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COAGULATION PROFILE AMONG PREGNANT WOMEN WITH PREECLAMPSIA IN SUDAN 2018

Tarig A. M. Hamid*[1], Zeinab S. A. Alsayed[1] and Elharam I. Abdallah[2]

[1]Department of Hematology and Immunohematology – Sharq Elnile College – Khartoum Sudan.
[2]Department of Hematology and Blood Banking MSc, PHD Alzaiem Al-Azharia, University – Khartoum Sudan.

***Corresponding Author: Tarig A. M. Hamid**
Department of Hematology and Immunohematology – Sharq Elnile College – Khartoum Sudan.

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ABSTRACT
PE Is universally defined as hypertension and significant proteinuria developed at or after 20 weeks of pregnancy in an otherwise normotensive woman·PE having an increased risk for thrombosis. A prospective case control study was conducted in Bahri and Omdurman Maternity Hospital-Khartoum state; in a period of June to Nov 2017. Pregnant women's who admitted into the Department of Obstetrics and Gynaecology or attended at antenatal care unit, were enrolled in the study. A total of 100 pregnant women's; among them 50 patients with either mild or sever PE and 50 normal pregnancies as controls. Citrated venous blood samples were collected from each subject; platelet poor plasma was separated for measurement of prothombin time (PT), activated partial thromboplastin time (APTT) and thrombin time (TT) level using semi-automated analyzer also d dimer using ichrome .In the present study the mean of APTT and d dimer were found to be (42.23 ±6.47, 34.01 ± 4.80), (1751.69 ±1978.63, 294.12 ±101.49) of PE to normal pregnant respectively and (P; 0.00). While mean of PT, TT were found to be (15.20 ±2.2, 14.43 ± 1.60),(17.06 ±1.29,16.54 ±1.13) (P;0.54 ; 0.36) of PE to normal pregnant respectively. The APTT and d dimer increase in PE compared with normal pregnant, while there were no difference in PT and TT among two group in spite of it is prolonged level within majority of PE.

KEYWORDS: PE Is universally defined Gynaecology prothombin majority of PE.

INTRODUCTION
Preeclampsia (PE) is a one of hypertension disorders that occur during pregnancy but must be associated with proteinuria developed at or after 20 weeks of pregnancy (3–14% complication of all pregnancy)[1] PE has no defined etiology but many predisposing factor may be associated with the disease like obesity, hyper-placentosis and preexisting hypertension. PE characterize by increase fibrin production, decrease fibrinolytic activity, increase FVII,FVIII related Antigen, FDP concentration, Fibrin and platelet deposition ,also there are thrombocytopenia and platelet activation. The end result is hypercoagulable state (Thrombus) and DIC in severe cases, unlike normal pregnancy that have a hypercoagulable state balanced by Increase fibrinolytic activity.[2] Overall, 10%–15% of direct maternal deaths are associated with PE in low- and middle-income countries and the proportion is similar in high-income countries.[3,4] Furthermore, severe preeclampsia is a major cause of maternal morbidity (i.e., stroke and liver rupture) and negative long-term outcomes (i.e., cardiovascular disease and diabetes mellitus) as well as adverse perinatal effects, such as prematurity and intrauterine growth restriction.[5,6]

1. MATERIALS AND METHODS
Study area and population: This case control study was conducted in Bahri and Omdurman Maternity hospital, Khartoum state, Sudan, during August 2017 to November 2017 and included 100 blood samples, 50 of these samples were collected from pregnant women with PE and 50 samples were collected from normal pregnant women as a control group.

Sample collection: A total of 2.5 ml blood samples were collected in container containing 3.2 % of tri-sodium citrate to obtain platelets poor plasma, that were used For coagulation analysis of PT, APTT and TT by semi-automated analyzer (Stago) also d dimer using ichrome.

Statistical analysis: Data was analyzed using SPSS version 14 for windows 7 ultimate to obtain mean, standard deviation and P value. P value less than 0.05 consider clinically significant and more than 0.05 considered clinically insignificant.

2. RESULTS
The study has been done on 100 participants, 50 pregnant women with preeclampsia (PE) as a case group and 50 apparently healthy pregnant women as a control group.

Table 1: Means of Demographic/Clinical data of two studied group.

	Preeclampsia	Normal Pregnant	P Value
Systolic blood pressure	154.42	108.07	0.00
Diastolic blood pressure	102.14	76.40	0.00
Age	28.9	27.1	0.51

The mean of age among the studied groups PE and normal pregnancy were found (28.9, 27.1) (P; 0.51) respectively. As expected PE group had significantly higher systolic and diastolic blood pressure than healthy pregnant women (154.42/102.14 versus 108.07/76.40) (P;0.00) respectively (Table 1).

Table 2: Comparison of means and SD of coagulation tests among the two studied group.

Variable	Preeclampsia	Normal pregnant	P Value
PT	15.20 (±2.27)	14.43 (± 1.60)	0.54
APTT	42.23 (±6.47)	34.01 (± 4.80)	0.00
TT	17.06 (±1.29)	16.54 (±1.13)	0.36
D Dimer	1751.69 (±1978.63)	294.12 (±101.49)	0.00

There were a significant increase of APTT and D dimer among case group (P; 0.00). While there were no significant differences between case and control regarding the PT (P; 0.54) and TT (P; 0.36) respectively.

Table 3: Comparison of coagulation tests among obese and non-obese women with preeclampsia.

Variable	Obese (BMI<30Kg/m^2)	Non obese (BMI>30Kg/m^2)	P Value
PT	14.69(±2.01)	15.79(±2.46)	0.089
APTT	42.78(±6.83)	41.59(±6.10)	0.523
TT	17.26(±1.32)	16.83(±1.24)	0.240
D Dimer	1458.99(±1398.65)	2095.29(±2485.81)	0.261

There were insignificant differences between obese PE and non-obese PE women regarding PT, APTT and TT (P; 0.08; 0.52; 0.24) respectively .While there was insignificant decrease of d dimer among obese PE compare with non-obese with a mean (1458.99±1398.65, 2095.29±2485.81) respectively (Table 3).

Table 4: Comparison of a coagulation tests in first and second trimester among PE women.

Variable	Second trimester	Third trimester	P value
PT	15.61 ±2.75	15.10±2.16	0.532
APTT	42.95±4.46	41.81±6.48	0.355
TT	17.20±1.07	17.03±1.35	0.719
D Dimer	956.590±485.98	1950.470±2159.10	0.011

Regarding trimesters there was a significant increase of d dimer in PE women on third trimester compared with second trimester, while other parameters show no statistically difference.

3. DISCUSSION

PE remains one of the causes of perinatal mortality and maternal death in most developing countries. Many theories suggested that abnormal placentation is one of the critical issues in the pathogenesis of PE. So this study was conducted to compare coagulation parameters among two studied group of Sudanese women with preeclampsia and normal pregnant one.

Present study shows a significant increase of APTT in PE compare with normal pregnant with a mean (42.23±6.47, 34.01±4.80) respectively and (P;0.00). However there is Statistically insignificant differences in PT and TT among cases and control group with a mean (15.20±2.2, 14.43±1.60), (17.06±1.29, 16.54±1.13) and (P; 0.54; 0.36) respectively .Compare with other study done by Dr.Asiya Naaz MD and her colleges 2015, our study agree with her study in result of APTT which showed a significant rise with a mean (32.85±2.34, 25.5±3.23) in PE group compare with normal pregnant. However disagree with her study in PT result which showed significantly increased in PE compared with normal pregnant with a mean (16.7±1.83, 12.49±1.45), respectively and (P;0.00).

In previous study performed in Sudan Khartoum 2016 "Investigation of Some Coagulation Parameters in Pregnant Women's with Preeclampsia" done by Awad El-kareem Abass that compared a PE with normal pregnant, result show there were a significant increase in PT mean (14.20±3.48, 12.90±1.13)(P; 0.01) and APTT mean (38.32±7.71, 35.60±6.96)(P; 0.02) among cases and control group respectively, our result agree with him in APTT result and disagree with him in PT result.

Regarding d dimer our study show a significant increase in PE compare with normal pregnant with a mean

(1751.69±1978.63, 294.12±101.49), that agree with study done by B Namavar Jahromi which concluded that pregnant with PE have increase FDPs level. Regarding d-dimer there was insignificant decrease of d dimer among obese PE compare with non-obese with a mean (1458.99±1398.65, 2095.29±2485.81) respectively (Table 3), indicate the obese PE have an susceptible for thrombosis more readily than non-obese (obesity is a risk factor). Regarding trimesters there was a significant increase of d dimer in PE women on third trimester compared with second trimester (Table 4), indicate increase severity.

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