ORIGINAL RESEARCH PAPER

Pathology

STUDY OF PLATELET INDICES AMONG PREGNANT WOMEN WITH HYPERTENSION IN A TERTIARY CARE CENTRE.

KEY WORDS: PIH, PDW, Platelet indices.

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ABSTRACT

Background: Pregnancy induced hypertension is a sign of underlying pathology contributing to maternal and fetal morbidity. Resolving and early intervention can lead to favourable outcomes. **Objectives:** The present study aims towards analyzing association between platelet indices with severity of PIH. **Materials & Methods:** An analytical comparative study was done on 80 pregnant women. 40 cases with clinically diagnosed PIH, 40 controls with normal pregnancy. Data collected were analyzed using SSPS software using comparitive t-test. **Results:** On analyzing platelet indices among both the groups, platelet disturibution width(PDW) with significant p-value of (<0.005) indicated as a significant factor in concordance with raised blood pressure. However, other indices were significantly lowered but did not show statistical significance on comparision. **Conclusion:** The study concluded PDW has significant correlation with elevated blood pressure during pregnancy. Hence, it is a reliable quick indicator of PIH in order to predict its adverse outcomes.

INTRODUCTION

Pregnancy induced hypertension is one of the leading causes of maternal and perinatal morbidity and mortality. Its prevalence ranges from 5-8%[1]. With early identification and treatment by antenatal care, possibility of good maternal and fetal outcome are possible.[1] PIH is defined as systolic blood pressure reading of at least a 140mmHg and /or diastolic blood pressure reading of at least 90mm Hg.[2]

Altered endothelial function, platelet coagulation and fibrinolytic system are considered in its pathogenesis.[3] However, exact cause is not known.

No screening test is available to find out changes that occur during PIH. In order to predict the severity of outcome, along with possibilty of quick intervention, Platelet indices are considered which indicate the functional status of platelets during hypertension. These are quick and cost effective to analyze PIH related changes.[1] The current study aims to compare platelet indices among women with PIH and normal pregnancy and if platelet indices can be used as reliable indicator as well as prognostic marker.

OBJECTIVES

1. To asess the functional role of platelet indices among pregnant women with clinically diagnosed PIH.
2. To study the coassociation between platelet indices with severity of PIH .

MATERIAL AND METHODS

Study Design: Comparitive analytical study

Study Participants and Sampling: The study group included total of 80 pregnant women among which 40 were clinically confirmed as PIH and 40 were normotensive pregnant women considered as controls.

Data Collection

Under all Aseptic precautions, A venous blood sample was collected from the study population individually using 22-gauge needle into EDTA vacutainers. These samples were analyzed in automated hematology analyzer at the Clinical Central Laboratory. Platelet count along with indices which includes platelet disturibution width (PDW), Mean platelet volume(MPV) and Plateletcrit(PCT) were obtained. These results were tabulated according to the age of the individual pregnant women. Uncooperative pts and women in labor were excluded from the study.

Ethical Consideration

Prior to beginning of the study, an informed consent was obtained from participants. They were free to leave anytime if wanted. patient-doctor confidentiality was maintained. The study obtained the institutional ethical clearence from Research ethical committee of shimoga institute of medical sciences recognised by CDSCO & NECRBHR. (Regn No: ECR-952)

RESULTS

The predominant age group in the study was 20-30 years. Results were analyzed using Independent sample t-test with SSPS software. It included Mean, Standard Deviation(SD), P-variable , T-variable. P value of <0.05 was considered statistically significant. results obtained after comparing both groups were as follows:

	MEAN	SD	T-VALUE	P-VALUE
PlateletCount	2.33	1.02	0.06	0.95
MPV	8.8	0.99	1.28	0.20
PDW	13.7	2.8	2.75	0.007
PCT	0.2	0.74	1.54	0.13

The Platelet count in the study group ranged from 42228 to 135680 /cumm and control group ranged from 95896 to 232330 /cumm, which was seen to be significantly low among PIH patients however it was statistically not significant.(p value of 0.95 and t value of 0.06).

Mean platelet volume(MPV) in the PIH cases group ranged from 10.74 to 1.23 flt and control group ranged from 8.60 to 1.08 flt which seems to be higher among PIH patients.

Platelet distribution width(PDW) in the study group ranged from15.02-2.04 and control group was 12.06 -2.6, which was found to be significantly higher among PIH patients. (significant p- value of 0.007 and t-value was 2.75)

Plateletcrit (PCT) in the study group ranged from 0.14-0.04 and control group was 0.25-0.17, which was significantly low in PIH patients.

DISCUSSION

Platelets act as first line of defense against hemorrhage. They adhere to endothelium of injured blood vessel, activate

followed by adhesion through discrete set of steps in order to control blood loss. However, during PIH significant behavioural changes among blood platelets are noted. Present study is to establish the same in which a comparative study was done which showed a significant corelation with increasing blood pressure.

On comparision with other studies, the current study is in concordance with few similar studies.

Mohapatra S et al[6] found that platelet numbers were found to be 2.38 lacs/mm3+/-0.33 in control group, 2.23 lacs/mm3+/-0.19 in PIH, stated severity of PIH and platelet count showed an inverse relationship.study done by AlSheeha et al [7], Freitas et al[8] and Dogan et al[9] also showed significantly lower platelet count in patients with preecclampsia.The current study showed decrease in platelet count.

Study done by Mangala et al[10],PDW were found to be significantly elevated in the study group compared to control group with p value of <0.00001. the present study showed supportive findings with significant p value of 0.007 for PDW.

Due to increased consumption of platelets, bone marrow produces and releases large platelets which leads to increase in PDW in PIH.

CONCLUSION

There is always a constant search for better reliable, quick and cost effective prognostic indicators of PIH.A positive corelation is noted in present study among PDW and raised BP in comparision to normal counterparts.Hence, these parameters can be used as specific predicting factor to assess severity of PIH.

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