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Original article

Platelet Count In Preeclampsia

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Abstract:

Preeclampsia is one of the most leading causes of maternal mortality in developing countries like Bangladesh. Several studies have demonstrated the relationship between platelets count and preeclampsia. The aim of the study was to assess the association of platelets count with preeclampsia. A case control study was conducted in the Department of Biochemistry, Dhaka Medical College, Dhaka from July 2010 to June 2011. A total number of 100 pregnant women in third trimester of pregnancy attending in Obstetrics & Gynaecology Department of Dhaka Medical Hospital were selected as study subjects. Among them 50 diagnosed cases of preeclampsia were selected as cases and 50 normal healthy pregnant women as controls. Platelet count was measured in all study subjects. The mean platelet count in cases and controls were 1,44,260±96,472 and 1,98,100±51,219 respectively. The present study showed significant difference of mean platelet count between cases and controls. The study revealed that low platelets count is associated with preeclampsias.

Key words: **Preeclampsia, platelet.**

Introduction:

Preeclampsia is a poorly understood condition of human pregnancy, which can affect multiple organs and is a leading cause of maternal mortality worldwide[1.] The exact pathophysiology of preeclampsia is not yet fully understood. However abnormal placentation is one of the initial events[2]. There is also evidence that preeclampsia is usually associated with placental hypoxia and endothelial dysfunction[3]. Many researchers gave their efforts to identify the unique screening test that would predict the risk of developing preeclampsia before the classic symptoms appear. There are several studies which suggest platelet may play a major role in the etiopathogenesis of preeclampsia. Changes in coagulation system in established preeclampsia are well documented[4]. Out of all haematological changes that occur in preeclampsia, thrombocytopenia is the most common. Thrombocytopenia is classically defined as a platelet count less than 1,50,000/cu mm[5]. The degree of thrombocytopenia increases with the severity of disease. Lower the platelet count, greater are maternal and foetal mortality and morbidity[6]. Thrombocytopenia may be one of the causative factors in the etiopathogenesis of preeclampsia. The pathogenesis of thrombocytopenia in preeclampsia is not clear. Although it is suggested that low platelet count in preeclampsia are associated with abnormal activation of coagulation system and accelerated platelet consumption[7]. Thrombocytopenia is a well documented procedure in preeclampsia. Preeclampsia and thereby maternal mortality might be reduced through serial monitoring of platelet count as a part of antenatal check-up. But very few studies are present on this ground in our country. Therefore the present study is designed to assess the association of platelet count with preeclampsia.

Materials & Methods:

A case control study was conducted in the Department of Biochemistry, Dhaka Medical College, Dhaka from July 2010 to June 2011. A total number of 100 pregnant women in the third trimester of pregnancy attending in Obstetrics &

Gynaecology Department of Dhaka Medical College Hospital were selected as study subjects. Among them 50 diagnosed cases of preeclampsia were selected as cases (age range 18 – 35 years) and 50 normal healthy pregnant women as controls (age range 18-32 years). Pregnant women with pre-existing hypertension, renal disease, diabetes mellitus and known haematological disorder were excluded from the study by history, clinical examination and relevant laboratory investigations. After obtaining informed written consent from the study subjects and maintaining all aseptic precautions, 1.5 ml of blood was drawn from ante-cubital vein and collected in an EDTA containing tube for counting platelet. Platelet count was done by Sysmex 800i fully automated haematology analyzer. Statistical analysis was performed by using computer based software, Statistical Package for Social Science (SPSS) for Windows version 14.0. Mean values of different parameters were compared to determine the differences between two groups by using Student's unpaired't' test. For all statistical analysis, two tailed 'p' value < 0.05 was considered as a lowest level of significance.

Results:

The study showed that mean (±SD) platelet count in cases and controls were 144,260±96,472 and 198,100±51,219 respectively. There was statistically significant difference of mean platelet count between cases and controls (P = 0.001) (Table - I).

Table - I

Comparison of platelet count between cases and controls:

Parameter	Case (n=50) Mean±SD	Control (n=50)	t	p value Mean±SD
Platelet count (lac/cu mm)	144,260±96,472	198,100±51,219	3.49	0.001

Student's unpaired 't' test was done as a test of significance

Discussion:

A transient mild thrombocytopenia is seen due to increased platelet consumption during pregnancy[8]. Thrombocytopenia is found in approximately 6% of pregnancies[9] and most common cause of thrombocytopenia in pregnancy is preeclampsia and eclampsia[10.] It is found that thrombocytopenia increases the risk of perinatal complications such as abruptio placenta, pre-term delivery, low Apgar Score and still birth[11]. Jaremo et al.[12] and Annam et al.[13] found in their studies that platelet count decreases significantly in preeclampsia which are similar to the findings of present study. However, Kulkarini and Sutaria[6] did not observe any significant difference in respect to platelet count in their study. In the present study, we have found platelet count significantly low in preeclampsia than normal pregnant women. The lower platelet count in preeclampsia is associated with abnormal activation of the coagulation system and is believed to reflect increased platelet consumption. Distinguishing preeclampsia from other causes of abnormal screening results would aid doctors in the diagnosis and prompt treatment of their patients. Therefore, Platelet count may be used as simplest, cheapest and earliest indicator of preeclampsia.

Conclusion:

The present study revealed that low platelet count is associated with preeclampsia. The information of the present study might enrich the knowledge of clinician for early identification of preeclampsia. This is important for management of both preeclamptic mother and the newborn. As the study was designed with limited number of cases, further prospective study with large sample size is recommended to establish the role of platelet in the etiopathogenesis of preeclampsia.

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