half of their pregnancy as shown in table 2. Five out of the forty (12.5%) of thrombocytopenic cases were nulliparas while the other were multiparas but not grand multiparas as shown in table 3

Table 4: The aetiologies of Thrombocytopenia in the Study Group

Causes	N=40
Gestational thrombocytopenia	19 (47.5%)
PET and HELLP syndrome	9 (22.5%)
Missed Abortion	4 (10%)
IUD	4 (10%)
Placental Abrupton	2 (5%)
Hepatic Diseases	1 (2.5%)
ITP	1 (2.5%)

Table 5: The severity of thrombocytopenia in relation to the causes

Causes	Mild thrombocytopenia	Moderate thrombocytopenia	Severe thrombocytopenia	N=40
Gestational thrombocytopenia	17	2	0	19
PET and HELLP syndrome	7	1	1	9
Missed Abortion	3	1	0	4
IUD	2	2	0	4
Placental abruption	2	0	0	2
Hepatic Diseases	1	0	0	1
ITP	0	0	1	1

Discussion:

This single centre study was conducted to estimate the prevalence of thrombocytopenia in pregnancy in Baghdad at Alyarmouk teaching hospital and to evaluate the most identifiable causes behind it. The reduction in platelet count during pregnancy is generally less symptomatic due to the hypercoagulable state induced by increased levels of von Willebrand Factor (VWF), fibrinogen and factor VIII, with reduction in both protein S activity and fibrinolysis(11). Thrombocytopenia has become a cause for additional testing and even interventions(12). The incidence in current study was 7.1% which is comparable to other studies done in Erbil(13), Sulaymania(14) in Iraq and even to other studies all over the world like USA(15)and UK(16). Tejashwini et al(17) in his study showed that platelet count was significantly decreased during pregnancy as compared to puerperium in the same woman due to increased platelet consumption by placenta and haemodilution. Usha et al (18) stated that(although thrombocytopenia during pregnancy was common, it was not frequently severe). This was consistent with our study results as the majority of thrombocytopenic cases (80%) were within the mild thrombocytopenic group (100 -150 ×10⁹/L) . Unlike other studies where gestational thrombocytopenia is the main cause of thrombocytopenia in pregnancy(19,20), gestational thrombocytopenia was found in less than half of our patients which is similar to a study done in India by Hina et al(21).Pre-eclampsia and HELLP syndrome is the second most common aetiology that was found in our study which is similar to a study done by Pallavi et al(19) Severe thrombocytopenia where platelet count is less than 50 × 10⁹/L was found in two cases one of them HELLP syndrome and was given platelet transfusion and stabilized and delivered safely. The other case was ITP in the

second trimester of missed miscarriage and also correction of platelet count by steroid and platelet transfusion and termination of pregnancy was done and then referred to the haematological team. Interestingly none of the cases complicated by severe vaginal bleeding and blood transfusion was needed in only the HELLP case due to DIC but she improved after delivery and discharged well from hospital.

Conclusion:

Although around half of cases are gestational thrombocytopenia, it still the commonest cause of thrombocytopenia in pregnancy Preeclampsia & HELLP are the second most causes of it. The majority of the cases are mild and self-limiting and are not associated with significant bleeding. The incidence of thrombocytopenia increases with gestational age being more common in third trimester than in second and first trimester It is more commonly seen in multigravida rather than primigravida

Authors' contributions:

Eaman Marouf and Ekhlass Hussam Sabri , both obstetrics and gynaecology seniors , collected the cases, took the samples from the pregnant women and the control , classified the causes and followed the patients.

Hussam Dawod Saeed an assistant prof., community department, performed the statistical analysis of the study

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