

# Coagulation Profile of Pre-Eclamptic Patients and Its Corellation with Clinically Significant Bleeding Tendencies



## Medical Science

**KEYWORDS :** pre-eclampsia , coagulation, PT , platelets.

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### ABSTRACT

*Coagulation profile was studied in 180 patients with pregnancy induced HT in present series. Patients were categorised as mild, severe eclampsia and eclampsia. Coagulation parameters such as PT,APTT, plasma fibrinogen and platelet count were studied along with other clinical features like BP and urine examination. Study showed significant alteration of coagulation profile depending on severity of disease.*

### INTRODUCTION

HT is one of the common complication s met with in pregnancy and contributes significantly to maternal and perinatal morbidity and mortality. Its diagnosis and effective management play a significant role in outcome of pregnancy for both mother and baby.

#### PIH comprises of:-

- (I) patients which present with gross clinical features of EDEMA and PROTEINURIA are categorised into pre-eclampsia and eclampsia.
- (II) those without gross edema and proteinuria called as gestational hypertension.

#### Pre-eclampsia is a multisystem disorder with unknown etiology characterised by

- (i) development of HT>/= 140/90mm Hg
- (ii) proteinuria in previously normal patients

There is widespread evidence of DIC in multiple organs of body as opposed to selective DIC at placental site in normal pregnancy. The whole process appears to be initiated by release of THROMBOPLASTIN into circulation. Reduction in PLATELETS,FIBRINOGEN, ANTI THROMBIN III and PLASMINOGEN level is also noted. The degree of thrombocytopenia reflects severity of pathology. The risk of some clinically relevant bleeding episode is directly related to the degree of thrombocytopenia.

### AIMS AND OBJECTIVES

- 1) to study coagulation profile in patients of pre-eclampsia and compare the difference between coagulation profile abnormalities in mild preeclampsia,severe preeclampsia and eclampsia.
- 2) To find out relationship between bleeding tendencies and coagulation profile abnormalities.

### MATERIALS AND METHODS

A total number of 180 patients of preeclampsia and eclampsia were studied from January 2015 to July 2015.

**Type of study:** prospective observational study.

**Study subjects:** patients admitted to OBGY ward for severe-preeclampsia and diagnosed cases of mild pre-eclampsia.

**INCLUSION CRITERIA:** Selection of cases were done with the help of obstetrician along with detail obstetrics history with special attention to haemorrhagic disorders.

### EXCLUSION CRITERIA

- Exclusion criteria consisted of patients with H/O essential HT,epilepsy,renal disorders,sickling and abruptio placentae.

- BP only measured while resting and in supine position.
- dip stick was used to test for proteinuria and if this test was positive , infection was excluded by doing microscopy of same specimen.

(dipstick >/= +1 is predictive of >/=300mg/24hr)

### INVESTIGATIONS:

1. Hb (automated cell counter)
2. platelet count(automated cell counter)
3. P/S prepared and stained by giemsa stain.
4. haemacrocrit
5. urine examination for proteins
6. coagulation profile:PT,APTT,plasma fibrinogen by fully automated and semiautomated coagulometer(stago STA compact and stago start 4)

### OBSERVATION

In present series of 180 cases, following observations were made.

**(TABLE 1)AGE**

AGE	MILD	SEVERE	ECLAMPسيا	TOTAL
20-28	54	90	11	155
29-40	0	18	7	25
TOTAL	54	108	18	180

Mean age = (25.12 +/- 3.6)

**(TABLE 2)Distribution of cases according to clinical diagnosis**

GROUPS	CLINICAL DIAGNOSIS	NO. OF CASES	%
I	Mild preeclampsia	54	30%
II	Severe preeclampsia	108	60%
III	eclampsia	8	10%

out of 180 patients, only 4 presented with bleeding tendencies(2.22%)

**(TABLE 3)PLATELET COUNT:**

LACS/CMM	MILD PREEC-LAMPسيا	SEVERE PREEC-LAMPسيا	ECLAMPسيا	TOTAL
1.5-4	54	45	0	99
1-1.5	-	12	10	22
50,000-1	-	35	6	41
>50,000	-	16	2	18
TOTAL	54	108	18	180

**(TABLE4)PT:**

PT	MILD PREEC-LAMPسيا	SEVERE PREEC-LAMPسيا	ECLAMPسيا	TOTAL
NORMAL	54	106	16	176
ABNOR-MAL	-	2	2	4
TOTAL	54	108	18	180

So, again 2.2% of patient show abnormal PT, these 2.2% also show bleeding tendencies.

**(TABLE 5)APTT:**

APTT(sec)	MILD PREECLAMPSIA	SEVERE PREECLAMPSIA	ECLAMPSIA	TOTAL
NORMAL	54	106	16	176
PROLONGED	-	2	2	4
TOTAL	106	108	18	180

All patients with mild preeclampsia had normal APTT values.

**(TABLE6)Plasma fibrinogen:**

P. fibrinogen	Mild preeclampsia	Severe preeclampsia	eclampsia	total
2-4g/l	4	11	4	19
>4g/l	40	89	12	141
<2g/l	-	-	2	2
TOTAL	44	100	18	162

- decreased p. Fibrinogen is indicator of DIC.
- This is often associated with increased XL FDP/ D dimer.

**(TABLE7)XL FDP/D dimer**

Microgram/ml	MILD PREECLAMPSIA	SEVERE PREECLAMPSIA	ECLAMPSIA	TOTAL
<0.5	54	-	-	54
>0.5	-	108	18	126
TOTAL	54	108	18	180

Raised in all cases of severe preeclampsia and eclampsia but bleeding tendencies only in 4 patients who had platelet count less than 50,000/cmm.

## SUMMARY AND CONCLUSIONS

- thrombocytopenia present in 64% patients of severe preeclampsia(attributed to increased platelet activation in preeclampsia)
- XL FDP/ D dimer increase in 100% of severe cases; normal in all mild case(evidence of widespread DIC)
- PT and APTT are prolonged in 2.2% of severe cases.
- Plasma fibrinogen decreases in 1.1% cases;all of these patients had bleeding tendencies.
- D dimer increased in all severe cases , but bleeding ONLY when associated with severe decrease in platelets,increased PT and APTT ,decreased fibrinogen present.
- increased D dimer is of no clinical significance unless associated with decreased platelets.

## DISCUSSION

The present study titled as "COAGULATION PROFILE OF PREECLAMPTIC PATIENTS AND ITS CORELATION WITH CLICALY SIGNIFICANT BLEEDING EPISODES" was conducted in our institute B.J.M.C. and civil hospital from JANUARY 2015 to JULY 2015. 180 patients with increased BP in pregnancy were studied for abnormal coagulation. Out of these 180 cases studied:

30%:mild preeclampsia ; 60% severe preeclampsia ; 10% had eclampsia.

Out of 108 cases of severe preeclampsia ,2 patients presented with bleeding tendencies like hematuria,bleeding in gums etc.

Out of 18 patients of eclampsia, 2 presented with similar bleeding tendencies.

Results were compared to some other international studies conducted on the same topic, and they matched with those as follows:

**(TABLE8)**

PATIENTS WITH HYPERTENSIVE DISSORDERS	PRESENT STUDY	MATCHES WITH OTHER STUDIES
AGE GROUP	Mean age(25.12+/-3.6)	Leduc et al(22.4+/-6.9)
THROMBOCYTOPENIA	45% CASES OF SEVERE PREECLAMPSIA	50% CASES(Leduc et al,1992)
Prolonged PT	2.22%	-leduc et al,1992(2%) -barron et al,1999(1.9%)
Prolonged APTT	2.22%	Leduc et al,1992(2%) Barron et al,1999(2%)
Raised XL FDP/D dimer	Raised in 100% cases of severe preeclampsia and eclampsia	-A.H. Henderson,1970; -JOHN BONNAR,1971; -JD wright,1977 (ALL 100%)
Decreased plasma fibrinogen	1.1%	Barron et al (1999)-1%