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Clinical Study of Platelet Count and Hemoglobin Concentration in Hypertensive Pregnant Women and Normotensive Pregnant Women

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ABSTRACT

To estimate the platelet count, hemoglobin concentration and heart rate in pregnant women with Pregnancy Induced Hypertension (PIH) and to determine how they differ in normotensive pregnant women. The 50 study subjects comprise normotensive pregnant women and pregnant women with PIH. Group I includes normotensive pregnant woman and group II includes pregnant woman with PIH. Exclusion criteria for selection of subjects: Diabetes Mellitus, Liver diseases, renal diseases, subjects under drug therapy. The platelet count is done by using Mindray Auto Hematology Analyzer BC-3000 plus. Hemoglobin concentration is estimated by using Spectro Photometry Method. Heart rate is measured with E.C.G. P value is calculated by using Students paired t-test. Platelet count is decreased in test group than that of control group. Hemoglobin concentration level is decreased in test group than that of control group.

Keywords: PIH (Pregnancy Induced Hypertension), Platelet count, Spectro Photometry Method.

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AIMS AND OBJECTIVES

To estimate the platelet count, heart rate and hemoglobin concentration in pregnant women with pregnancy induced hypertension (PIH) in comparison with pregnant women with normal blood pressure.

MATERIALS AND METHODS

The 50 study subjects were selected from the obstetrics and gynecology department of Kamineni Institute of Medical Sciences. Test group comprises pregnant women with Pregnancy Induced Hypertension. A pregnant woman who is in 22 weeks of gestation, average age is 22 years \pm 2 admitted in OBG ward of KIM's hospital, Narketpally fulfilling the following criteria are studied. Criteria: Systolic Blood Pressure [7] greater than 140 mm of Hg or a rise of at least 30 mm of Hg of systolic blood pressure after the onset of pregnancy. Diastolic Blood Pressure greater than 90 mm of Hg or rise of at least 15 mm of Hg of diastolic blood pressure after the onset of pregnancy. Proteinuria [2] of 300 mg or greater in a 24 hour urine collection or protein concentration of 1 gm/l or greater on two occasions at least 6 hours apart. Normotensive (SBP- 110-130mmHg & DBP – 70-89 mmHg) age matched pregnant women with same gestational period with that of test group and without proteinuria are taken as controls. Blood samples were collected for the study from subjects at random and were analyzed for the platelet count by using Mindray Auto Hematology Analyzer BC-3000 plus. The subjects were not taking any anti hypertensive drugs 15 days just before the study.

Heart rate is measured by using E.C.G. Hemoglobin levels are estimated by Spectro Photometric Method (oxy hemoglobin method).

The subjects were divided into two groups.

- 1) Group-I (n- 25) comprised of normotensive pregnant women.
- 2) Group-II (n-25) comprised of pregnant women with PIH.

Exclusion criteria for selection of subjects:

- 1) Diabetes mellitus
- 2) Liver diseases
- 3) Renal diseases

STATISTICAL ANALYSIS

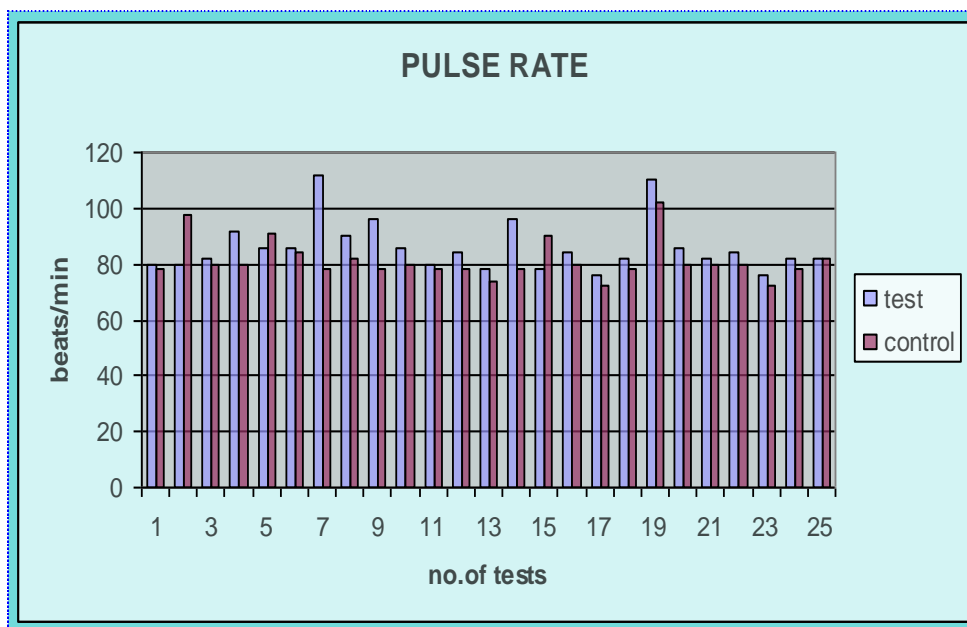
The results were statistically analyzed by using Students paired t- test. P-value < 0.05 is considered as statistically significant.

Table -1 COMPARISON OF PLATELET COUNT, HEART RATE & HEMOGLOBIN IN GROUP-I & GROUP-II

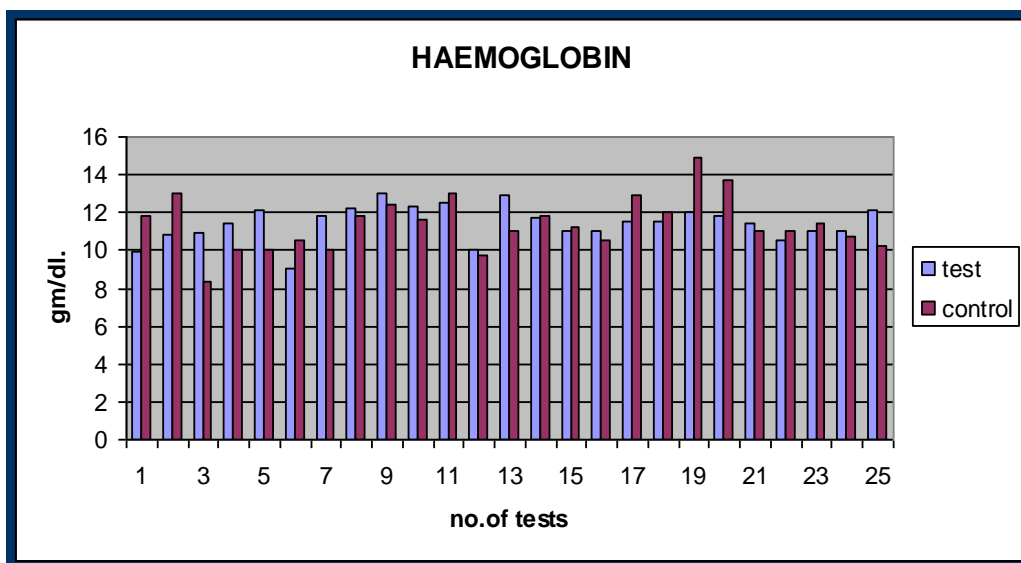
VARIABLES	GROUP-I	GROUP-II	T-VALUE	P-VALUE
HEART RATE	86.0 ± 9.20	81.2 ± 7.10	2.05	0.0461
HAEMOGLOBIN CONCENTRATION	11.4 ± 0.941	11.4 ± 1.432	0.105	0.9168
PLATELET COUNT	1.17 ± 0.214	2.68 ± 0.666	-10.8	<0.001

P<0.05 is significant

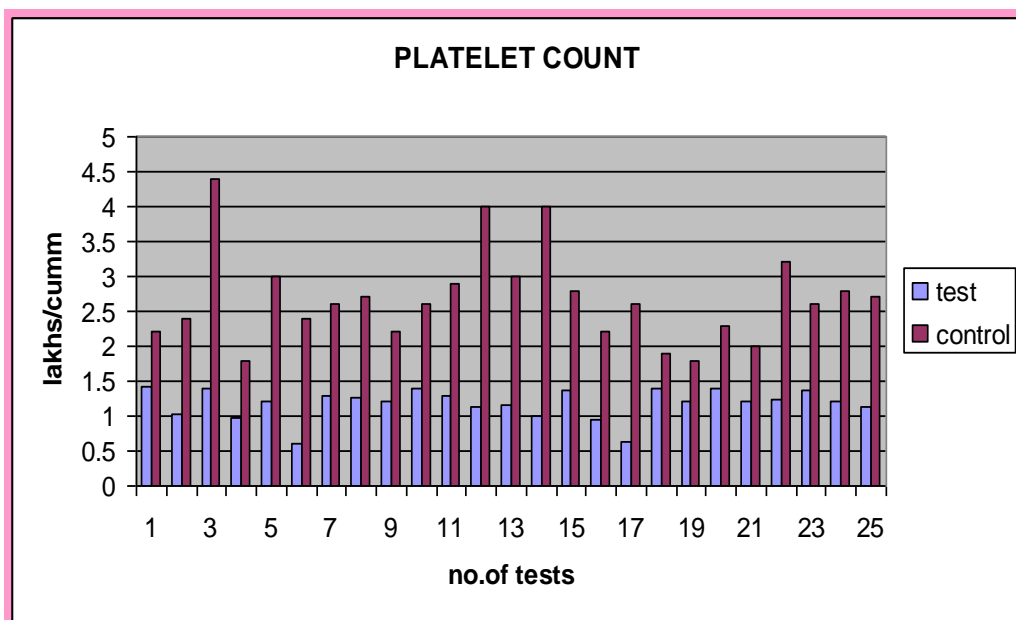
GRAPH-I: COMPARISON OF HEART RATE BETWEEN GROUP-I AND GROUP-II



GRAPH-II: COMPARISON OF HAEMOGLOBIN CONCENTRATION BETWEEN GROUP-I & GROUP-II



GRAPH-III: COMPARISON OF PLATELET COUNT BETWEEN GROUP-I & GROUP-II



RESULTS

- 1) Platelet count: Platelet count⁶ is decreased in test group than that of control group
- 2) P value of platelet count is <0.001 which is highly significant.
- 3) Heart rate: heart rate is higher in test group compared to that of control group even though statistically not significant.
- 4) Hemoglobin: Hemoglobin concentration level is decreased in test group than that of control group which is also statistically not significant.

DISCUSSION AND CONCLUSION

Platelet count is decreased in women with pregnancy induced hypertension when compared with normotensive pregnant women [3] which is statistically significant.

Thrombocytopenia [8, 9] is due to platelet activation and aggregation as well as microangiopathic hemolysis induced by severe vasospasm, increase mean platelet volume and decreased life span.

Haemodilution can also contribute the decrease in platelet count.

During pregnancy induced hypertension vasodilators like prostaglandins, nitric oxide synthesis is decreased and vasoconstrictors such as angiotensin II, thromboxane A₂ and endothelin –1 are increased [1]. There were [4] significant differences between normal pregnancy and severe PIH cases. Thrombocytopenia [5] is an associated phenomenon of PIH.



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