Physiological Parameters in Pregnancy Induced Hypertension

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Research Article

Abstract: The study was undertaken to assess the Physiological stress during Pregnancy induced Hypertension. 30 patients of PIH / Eclampsia attending the antenatal clinic were selected for this study. The following parameters were studied in these subjects; bleeding time, Clotting time and Platelet count. 30 normal pregnant women of same age were selected as control group. The study showed significant decrease in Platelet count. No statistically significant change was seen in Bleeding time and Clotting time.

Key words: PIH Eclampsia Bleeding Time Clotting Time Platelet count.

Introduction

Quality of life for mother and newborn has become our most important concern now days. Eclampsia is a major complication of pregnancy and is one of the major causes of maternal mortality and perinatal complications. The exact cause of elevated blood pressure in Eclampsia is obscure but many hypothesis have been put forward namely…inadequate placental perfusion, prostacyclin / Thromboxane imbalance, changed vascular reactivity, immunological mechanism and genetic factors. The most common cause is uteroplacental under perfusion leading to decreased fetoplacental prostacyclin. Elevated maternal thromboxane/prostacyclin ratio leads to increased sensitivity to Angiotensin II, arterial vasoconstriction and subsequent elevation of blood pressure. Intravascular coagulation and vasoconstriction also leads to formation of oedema. The parameters studied in the present study also support the aetiopathogenesis of clinical manifestations. The simple tests can be used to reduce further fetal and maternal complications.

Methods

The present study was carried out at Government Medical College, Aurangabad. 30 females of Eclampsia attending antenatal clinic were selected for the study and were free from any other complication of pregnancy. They were of 19-35 years of age. The diagnosis was made on brief clinical history, B.P. and urine examination for protein. For comparison, 30 normal pregnant females of same age group were selected. The following parameters were measured.

- Platelet count
- Bleeding time
- Clotting time

Statistical Analysis

The unpaired t test was applied. $p < 0.05$ was selected for significance.

Results

There was no statistically significant change in bleeding time and clotting time. But, the platelet count showed statistically significant decrease in the present study.

PARAMETERS	NORMAL	ECLAMPSIA
BLEEDING TIME min	2.89	4.66 NS
CLOTTING TIME min	6.74	4.07 NS
PLATELET COUNT lac/cmm	**3.47**	**1.27 ***

NS= Not Significant, S=Significant

It is evident from above data that there is no significant change in the bleeding time and clotting time in cases of Eclampsia as compared to normal group. The platelet count is showing a decrease in the study group which is statistically significant.

Discussion

Eclampsia is seen to be a major complication of pregnancy. It has been attended a wide importance due to the high incidence of maternal mortality and hence discussed widely. In the present study, a total of 60 subjects were studied. 30 patients of Eclampsia and 30 normal subjects were selected for the study. The parameters studied were 1) Platelet count 2) Bleeding time 3) Clotting time.

The platelet count in normal pregnant women was found to be 3, 47, 000± 84, 000 /cmm. A continuous decline in platelet count as pregnancy advances was shown by **Fay et al (1983). Pitkin R.M., Whittle D.L.(1979)** indicated that there is possibility of platelet hyperdestruction during pregnancy. This together with hemodilution and platelet trapping results in decreased platelet count.

The platelet count in study group of Eclampsia was found to be 1, 27,000 $\pm$ 13,000/cmm. The definite decrease was

statistically significant. The same results were shown by **Mathur et al (1980), Keehan and Bell (1957)** .They also observed decrease in platelet count their study due to increased consumption and destruction of platelets. Thrombocytopenia observed in Eclampsia was attributed to increased platelet adhesiveness by **McKay et al (1964)** whereas persistent impaired platelet disaggregation was shown by **Howie et al (1971).**

A progressive increase is always associated with Pre-eclampsia and Eclampsia. **[Siva Thiagarajah 1984**]. Maternal thrombocytopenia can be induced by Eclampsia. After delivery the platelet count returns to normal within a few days. But, it decreases with severity of the disease. The lower the platelet count, the greater are the chances of maternal and fetal mortality. **[Leduc et al 1992]**

The Bleeding time showed an increase but it was not statistically significant. The increase observed was may be due to generalized vasoconstriction. **[Dube et al (1975), Talib et al (1993)]** The increase is always associated with thorombocytopenia. **Kelton et al (1985)** reported same finding concluding that the increase may be due to impaired Thromboxane synthesis. Increased Bleeding time with thrombocytopenia may alter the coagulation process. **[Pritchard et al (1984)]**

The study showed increase in Clotting time which was not statistically significant. **Bellar et al (1977)** showed the consistent increase in Clotting time with increase in severity of disease.

Conclusion

In the present study, the platelet count was seen to be decreased in eclampsia group. The thrombocytopenia observed is presumed to be due to,

- Decreased platelet life span
- Increased platelet consumption
- Decreased prostacycline synthesis
- Immunological mechanisms

The Bleeding time in our study was seen to be increased but not to statistically significant level. The increase may be due to generalized vasoconstriction. Prolonged Bleeding time is associated with thrombocytopenia so it may be due to impaired synthesis of thromboxane.

The Clotting time was also seen to be increased but not to significant level. The increase is due to further depression of fibrinolytic activity. Accumulation of fibrinogen derivatives and alterations in the clotting mechanisms also contribute to the increase.

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