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A PROSPECTIVE STUDY OF MATERNAL AND FETAL OUTCOME IN PREECLAMPSIA AND ECLAMPSIA

Obstetrics & Gynecology

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ABSTRACT

Introduction- Pre eclampsia and eclampsia is one of the leading cause of maternal and fetal morbidity and mortality. This study was undertaken to correlate coagulation profile in patients with pre-eclampsia and eclampsia with maternal and fetal outcome.

Materials And Methods- A prospective study was conducted on 164 cases and 70 controls over a period of 2 years. The coagulation profile was carried out on the semiautomated TRINITY coagulometer. The haematological parameters were assessed on fully automated 3 part haematological analyser- TRIVITRON Model-CELLENIUM-19. The patients were classified into mild preeclamptic, severe preeclamptic and eclamptic based on the clinical and haematological parameters.

Observations- The maternal and the foetal outcomes were studied and correlated with the coagulation profile. All the cases of mild preeclampsia had favourable maternal and fetal outcome. Out of total 102 cases of severe preeclampsia and eclampsia, 78 had normal coagulation profile and 24 had deranged profile. Thus out of 24 patients with deranged coagulation profile, 21 (87.5%) women had adverse maternal outcome and 24 (100%) had unfavourable fetal outcome.

Conclusion- Deranged coagulation profile in preeclampsia and eclampsia is significantly associated with adverse maternal and fetal outcome. Thus suspecting a deranged coagulation status early in the course of the disease will guide us in management before the patient goes into complications.

KEYWORDS

Coagulation, Preeclampsia, Eclampsia, Maternal , Fetal

INTRODUCTION

Hypertensive disorders in pregnancy is one of the common medical complications of pregnancy. It affects 5-15% of all pregnancies contributing significantly to maternal and perinatal morbidity and mortality.[1,2] It is said that preeclampsia and eclampsia contribute to death of a woman every 3 minutes worldwide.[3] Preeclampsia is a common dangerous condition for both mother and baby and is cured only by termination of pregnancy. It is observed that preeclamptic mother having coagulation indices in severely abnormal ranges were associated with more maternal and fetal jeopardy.[4,5]

AIMS AND OBJECTIVES

1. To correlate severity of pre-eclampsia and eclampsia with coagulation parameters.
2. To correlate coagulation profile in patients with pre-eclampsia and eclampsia with maternal and fetal morbidity and mortality.

MATERIALS AND METHODS

A prospective study was conducted in the department of Pathology at Dr V.M. Government Medical College, Solapur from December 2012 to July 2014.

Selection Of Cases: Previously normotensive pregnant females of third trimester with signs and symptoms of preeclampsia and eclampsia in present pregnancy.Cases were categorized into mild preeclampsia, severe preeclampsia and eclampsia as per criteria given by William's Obstetrics.[6]

Selection Of Control: Control group constituted healthy normotensive pregnant women in third trimester of pregnancy.

The study group was divided into 4 groups.
I- Healthy normotensive pregnant controls- 70
II- Women with mild preeclampsia- 62
III- Women with severe preeclampsia-42
IV- Women with eclampsia-60.

Exclusion Criteria:-
In this study, following patients were excluded:-
1. Chronic hypertension
2. Renal disorders
3. Twin pregnancy
4. Hydatidiform mole
5.Epilepsy.

Detailed history, important clinical findings and relevant investigations were noted as per the case proforma.

Venous blood sample was obtained without a pressure cuff. The venepuncture was done with 22 Gauge size needle and good quality plastic syringe of 10 ml was used for the collection of blood. Anticoagulant used for coagulation testing is trisodium citrate (3.8%) in 1:9 proportions that is 0.3 ml citrate and 2.7 ml blood. For hematological analysis blood was collected in K_3 EDTA (Ethylenediaminetetraacetic acid) bulb.[7]

The coagulation profile was carried out on the semiautomated TRINITY coagulometer. The haematological parameters were assessed on fully automated 3 part haematological analyser-TRIVITRON Model-CELLENIUM-19.

RESULTS

Total 164 cases and 70 controls were included in the study.

Table No. 1 : Mean Platelet Count And Coagulation Parameters In Study Group

Tests	Normal pregnant control (n=70)	Mild preeclampsia (n=62)	Severe preeclampsia (n=42)	Eclampsia (n=60)
Platelet count (lac/cumm)	2.38±0.55 (-)	2.25±0.61 (1.6%)	1.75±0.68↓** (21.4%)	1.44±0.58↓** (43.3%)
PT (sec)	13.27±0.81 (-)	13.30±0.86 (-)	13.30±2.65 (4.76%)	13.40±2.13 (6.66%)
APTT (sec)	31.61±4.06 (-)	31.87±3.80 (-)	36.44±13.15↑** (21.43%)	41.15±9.37↑** (23.33%)
TT (sec)	15.08±1.35 (-)	15.10±1.08 (-)	16.60±3.26↑** (21.43%)	18.60±3.11↑** (30%)

↓**- very significantly lower- P<0.01, ↑**-Very significantly higher- P<0.01
( ) - indicates percentage of cases with abnormal values.
n = number of cases

It has been seen that the platelet count in severe preeclampsia and eclampsia was very significantly lower than that in normal healthy

pregnant controls. Reduced platelet count was seen in 21.4% cases of severe preeclampsia and 443.3% cases of eclampsia. It has been seen that prothrombin time was not significantly prolonged (P>0.05) in various severity of preeclampsia and eclampsia. The mean activated partial thromboplastin time and thrombin time in preeclampsia was significantly prolonged when compared with healthy controls. Similarly, in eclampsia the mean activated partial thromboplastin time and thrombin time was significantly prolonged as compared to controls.

Table No. 2 : Maternal And Fetal Outcome In Cases With Severe Preeclampsia (n= number of cases)

	Normal coagulation profile (n=34)	With deranged coagulation profile (n=8)	Total (Percentage)
Acute renal failure	1	-	1 (2.38%)
Postpartum hemorrhage	-	2	2 (4.76%)
Abruption	-	1	1 (2.38%)
Infection	-	2	2 (4.76%)
Retinopathy	1	1	2 (4.76%)
HELLP Syndrome	-	1	1 (2.38%)
DIC	-	2	2 (4.76%)
Perinatal death	3	6	09 (21.43%)
Intauterine growth retardation.	6	2	08 (19.05%)

Table No. 3 : Maternal And Fetal Outcome In Cases With Eclampsia

	Normal coagulation profile (n=44)	With deranged coagulation profile (n=16)	Total (Percentage)
Acute renal failure	-	2	2 (3.33%)
Post partum hemorrhage	-	2	2(3.33%)
Abruption	-	2	2(3.33%)
Infection	2	-	2(3.33%)
Retinopathy	2	-	2(3.33%)
HELLP Syndrome	2	6	8(13.33%)
DIC	-	4	4 (6.66%)
Pulmonary edema	-	2	2(3.33%)
Cerebral haemorrhage	-	2	2(3.33%)
Cortical sinus thrombosis	-	2	2(3.33%)
Death	-	4	4 (6.66%)
Perinatal death	08	16	24 (40%)
Intauterine growth retardation.	15	-	15 (25%)

Table No. 4 : Correlation Of Coagulation Profile With Maternal Outcome In Cases Of Severe Preeclampsia And Eclampsia Combined.

Coagulation profile	Number of cases	Unfavourable Maternal Outcome	Favourable maternal Outcome
Normal	78	6 (7.7%)	72 (92.3%)
Deranged	24	21 (87.5%)	3 (12.5%)
Total	102	27 (26.47%)	75 (73.53%)

Out of 24 patients with deranged coagulation profile, 21 (87.5%) women had adverse outcome while 3 (12.5%) women had normal outcome. Out of 78 cases with normal coagulation profile, 6 (7.7%) women had unfavourable outcome and 72(92.3%) women had normal course. Chi square value is 56.03 with p<0.01 which suggests that derangement in coagulation profile is very significantly associated with maternal morbidity and mortality.

Table No. 5 : Correlation Of Coagulation Profile With Fetal Outcome In Cases Of Severe Preeclampsia And Eclampsia Combined.

Coagulation profile	Number of cases	Unfavourable Fetal out come	Favourable fetal outcome
Normal	78	32 (41%)	46 (59%)
Deranged	24	24 (100%)	-
Total	102	56 (54.9%)	46 (45.1%)

Out of 24 cases with deranged coagulation profile, all the women (100%) had unfavourable fetal outcome while out of 78 women with normal coagulation profile, 32 (41%) had unfavourable fetal outcome and 46 (59%) women had normal fetal outcome. Chi square value is 23.45 with p<0.01 which suggests that derangement in coagulation profile is very significantly associated with fetal morbidity and mortality.

DISCUSSION

The incidence of HELLP syndrome in cases of preeclampsia found in present study was 2.38% which correlated with that of Sachan et al (2013)[8] who reported an incidence of 3.07%. Similarly in eclampsia HELLP syndrome was seen in 13.33% cases in our study which correlated with that of Mattar and Sibai (2000)[9] who reported an incidence of 14%.

The incidence of Acute Renal Failure in cases of preeclampsia in present study was 2.38% which correlated with that of Sachan et al (2013).[8] Similarly in eclampsia Acute Renal Failure was seen in 3.33% cases in our study which correlated with that of Mattar and Sibai (2000).[9]

Disseminated Intravascular Coagulation (DIC) was seen in 4.76% cases of preeclampsia in our study which correlated with Al-Mulhim et al (2003).[10] Similarly in eclampsia DIC was seen in 6.66% cases in our study which correlated with that of Mattar and Sibai (2000).[9]

The incidence of maternal mortality in cases of eclampsia in our study was 6.66% which well correlates with that conducted by Gaddi (2007)[11] and was found to be 5.43%.

The incidence of Perinatal mortality in cases of preeclampsia in our study was 21.43% which correlated with that of Bangal et al (2011).[12] Similarly in eclampsia Perinatal mortality was seen in 40% cases in our study which correlated with that of Gaddi (2007).[11]

IUGR was seen in 19.05% cases of preeclampsia in our study which correlated with Bangal et al (2011).[12] Similarly in eclampsia, IUGR was seen in 25% cases in our study which correlated with that of Bangal et al (2011).[12]

Our finding of adverse fetal and maternal outcome in cases with preeclampsia and eclampsia having deranged coagulation profile is well correlated with B.J. Trudinger (1976)[13] and Leduc et al (1992).[14]

CONCLUSION

Preeclampsia and eclampsia still remains a major problem in developing countries. Deranged coagulation profile in preeclampsia and eclampsia is significantly associated with adverse maternal and fetal outcome. Thus suspecting a deranged coagulation status early in the course of the disease will guide us in management before the patient goes into complications.

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