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Role of Platelet Count in Pre Eclampsia

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Abstract: *Pre eclampsia is one of the most leading causes of maternal mortality in developing countries like India.The aim of the study was to assess the association of platelet counts and pre eclampsia.A case control study was conducted in the Department Of Pathology, Government Medical College, Nanded From February 2015 to February 2016. A total of 300 pregnant women in 3rd trimester of pregnancy attending the OPD of Obstetrics and Gyanaecology in Government Medical College & Hospital , Nanded were selected as study subjects. Among them 150 diagnosed cases of preeclampsia were selected as cases and 150 normal ANC women as controls. Platelet counts were measured in all the subjects. The present study showed significant difference of platelet count between cases and controls. The study revealed that low platelet count is associated with pre eclampsia.*

I. Introduction

Pre eclampsia is a poorly understood condition of human pregnancy which can affect multiple organs and is leading cause of mortality worldwide[1]. It remains a leading cause of hypertension complicating upto 10% of pregnancies[2]. It refers to new onset of hypertension (systolic BP >or = 140 mm hg, Or diastolic BP > or = 90 mmhg) and proteinuria (>or = 3gm in 24 hrs urine specimen) after 20 weeks of pregnancy in a previously normotensive woman[3].

Pre eclampsia is considered severe if systolic BP is >/ =160mm hg OR diastolic BP is >/=110 mm hg or proteinuria of >/= 5gm in 24 hrs urine sample or oliguria, cerebral or visual disturbances, pulmonary odema, impaired liver function tests or Thrombocytopenia is present[4].

The exact pathophysiology is not yet understood. However abnormal placentation is one of the initial events[5]. There is also evidence that pre eclampsia is usually associated with placental hypoxia and endothelial dysfunction[6]. There are several studies which suggest that platelet may play major role in the etiopathogenesis of pre eclampsia. Changes in coagulation system are well documented[7]. Out of all the haematological abnormalities, thrombocytopenia is most common. Thrombocytopenia is defined as platelet count less than 1.5 lacs/cmm[8]. The degree of thrombocytopenia increases with severity of disease. Lower the platelet count greater are the maternal and fetal mortality and morbidity[9]. It is suggested that low platelet count in pre eclampsia is associated with abnormal activation of coagulation system and accelerated platelet consumption[10]. Various complications are associated with it like eclampsia, IUGR, Intra Uterine deaths, accidental hemorrhage, preterm labour, cardiac failure, pulmonary odema,HELLP syndrome (3%), renal failure(3%), disseminated intravascular coagulation(3%)[4]. Pre eclampsia and Eclampsia accounts to 24% deaths in India[11]. Pre eclampsia and maternal mortality can be reduced through serial monitoring of platelet count as a part of Antenatal checkup.
Therefore ,the present study is designed to assess the association of Platelet count and Pre eclampsia.

II. Materials And Methods

A Case control study was performed in the Department of Pathology, Government Medical College, Nanded From February 2015 to February 2016. A total no of 300 pregnant women in the 3rd trimester of pregnancy attending the Obstretics and Gyanaecology Department Of Government Medical College& Hospital, Nanded were selected as study subjects. Among them 150 diagnosed cases of pre eclampsia were selected as cases (age 20-35yrs) and 150 normal healthy pregnant women as controls(age 20-35 yrs). Pregnant women with pre existing hypertension, renal disease, diabetes mellitus and known haematological disorders were excluded from study by history. After obtaining written consent ,1.5ml of blood was withdrawn from Antecubital vein and collected in EDTA bulb for counting of platelets. Platelet count was done by fully automated hematology analyser. Statistical analysis was performed.

III. Results

Table 1: Relationship Between Age And Study Subjects

Age (years)	Cases (n=150)	Control (n=150)
20-25	81	54
26-30	45	78
>30	24	18

X^2 =15.11, p=0.0005

Chi square test was applied as test of significance. This test shows significant relationship between age and occurrence of pre eclampsia .

Table 2: Relationship Between Parity And Study Subjects

Parity	Cases (n=150)	Control (n=150)
Primigravida	87	69
Multigravida	63	81

X^2 =4.327 , p= 10.0375, odd's ratio=1.621

The above test results are significant. The test shows that there is higher risk of the disease in primigravida females than multigravida**.**

Table 3 : Comparison Of Platelets Between Cases And Controls

Parameter Platelet count (lacs/cmm)	Cases (n=150)	Controls (n=150)
<1.5	99	15
>1.5	51	135

X^2 =99.83, p= <0.0001, odd's ratio= 17.47

Chi square test was done as a test of significance. The test shows that there is significant relationship between platelet count and diagnosed cases of pre eclampsia. i.e platelet count is low in patients having pre eclampsia

Table 4: Relationship Of Platelt Count With The Severity Of Disease

Platelet count(lacs/cmm)	Mild pre eclampsia (BP >/= 140/90 mm hg)	Severe pre eclampsia (BP- >/= 160/110 mm hg)
<1.5	24	75
>1.5	3	48

X^2 =7.687, Odd's ratio= 0.1953, p= 0.0056

The above test is significant and shows that the platelet count varies with the severity of disease i.e as the disease progresses the platelet count decreases.

IV. Conclusion

The study revealed that low platelet count was associated with pre eclampsia. It also shows that the count varies with the severity of disease. The present information in the study might enhance the knowledge of the clinician in making early diagnosis of Pre eclampsia and for better management of both Pre eclamptic mother and the newborn.

V. Discussion

A Transient mild thrombocytopenia is seen due to increased platelet consumption during pregnancy[12]. Thrombocytopenia is found approximately in 6% of pregnancies[13] and most common cause being pre eclampsia and eclampsia[14]. It is found that thrombocytopenia increases the risk of perinatal complications such as abruptio placenta, pre term delivery, low APGAR score, and still birth[15]. In this study it is seen that decreased platelet count is observed in females having pre eclampsia than normal pregnant women. The lower platelet count is associated with abnormal activation of coagulation system and is believed to reflect increased platelet consumption. Distinguishing pre eclampsia from other causes of abnormal screening results would aid doctors in diagnosis and early treatment of the patients. Therefore, platelet count may be used as simplest, cheapest and earliest indicator of pre eclampsia ,thus helping in reducing the morbidity and mortality in both mother and the fetus.

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