

An Observational Study done in Tertiary Care Teaching Hospital to Evaluate the Effect of Coagulation Profile in in Early and later part of Third Trimester of Pregnancy

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Abstract

Original Research Article

Objective and AIM: Many changes in coagulation profile associated with Normal pregnancy. For thromboembolism during pregnancy and labour these changes are important for intrapartum blood loss. The present study aimed at to find out in early and later part of third trimester the quantitative change in coagulation profile. **Method:** This prospective observational study was done among 70 cases of pregnant women in third trimester at katihar Medical College and Hospital at Katihar in Bihar District. Among which 41 cases are in 29th to 34th wks and 29 cases are within 35th to 39th wks of gestation. 70 ages matched healthy child bearing age group female were taken as control. Coagulation time, bleeding time and platelet count were done in each control and cases. **Result:** At 29th to 34th wks the mean platelet count in pregnancy was more than that of non-pregnant but at 35th to 39th wks the value was less in pregnancy. Similarly in third trimester than the non-pregnant mean bleeding time and coagulation time were also increases. But in 35th to 39th both the values are decreases than the 29th to 34th wks. In later part of pregnancy women platelet count was progressively decreased compared to non-pregnant women. **Conclusion:** Bleeding disorder and thromboembolism are two major complications of pregnancy. Proper study of coagulation profile is necessary to prevent the complication.

Keywords: Bleeding time, patelet count, coagulation time, and thromboembolism.

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INTRODUCTION

Many hematological, biochemical and clinical changes is associated with normal pregnancy. Maternal and fetal outcome is contributed by haemostatic changes of hematologic profile. State of hypercoagulability creates most changes in coagulation profile. Common haemostatic abnormality observed in pregnancy is the thrombocytopenia [1]. The increase in mean platelet volume at least in part this is due to haemodilution suggests that a compensated state of progressive platelet destruction occurs [2]. Increase concentration of thromboglobulin [3] and of thromboxane A2 derivatives [4] are additional evidence of in vivo platelet activation in late pregnancy.

About 280 days (40 weeks) the normal human pregnancy lasts for and foetus vulnerable to the changes in the mother's internal and external physiological status without any underling medical disorder at the same time makes has a large impact on the well-being of a woman. In the management of pregnancy, both

mother and the foetus are major consideration [5]. The concentrations of Von Willebrand factor and coagulation factors VII, VIII, IX, X, XII rise significantly, accompanied by a relevant increase in the concentration of plasma fibrinogen [6 - 9]. in late pregnancy plasma fibrinogen often increases to over 600 mg/dL [10-12].

Many changes in coagulation profile associated with Normal pregnancy. For thromboembolism during pregnancy and labour these changes are important for intrapartum blood loss. The present study aimed at to find out in early and later part of third trimester the quantitative change in coagulation profile.

METHOD

This prospective observational study was done among 70 cases of pregnant women in third trimester at katihar Medical College and Hospital at Katihar in Bihar District. Before the initiation of the trial

departmental ethical committee approval was taken and consent form obtained from all participants to ensure their voluntary participation.

Among which 41 cases are in 29th to 34th wks and 29 cases are within 35th to 39th wks of gestation. 70 ages matched healthy child bearing age group female were taken as control. Coagulation time, bleeding time and platelet count were done in each control and cases.

The cases having oedema, anaemia, high blood pressure, albuminuria, and abnormalities in cardiovascular, urinary and respiratory system were excluded. By Brecher and Cronkite method platelet

count was done [13]. Dukes method [14] and Sabraze capillary tube method [15] was carried out to determine coagulation time and bleeding time.

SPSS version 20.0 was used to analyse the data. Mean and standard deviation were calculated and reported for quantitative variables. $p < 0.05$ was considered as statistically significant.

RESULTS

The distribution of cases and their results in third trimester together with the controls are summarized in Tables 1.

Table-1: Shows Platelet count in lacs/ cumm in different stages

Sr. no	Different stages	No. of cases	Platelet coun	P Value	Coagulation time	P Value
1	Non pregnant	70	2.396 ±0.408	0.057	3.001 ± 0.508	0.071
2	Pregnant in third trimester	70	2.331 ± 0.419	0.059	3.464 ±0.760	0.010
3	Pregnancy in 29 to 34 wks	41	2.432±0.421	0.014	3.487 ±0.715	0.024
4	Pregnancy in 35 to 40 wks	29	2.191 ±0.381	0.018	3.439 ±0.826	0.028

In table 1, shows the mean platelet count in entire third trimester but it increases in early third trimester of pregnancy than the non-pregnant.

Table-2: Statistical comparison of coagulation profile in the third trimesters to non-pregnant

Parameter	Non Pregnant 50 cases Mean±SD	Pregnant 50 cases Mean±SD	P Value	Cases During 29-34 wks of Pregnancy 29 cases Mean ±SD	P Value	Cases During 35-40 wks of Pregnancy 29 cases Mean ±SD	P Value
Platelet count	2.396±0.408	2.331±0.419	>0.05	2.432±0.421	>0.05	2.191±0.381	<0.05
Coagulation time	1.783±0.203	1.883±0.350	>0.05	1.948±0.291	<0.001	1.844±0.401	>0.05
Bleeding time	3.001±0.508	3.464±0.760	>0.001	3.487±0.715	<0.01	3.439±0.826	<0.01

In bleeding time mean ±SD comparison in non-pregnant to early and later part of third trimester are statistically highly significant. But comparison between early and later part of third trimester is not significant.

At 29th to 34th wks the mean platelet count in pregnancy was more than that of non-pregnant but at 35th to 39th wks the value was less in pregnancy. Similarly in third trimester than the non-pregnant mean bleeding time and coagulation time were also increases. But in 35th to 39 th both the values are decreases than the 29th to 34th wks. In later part of pregnancy women platelet count was progressively decreased compared to non-pregnant women.

DISCUSSION

Now a day in various thrombotic and hemorrhagic states quantitative changes in platelets occur. In recent years regarding coagulation profile in pregnancy, puerperium and Labour considerable amount of works have been done. But there is some lack of uniformity of findings by various factors

nutritional status of the woman, racial and other socio-economic environmental condition.

In the present study decreases in later part of pregnancy showed that the mean platelet count increases in early part of third trimester than the non-pregnant. Than the non-pregnant is due to the hypervolumic status of pregnancy the increase in platelet count in early part of third trimester of pregnancy. Than the early part may be due to fall in plasma volume due to haemodilution, mean platelet count decreases n later part of third trimester of pregnancy and increase utilization or changes in stimulation of production during later part of third trimester of pregnancy [16-18].

In summary, pregnancy is associated with major changes in haemostasis .It includes increases in the platelet count ,decreases in the quality of natural anticoagulants and a reduction in fibrinolytic activity leading to difference in bleeding and coagulation time. These changes are greatest at the time of delivery .Platelet counts may be lower in pregnancy most commonly due to gestational thrombocytopenia or ITP

and it is more marked in later part of third trimester of pregnancy.

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