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The Effects of Pregnancy Induced Hypertension on PT and APTT among Sudanese Pregnant Women Attending to Wad Madani Maternity Teaching Hospital - Gezira State

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Original Research Article

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Abstract: Pregnancy-induced hypertension (PIH) is a form of high blood pressure in pregnancy. It occurs in about 7 to 10 percent of all pregnancies, another type of high blood pressure is chronic hypertension - high blood pressure that is present before pregnancy begins. The objective to study The effects of pregnancy induced hypertension on PT and APTT among Sudanese Pregnant women .One hundred (100) pregnant women have PIH included in this study and 55 pregnant women with normal pregnancy as control, coagulation parameters include (PT, APTT). In PIH women the mean age was (30.9±4.7years), the mean of PT in case group was (15.4 ±3.1seconds) and APTT was (34.4± 5.7seconds).
Keywords: PIH, PT, APTT, BP

INTRODUCTION

PIH is defined as hypertension (blood pressure ≥140/90 mmHg) with or without proteinuria (≥ 300 mg/24 hours) emerging after 20 weeks gestation, but resolving up to 12 weeks postpartum[1], for a diagnosis of preeclamptic hypertension, elevated blood pressure is not seen prior to pregnancy[2]. High blood pressure is determined by taking two readings of 140 mmHg or higher systolic over a diastolic reading above 90 mmHg in a pregnant women between four and six hours apart [2, 3]. If prior to pregnancy women had high blood pressure, the measure of hypertension is an increase of systolic blood pressure by thirty points or diastolic blood pressure by fifteen points [3]. In some cases, preeclampsia is asymptomatic and only discovered upon examination.

In other cases, where high blood pressure and proteinuria are observed, other warning signs may also be present. Often, symptoms of preeclampsia mirror expected symptoms in pregnancy. As a result, preeclampsia is not always discovered early. Swelling due to fluid retention may occur, but when this edema is localized in the face or hands or severe enough that pitting occurs it may be a sign of preeclampsia [4]. The concentration of many coagulation factors is increased during pregnancy (example : F II, F V, F VIII, F IX, F X, F XII) and, especially, fibrinogen , reaching doubled values at delivery compared with the values at the beginning of pregnancy[5]. Prothrombin time (PT) and APTT are the most commonly used tests in coagulation therapy monitoring and for the detection of coagulation defects today. They are both considered as being functional tests as they measure enzymatic activities that lead to clot formation [6]. During pregnancy the haemostatic system changes towards a more procoagulant state and lower levels of natural anticoagulants like protein S and C. There is also an increase in levels of coagulation factor V, VII, VIII, IX, XII and D-dimer. These changes are protective of excess bleeding at the time of delivery and the haemostasis changes back to a normal status gradually post-partum [7].

MATERIALS & METHOD

This case control study that will be carried out at Wad Madani Maternity Hospital Gezira state in period from July 2014 to August 2016.The study group includes 100 PIH women and 55 normal pregnant women as control group.

Inclusion criteria

All Pregnancy induced hypertensive women who attended to the hospital in outpatient and indoor.

Exclusion criteria

Previous history of Diabetes mellitus

- Previous history of renal disease
- Previous history of thyroid disorder
- Previous history of hypertension

Data collection and analysis

Data were collected by using a questionnaire, which is designed to collect and maintain all valuable information from the cases and controls .Data analysis using SPSS (20)

Specimen collection

2.5ml of blood anti-**co**agulated with EDTA and 2.5ml of blood anti-coagulated with sodium citrate were collected from the cases and control to perform prothrombin time and activated partial thromboplastin time.

RESULTS

The study group includes 100 PIH woman and 55 normal pregnant women as control group .The study revealed that the mean age of women with normal pregnancy was (27.4 ±5.8years) (Table 1) , while the mean age of women with PIH was (30.9±4.7years) (Table2). The mean of systolic blood pressure in women with normal pregnancy was (119.9±1.5mmHg) and the mean of diastolic blood pressure was(76.4±5.7mmHg) (Table 1). While the mean of systolic blood pressure in women with PIH was(143.3±13.4mmHg), and the mean diastolic blood pressure was(94.6±10.0mmHg) (Table2) .

Table-1: Discreptive study of age, gravida, para, gestaional age, systolic and diastolic blood pressure in control group

	N	Minimum	Maximum	Mean	Std. Deviation
Age	55	16.00	37.00	27.4000	5.87399
Gravida	55	1.00	11.00	3.1273	2.25302
Para	55	.00	7.00	1.7818	1.84281
Systolic Blood Pressure	55	110.00	124.00	119.9455	1.52046
Diastolic Blood Pressure	55	70.00	90.00	76.4909	5.70533
Gestational Age	55	20.00	40.00	34.8182	4.97807

Table -2: Discreptive study of age, gravida, para, gestaional age, systolic and diastolic blood pressure in cases group

	N	Minimum	Maximum	Mean	Std. Deviation
Age	100	20.00	40.00	30.9200	4.70048
Gravida	100	1.00	11.00	2.7600	2.03067
Para	100	.00	9.00	1.5400	1.74321
Systolic Blood Pressure	100	120.00	190.00	143.3600	13.47090
Distolic Blood Pressure	100	70.00	110.00	93.6700	10.05747
Gestational Age	100	20.00	40.00	34.5500	4.35165

Table-3: Comparative of Prothrombin time(PT) in cases and their control

			Group		P-Value
			Control	Case	
PT	11-15 Normal	N	48	50	0.000
		%	87.3%	50.0%	
	Prolonged	N	7	50	
		%	12.7%	50.0%	
	Total	N	55	100	
		%	100.0%	100.0%	

50% of cases have prolonged in PT with p-value (0.000) that's mean there was highly significant difference in prothrombin time between cases and their control.

Table-4: Comparative of Activated partial thrompoplastin time (APTT) in cases and their control

			Group		P-Value
			Control	Case	
APPT	< 25 Mild	N	0	1	0.765
		%	.0%	1.0%	
	11-15 Normal	N	48	86	
		%	87.3%	86.0%	
	Prolonged	N	7	13	
		%	12.7%	13.0%	
	Total	N	55	100	
		%	100.0%	100.0%	

13% of cases have prolonged in APTT with p-value (0.765) that's mean there was no significant in activated partial thromboplastin time between cases and their control.

DISCUSSION

Preeclampsia is an idiopathic multisystem disorder specific to human pregnancy and the puerperium[8]. Hematological abnormalities such as thrombocytopenia and decrease in some plasma clotting factors may develop in pre-eclamptic women[9]

In my study there was 50% of cases have prolonged in PT, 13% prolonged APTT. This study agree with study done by omyma abdelrahim[10] among sudanese hypertensive pregnant women were documented that there was prolongation in the level of prothrombin time , also my study agree with Nirmala T1, Kumar Pradeep L. 2 *, Vani B R.3 , Murthy Srinivasa V.4, Geetha R L5 [11] and FitzGerald *et al*.[12], this study also agree with C Vijaya Lakshmi[13] showed that there was prolonged in PT and APTT in PIH patients , and disagree with Onisai *et al*.[14] that observed no change in PT and APTT in their study.

CONCLUSSION

This study which was conducted to study the effects of PIH on coagulation profile of pregnant women attended wad madani maternity teaching hospital revealed that APTT & PT were prolonged.

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