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Assessment of Prothrombin Time, Activated Partial Thromboplastin Time And Platelets in women With Ante Partum And Post Partum Hemorrhage in Sudan, Khartoum

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Abstract
Background*: Postpartum Hemorrhage is commonly defined as a blood loss of 500 ml or more within 24 hours after birth Antepartum hemorrhage is defined as bleeding from or in to the genital tract, occurring from 24 weeks of pregnancy and prior to the birth of the baby.*
Objective*: The purpose of this study was toassess Prothrombin Time, Activated Partial Thromboplastin Time and Platelets count in women with ante partum and post partum hemorrhage.*
Materials and Methods: *One hundred samples were included in this study represent case group with ante partum and post partum. 30 samples were collected from normal pregnants, which represent control group.*
Results: *The results showed that the mean± SD of age, PT, PTT and Platelets in case group were 28.22(± 5.33)years, (15.05) (± 1.87)) second , (32.70) (± 4.41) secondand258.12X10^3/µl (±75.22) withP.value,(0.479), (0.065),(0.051),(0.000) respectively. While the mean± SD of age, PT, PTT and Platelets in control group were 27.33 (± 5.53) years, (14.20) (±1.97) second, 31.54 (± 3.06) second. and 338.56 x10^3/µl (± 56.29) respectively.*
Conclusion: *This study concluded that PT and APTT and Platelets count were normal in women with ante partum and post partum hemorrhage compared to normal pregnant ladies.*
Keywords: *Sudanese, antepartum and postpartum hemorrhage, PT, APTT, Platelets.*

I. Introduction

Hemorrhage is the major cause of maternal mortality and morbidity worldwide. .[1]

1 It is responsible for 44% of maternal. death in Africa.[2] More than 536,000 women die every year from pregnancy-related complications (malaria-related anemia, ante partum and postpartum hemorrhage). [3]Up to20% of all maternal mortality and 15% of child death in most African settings are attributable to the lack of access to safe and adequate blood and blood products to managemalaria-associated complications, nutritional anemia, and hemorrhages .Postpartum Hemorrhage is commonly defined as a blood loss of 500 ml or more within 24 hours after birth, is leading cause of maternal mortality in low-income countries. Most deaths resulting from PPH occur during the first 24 hours after birth: the majority of these could be avoided through the use of prophylactic uterotonics during the third stage of labour and by timely and appropriate management. [5]

Even in developed countries, for example The Netherlands, PPH causes 13% of all recorded maternal deaths. [6]

PPH was classified into two types, primary and secondary, primary is defined as blood loss of greater than 500 ml due to vaginal delivery and loss of 1500 ml due to C section within first 24 hours of delivery. [7 , 8]. Secondary is defined as excessive vaginal blood loss or heavy lochial discharge occurring at least 24 hours after the end of the third stage of labor. [9]

Ante partumhemorrhage is defined as bleeding from or in to the genital tract, occurring from 24 weeks of pregnancy and prior to the birth of the baby. The most important causes of APH are placenta praevia and placental abruption.

II. Materials And Methods

This study a case control study, conducted in Khartoum, Sudan,Omdurman Maternity hospital, in the period from September to December 2016. 100 samples were included in this study for assessment of PT, APTT and Platelets count in women with ante partum and post partum hemorrhage. 30 samples were collected from normal pregnants which represent control group. Five ml of blood were collected from each subject by clean venous puncture, 3ml of which was placed in EDTA container for assessment of platelet count and other two ml was placed in Sodium citrate anticoagulant for measurement of PT and PTT. This study was approved by ethical committee of ministry of health, and informed consent was obtained from each participant before sample

collection, The mean± SD of each parameter were determined and then compared between the case group and control group by calculating the P.value, the data were analyzed using SPSS21.

Pt And Ptt Assessment

PT was measured by delivering 0.1 ml of patient platelet poor plasma in to containing stir in semi-automated coagulometer (COATRON-MI) diagnostic stage, 0.2 ml was added of classified thromboplastin (CAT NO:PT200150)by automatic pipette, then pressing start at that moment. The machine recorded the measurement time at the moment which the clot was formed. APTT was measured by delivering 0.1 ml of patient platelet poor plasma in to containing stir in semi-automated coagulometer (COATRON-MI) diagnostic stage, 0.1 ml of the Kaolin-phospholipid solution(CAT NO: APTT202180) was added by automatic pipette and start the stopwatch simultaneously after 3 minutes added 0.1 ml of CaCL2 then pressing start at that moment. The machine recorded the measurement time at the moment which the clot was formed.

Platelets measured by using Sysmex Kx-21N

III. Results

In atotal of 130 samples included in this study, 30 as control and other 100 were women with ante partum and post partum hemorrhage, as case group. Among case group there were (57) women with ante partum hemorrhage and rest of them (43) were in postpartum hemorrhage. The distribution of patients with ante partum hemorrhage according to gestational age was follow, 31 (54 %), 8 (14%) and 18(32%) in first trimester, second trimester and third trimester respectively. The results showed that the mean± SD of age, PT, PTT and Platelets in case group with ante partum and post partum were 28.22 (± 5.33) years, (15.05 (± 1.87)) second , (32.70) (± 4.41) second and 258.12X10^3/µl (± 75.22) respectively, While the mean± SD of age, PT, PTT and Platelets in control group were27.33 (± 5.53), 13.20 (±1.15), 31.00 (± 3.06) and 338.56 (± 56.29) respectively.

figure 1. Distribution of antepatrum among different trimesters

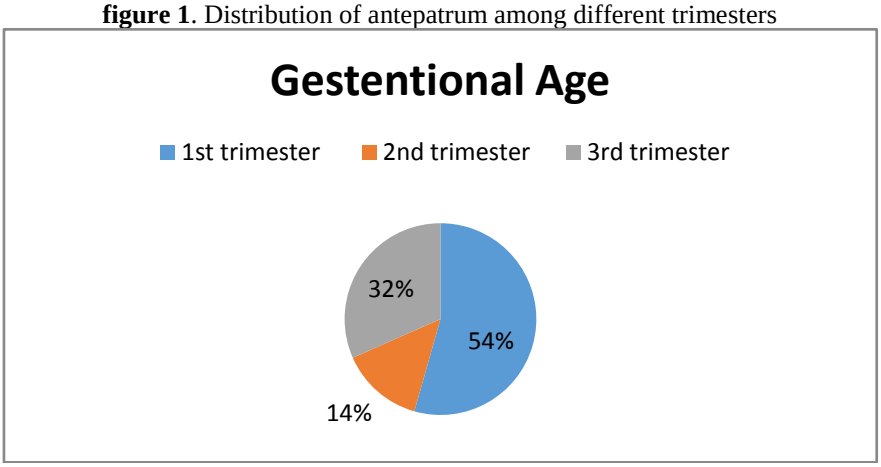


Table 1. Distribution of study groups among Prima and multi gravity

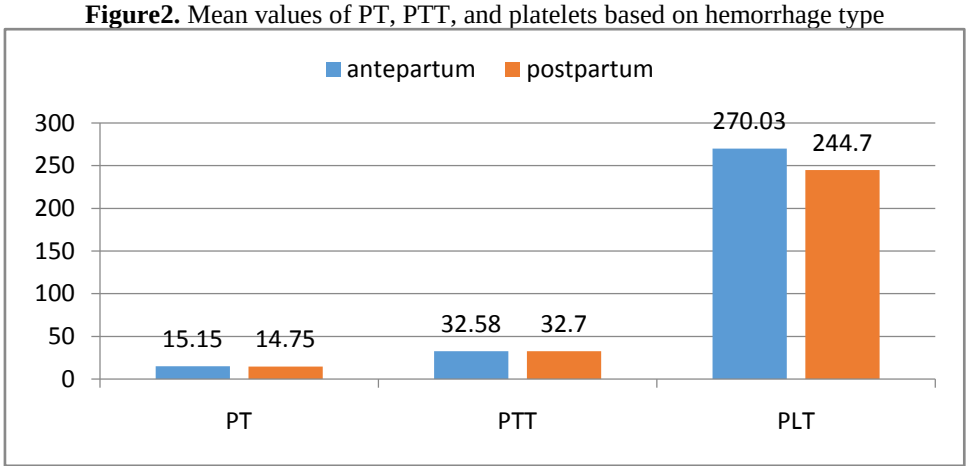
Gravity	Case	Control
Prima gravity + antepartum	32 (32%)	0 (0%)
Multi gravity + antepartum	25 (25%)	0 (0%)
Prima gravity + postpartum	19 (19%)	0 (0%)
Multi gravity + postpartum	24 (24%)	0 (0%)
Prima gravity	0 (0%)	15 (50%)
Multi gravity	0 (0%)	15 (50%)
Total	100 (100%)	30 (100%)

Table 2. Mean of age, PT, PTT and platelets among case and control groups

	Case (± SD)	Control (± SD)	P. value
Age	28.22 (± 5.33)	27.33 (± 5.53)	0.479
PT (seconds)	15.05 (± 1.87)	14.20 (±1.97)	0.065
aPTT (seconds)	32.70 (± 4.41)	31.54 (± 3.06)	0.051
Platelets (10^9/L)	258.12 (± 75.22)	338.56 (± 56.29)	0.000

The P.value of Age, PT, APTT and Platelets in case group is (P=0.479). (P=0.065), (0.051), (P=0.000) respectively.

Figure2. Mean values of PT, PTT, and platelets based on hemorrhage type



The mean of PT, PTT, and platelets in ante partum and postpartum did not show significant difference with P.value> 0.05.

Table 3. Frequency of Abnormal Result:

	Frequency	Percent
Prolonged PT	9	9%
Prolonged PPT	11	11%
Decreased platelet	13	13%
Ante partum	8	61.5%
Post partum	5	38.5%
Total	13	100%

Table 4. Mean of PT

	Antepatrum			P. value
	1st trimester	2nd trimester	3rd trimester	
PT (seconds)	24.80 (±3.83)	23.75 (± 4.55)	23.77 (±4.57)	0.649
aPTT (seconds)	48.41 (± 4.48)	48.85 (±7.19)	49.66 (±8.95)	0.815
Platelets (10^9/L)	259.12 (±68.35)	245.37 (±84.32)	291.72 (±55.00)	0.156

, PTT and platelets in patients with ante partum in different trimesters

The mean of PT, PTT, and platelets in ante partum among different trimesters didn't show significant difference with (P=0.649), (P=0.815) and (P=0.156) respectively.

IV. Discussion

Our results showed the mean of PT and PTT and platelets count were in patients is significant. A study was done by O Erhabor et al[11]went reverse with our study, in that there is significant prolongation in PT (23.17) ± 2.708 Second and PTT (53.78) ± 4.089 seconds in women with obstetric hemorrhage.

V. Conclusion

This study concluded that PT and APTT were normal in women with ante partum and post-partum hemorrhage with normal limit in Platelets count.

Acknowledgement

I dedicate this work to my mother, myself, my friends and supervisor.

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