

The Significance of Asymptomatic Gestational Thrombocytopenia

*Abdaladeem Yousif F.I.C.O.G.
Consultant Gynecologist
College of Medicine
Al-Qadisyah University*

Abstract

During pregnancy asymptomatic thrombocytopenia may develop in some women for unknown causes. The normal range of platelets in non-pregnant woman is 150,000-400,000/ml, this count slightly declines to about 130,000-250,000/ ml during pregnancy and it further declines as pregnancy progresses, this is attributed to hemodilution and increased platelet consumption which is part of the physiological changes in pregnancy. The objectives of the study is to determine the effect of gestational thrombocytopenia on the mother, fetus and newborn. The study was conducted by selecting 100 pregnant women, divided into three groups, 20 of them with thrombocytopenia, 40 with preeclampsia and thrombocytopenia and 40 as a control group with normal platelet count. The present study showed that women with low platelet count had no bleeding tendency compared with women of normal counts, in addition to their newborns had normal birth weights, Apgar scores and cord blood platelet counts . The study concludes that gestational thrombocytopenia has no pathological effects on pregnant women so as their fetuses and newborn babies.

Key words : thrombocytopenia , gestational , DIC , bleeding tendency.

Introduction

The normal range of platelets in non-pregnant woman is 150,000-400,000/ml, this count decrease a little to about 130,000-250,000/ ml during pregnancy and it declines as pregnancy progresses, this is attributed to hemodilution and increased platelet consumption which is

part of the physiological changes in pregnancy [1]. Thrombocytopenia can be defined as platelet count less than 150,000 / ml, mild thrombocytopenia is a count of 100,000-150,000/ml moderate TC is a count of 50,000-100,000 /ml and severe TC when the count is less than 50,000/ml [2,3].

During pregnancy thrombocytopenia or low platelet count is encountered in about 7-14 % of all pregnancies, gestational thrombocytopenia accounts for about 70 % of these cases [4]. This low platelet count is usually diagnosed as part of the routine investigations done for all women attending the antenatal clinic in their regular follow-up, thrombocytopenia could be due to a wide range of conditions, some of which are pregnancy related [5]. Platelets are derived from the megakaryocytes in the bone marrow have a life span of ten days in the peripheral circulation and are necessary for primary hemostasis when they are activated and aggregate together. They also play a major role in secondary hemostasis when the coagulation pathway is activated on the surface of platelets to form the fibrin meshwork [6,7].

Thrombocytopenia in pregnancy categorized into three main etiological types:

1-Increased platelet destruction or consumption include:

Gestational TC , immunological causes like immune thrombocytopenic purpura

(ITP), systemic lupus erythematosus (SLE) , anti-phospholipid syndrome (APS), drug induced and viral infections like HIV , non- immunological causes like pre-eclampsia , fatty liver , hemolytic uremic syndrome .

2- Decreased platelet production include:

Folate and vitamin B12 deficiency, bone marrow suppression may be due to aplastic anemia, drug induced aplastic anemia, paroxysmal nocturnal hemoglobinuria, infection, hematological malignancies with bone marrow infiltration.

3- Splenic sequestration include:

Liver disease with portal hypertension, lymphoproliferative disorders, myeloproliferative disorders, infections like malaria [8].

In case of gestational thrombocytopenia there is an accelerated platelet activation at placental circulation and increased platelet consumption due to reduced platelet lifespan in pregnancy [9].

Some studies noted the presence of abnormal antiplatelet antibodies in some women with gestational thrombocytopenia suggesting an

immune etiology but these studies are limited and need to be confirmed by wider studies [10,11].

Several important points to be noted in case of gestational thrombocytopenia ; the patient has no history of bleeding , her thrombocytopenia is mild & is detected incidentally on routine antenatal screening , it occurs in the second half of pregnancy , platelet count gets back to normal within 1-2 months following delivery [12].

Regarding fetal & neonatal risks; there are no morbid effects or risk of fetal hemorrhage or bleeding tendency, infants have normal platelet counts & bone marrow function is normal [13].

Considering the management of gestational thrombocytopenia ; this

Materials & Methods

A case control study performed in Al-Habibyah Maternity & Pediatric Teaching Hospital from March 2015 until February 2016. Cases were collected from the antenatal clinic. Twenty pregnant women with asymptomatic thrombocytopenia were compared with 40 pregnant women with preeclampsia & thrombocytopenia ,

condition is recurrent and the risk of recurrence is unpredictable. In the preconceptional period no action can be done to prevent this recurrence[14], in the antepartum period we should monitor the platelet count in each antenatal visit but no treatment is indicated for thrombocytopenia which is mostly a mild condition & fetal blood sampling is not indicated [15]. Regarding labor the mode of delivery depends on obstetric /fetal indications only, epidural anaesthesia is considered safe when platelet count is more than 80000/ml, mother should be monitored post-delivery to ensure the return of platelet count to normal within 1-2 months [16].

another 40 normal pregnant women were selected as a control group , the lower accepted limit as normal platelet count in pregnancy was 120,000/ml of blood, so women with counts below 120,000/ml were considered to be thrombocytopenic, women in all groups were matched in regard of age, parity, body weight. Women with other risk factors like smoking, liver or renal

diseases were excluded from the study. Patient permissions were taken for ethical purposes.

Results

Comparing women with gestational thrombocytopenia with normal women in the control group they did not show any increased blood loss during labor, while pre-eclamptic women with thrombocytopenia had significantly increased blood loss in labor. Infants born to mothers with gestational thrombocytopenia showed normal cord blood platelet count, high Apgar scores, normal birth weight and no cases of perinatal mortality were recorded (just like infants of the normal control group), while infants born to mothers with preeclampsia had low cord blood platelet count & one case of perinatal mortality, but the newborns did not show any manifestation of bleeding tendency as shown in Tables (1),(2),(3).

Discussion

During pregnancy women are considered to have thrombocytopenia only when platelet count is below 120,000 / ml of blood compared with normal values of 150,000 – 400,000 / ml in the non-pregnant women.

No special measures are indicated during pregnancy or during labor for women with gestational thrombocytopenia (while in other cases like thrombotic thrombocytopenia special precautions and measures are indicated during pregnancy and labor), this confirms that gestational thrombocytopenia is a benign condition when it is not associated with anemia or purpura. The characteristics of labor, cord blood platelet count, postpartum blood loss & perinatal mortality were the same in cases of gestational thrombocytopenia compared with pregnant women of normal platelet counts. Antiplatelet /antibodies investigation was not conducted (as some studies suggest the presence of antiplatelet antibodies in case of gestational thrombocytopenia) due to the unavailability of the test at the time of the study, hopefully in future studies the test for antiplatelet / antibodies will be conducted and further studies using larger sample size of pregnant women which confirms the results on accurate bases.

References

- 1- Stuart F, Coagulation disorders .Yearbook of obstet. & gynecol. 1996; 112:17.
- 2- Fenton V, Hohlfeld P, Extermann P, *et al.* Platelet count at term pregnancy ; Reappraisal of the threshold . *obstet. & gynecol.*2000; 95:29.
- 3- Sill PR, Lind T, Walker W Platelet values during normal pregnancy. *Br. J of obstet. & gynecol.* 1985; 92:480.
- 4- Aster RH, Badaracco MA, Vassey M. Thrombocytopenia. *Australian & Newzealand J obstet. gynecol.*1990; 94:128.
- 5- Noah C, Charlton L. Recent advances in understanding clotting. *Am. J of obstet. & gynecol.*1996; 180:55.
- 6- Robert D, Sampson NA. Risk of hypercoagulability. *Br. J of obstet. & gynecol.*1983; 86:4.
- 7- Judeth JA, Amy B. Thrombocytopenia and pregnancy. *Am. J of obstet. & gynecol.* 1979; 11:140.
- 8- Fay RA, Hughes AO, Farron NT. Platelets in pregnancy; hyperdestruction in pregnancy. *obstet. gynecol.*1983; 61:238.
- 9- Shehata N, Burrows RF, Kelton JG. Gestational thrombocytopenia. *Clinical obstet. gynecol.* 1999; 42:327-334.
- 10- Ajzenberg N, Dreyfus M, Kaplan C *et al.* Pregnancy associated thrombocytopenia revisited: assessment & follow-up of 50 cases. *Blood.* 1998;92:457.
- 11- Anteby E, Shalev O. Clinical relevance of gestational thrombocytopenia of less than 100,000 / ml. *Am. J Hematol.*1994;47:118.
- 12- Myatt T, Webster RP. Vascular biology of preeclampsia. *J Thromb. Heamost.* 2009;7: 375-384.
- 13- Moses MR, Mayer RC. Fetal coagulation system. *Australian & Newzealand J obstet. gynecol.*1997;14:2.
- 14- Silver RM, Brunch DW, Scott JR. Maternal thrombocytopenia in pregnancy; time for reassessment. *Am. J obstet. gynecol.* 1995;173:479.
- 15- Myers B. Diagnosis and management of maternal thrombocytopenia in pregnancy. *Br. J Heamatol.* 2012;158:3.
- 16- Burrows RF, Kelton JG. Fetal thrombocytopenia and its relation to

أهمية نقص الصفائح الدموية اللاعرضي خلال الحمل

الخلاصة :

خلال فترة الحمل قد يحدث نقص في الصفائح الدموية بدون اية اعراض لدى بعض السيدات ولأسباب غير معروفة ، حيث ان العدد الطبيعي للصفائح الدموية هو 150000-400000 / مل وهذا العدد يتناقص قليلا الى 130000-250000 / مل خلال الحمل حيث يتناقص العدد مع تقدم الحمل ويعزي ذلك الى ظاهرة تخفيف الدم وزيادة استهلاك الصفائح الدموية التي هي جزء من التغيرات الفيزيولوجية للحمل .

هدف البحث هو لتحديد تأثير نقص الصفائح الدموية اللاعرضي خلال الحمل على الأم وعلى الاجنة داخل الرحم او الأطفال حديثي الولادة .

أجري البحث بأختيار مائة سيدة حامل يقسمون الى ثلاثة مجاميع ، عشرون سيدة يعانين من نقص الصفائح الدموية اللاعرضي و أربعون سيدة لديهن نقص الصفائح الدموية مع تسمم الحمل وتمت مقارنة المجموعتين مع أربعين سيدة لديهن عدد طبيعي من الصفائح الدموية كمجموعة سيطرة ، تم جمع الحالات من مستشفى الحبيبية التعليمي للولادة و الأطفال خلال الفترة بين اذار 2004 الى شباط 2005 .

أظهرت الدراسة الحالية ان السيدات اللواتي لديهن نقص الصفائح الدموية اللاعرضي ليست لديهن قابلية نزفية بالمقارنة مع السيدات اللواتي لديهن عدد طبيعي من الصفائح الدموية ، إضافة الى ذلك فان أطفالهن حديثي الولادة كانت أوزانهم طبيعية وعلاماتهم الحيوية طبيعية ولديهم عدد طبيعي من الصفائح الدموية في دم الحبل السري . يستنتج البحث ان نقص الصفائح الدموية اللاعرضي خلال الحمل ليس له تأثير مرضي على السيدات الحوامل وكذلك الاجنة داخل الرحم أو الأطفال حديثي الولادة .

كلمات مفتاحية : نقص الصفائح الدموية ، الحمل ، قابلية النزف

Group	Mean blood loss in labor
Gestational thrombocytopenia	150 ml \pm 50 ml
Preeclampsia & thrombocytopenia	350 ml \pm 50 ml
Control group	130 ml \pm 50 ml

Table (1): Comparison of blood loss during labor in different groups.

Table (2): Comparison of cord blood platelet count between different groups.

Group	Cord blood platelet count
Gestational thrombocytopenia	200,000-280,000 / ml
Preeclampsia & thrombocytopenia	140,000-170,000 / ml
Control group	220,000-300,000 / ml

Table (3) :perinatal mortality among different groups.

Group	Cases of perinatal mortality
Gestational thrombocytopenia n = 20	No cases recorded
Preeclampsia & thrombocytopenia n = 40	1 case of perinatal mortality 2.5 %
Control group n = 40	No cases recorded