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CORRESPONDENCE

Thrombocytopenia and Its Outcome in a Cohort of 350 Pregnant Women in a Tertiary Care Setting

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Dear Editor,

There is a 10–20% sequential fall in platelet count as a pregnancy progresses. This gestational thrombocytopenia is usually asymptomatic and is observed in 7–10% of pregnant women at term [1]. In women with a platelet count of less than 100×10^9/L, other causes should be considered [2]. These may be specific to pregnancy such as HELLP syndrome [hemolysis, elevated liver enzymes and low platelets], acute fatty liver of pregnancy and severe pre-eclampsia. However, any pregnancy-unrelated cause may cause thrombocytopenia e.g. thrombotic thrombocytopenic purpura, hemolytic uremic syndrome, systemic lupus erythromatosus [SLE], anti-phospholipid syndrome, drugs etc. Distinction between relatively harmless gestational thrombocytopenia from other causes of thrombocytopenia is of paramount importance for appropriate management [3, 4].

We conducted a 1-year-study for determining the frequency and etiology of thrombocytopenia in a cohort of 350 full-term pregnant women at Aga Khan University Hospital—an academic tertiary care hospital at Karachi. CBC was performed on automated hematology analyzer (Coulter STKS, Beckman Coulter CA, USA). Peripheral smears were reviewed to rule out pseudo thrombocytopenia and to identify any other significant findings. Thrombocytopenia was typed into pregnancy-specific or independent causes and was graded as mild, moderate and severe depending on the platelet count of 149–100, 99–50 and 49×10^9/L or less respectively. Data was analyzed on SPSS version 19.0 [SPSS Inc., Chicago, IL, USA]. Overall frequency of thrombocytopenia during pregnancy, its etiology and outcome was calculated. Among the total 350 pregnant females, 154 (44%) were primigravida and 196 (56%) were multigravida. Median age of the patients was 27 ± 4.43 years (16–40 years) and mean gestation age was 37.9 weeks (21–41 weeks) at time of diagnosis. Five women had twin pregnancies while 345 had singleton pregnancies. Women with pseudo thrombocytopenia were excluded from the study. Seventeen out of 350 (4.85%) pregnant females were found to be thrombocytopenic. Three women were known thrombocytopenic prior to pregnancy due to aplastic anemia (n = 1), SLE (n = 1) and hypersplenism (n = 1). Of 14 women who became thrombocytopenic during pregnancy, 71.5% had mild, 28.5% had moderate and none had severe thrombocytopenia. Mean platelet count was 112×10^9/L ($66–146 \times 10^9$/L) in patients with de-novo thrombocytopenia (see Table 1 for their clinical details). This shows that gestational thrombocytopenia was the commonest (43%) cause while viral infection and PIH/pre-eclampsia were seen in 28% each. All women had healthy babies while 2 of 4 women progressed to pre-eclampsia/eclampsia with subsequent intrauterine deaths. None of the thrombocytopenic pregnant females in this study had any bleeding episode. Thrombocytopenia is considered more frequent in multiple gestations compared to singleton pregnancies possibly because of PIH. We had a total of 5 multiple gestations with twin fetuses however none of these were thrombocytopenic.

We found 4% de-novo thrombocytopenia during pregnancy which is marginally low compared to other reports of 6 and 15% [5]. Our small sample size might be a

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Table 1 Summary of pregnant women having thrombocytopenia and outcome of thrombocytopenia

No	Gravida	Risk factor	Complications of pregnancy	Platelet count at term $\times 10^9$/L
1.	G2P1+0	Gestational thrombocytopenia	None	103
2.	G2P0+1	Gestational thrombocytopenia	None	135
3.	G2P1+0	Gestational thrombocytopenia	None	100
4.	G1P0+0	Gestational thrombocytopenia	None	142
5.	G1P0+0	Gestational thrombocytopenia	None	131
6.	G3P1+1	Gestational thrombocytopenia	None	128
7.	G4P3+1	Dengue	None	66
8.	G3P2+0	Dengue	None	95
9.	G3P2+0	Hepatitis B	None	108
10.	G1P0+0	Hepatitis C	None	91
11.	G4P3+0	Pre-eclampsia	Intrauterine death	78
12.	G1P0+0	Pregnancy induced hypertension	Intrauterine death	140
13.	G7P5+1	Pregnancy induced hypertension	None	115
14.	G1P0+0	Eclampsia	None	146

contributory factor. However similar to other reports [6, 7], gestational thrombocytopenia was the commonest finding in this study was well. Pregnancy induced hypertension and its associated complications were the second most common cause of maternal thrombocytopenia. Similarly Nisha et al. in (2012) and Sainio et al. (2000) reported preeclampsia-induced low platelets in 21% [8] and 16% [7] women respectively. An important finding of this study was presence of viral infections accounting for 28.6% of all the cases of maternal thrombocytopenia. This was much higher compared to a European report (at 1–2%) [6] and a report from India having similar geography (at 2.1%) [8]. Viral hepatitis (hepatitis B and C) accounted for 14.2% cases in this study and was quite significant as hepatitis is known to cause maternal/fetal morbidity and mortality. Dengue infection caused moderate thrombocytopenia in two women who had however un-complicated pregnancies. Information related to maternal dengue is scarce. For example, Berrington et al. [9] reported uncomplicated pregnancy while Singh et al. [10] describe postpartum hemorrhage (PPH) in one and neonatal thrombocytopenia requiring platelet transfusion in another patient with dengue infection. It is therefore advisable that pregnant patients with dengue must be closely followed for any undue complication. The study had certain limitations: lack of follow-up for platelet counts during post-partum period and of neonates. However, none of the mothers or babies born had bleeding complications during delivery or immediate postpartum period.

Viral infection with hepatitis and dengue seems to be an emerging cause for maternal thrombocytopenia in our region. Based on this small scale study, we suggest that all pregnant women with low platelets should be screened for these viral infections.

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Author's Contribution BM contributed to initial concept, design, data acquisition and write-up. FM contributed to the concept and revision. All authors reviewed and agreed to the final version of the manuscript.

Compliance with Ethical Standards

Conflict of interest All authors declare that they have no conflict of interest.

Ethical Standards All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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