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RESEARCH ARTICLE
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FETOMATERNAL OUTCOME IN PREGNANCY WITH GESTATIONAL THROMBOCYTOPENIA

Dr. Aishwarya Meshram[1], Dr. Azmat Jahan Mantoo[2], Prof. Dr. Cimona Lyn Saldanha[3], Dr Umer Hamid[4*]

[4*]SKIMS SOURA, Srinagar, Jammu & Kashmir. Email:Umerhamid210@gmail.com
[1]Email:draishwaryameshram@gmail.com

***Corresponding Author:** Dr. Umer Hamid
*SKIMS SOURA, Srinagar, Jammu & Kashmir. Email:Umerhamid210@gmail.com

ABSTRACT

BACKGROUND: Thrombocytopenia is second most common hematological abnormality during pregnancy, and is found to complicate 7% to 8% of pregnancy in India. Thrombocytopenia in pregnancy may be an isolated findings or it may be associated with systemic disorders like severe preeclampsia, HELLP syndrome(hemolysis, elevated liver enzymes, low platelets), or AFLP(acute fatty liver of pregnancy).

OBJECTIVE : To study the cases of thrombocytopenia during pregnancy and its effect on feto-maternal outcome.

MATERIAL AND METHODS: A prospective observational study was carried out in tertiary hospital, 422 pregnant women who attended the antenatal clinic regularly were enrolled (>30 weeks of gestation). Out of 422 pregnant women, n=211 were women with normal platelet count were taken as control group and those with low count (<150×10^9/L) ,n= 211 were included in the study group.

RESULTS: the mean age of study group was 28.65±2.67 years and in control group was28.87±2.61 years.maternal and perinatal complications like intra op oozing(21.32%), PIH(22.75%), need for transfusion (22%,)hematoma formation(7%), neonatal jaundice (17.06%),neonatal thrombocytopenia (17.53%), birth asphyxia(9.04%),NICU admission(17.53%), need for resuscitation (30.33%),low apgar[<7](32.23%) etc. were more in patients with thrombocytopenia as compared to their age and parity matched controls.

CONCLUSION: Study results showed , pregnancies with gestational thrombocytopenia were at higher risk of low Apgar scores, higher rate of admission to the NICU, intracranial hemorrhage , neonatal death or adverse maternal outco×me as compared to the control group.

KEYWORDS: Gestational thrombocytopenia, maternal outcome, fetal outcome

INTRODUCTION

After anemia, thrombocytopenia is the 2nd most common hematological abnormality encountered during pregnancy and is found to complicate 7% to 8% of pregnancy in India, mostly in 3rd trimester [1] Overall incidence of thrombocytopenia in pregnancy is 8%, but when patients with obstetric or medical conditions are excluded, the incidence drops to 5.1% [2] Thrombocytopenia in pregnancy may be an isolated findings or it may be associated with systemic disorders like severe preeclampsia , HELLP syndrome(hemolysis, elevated liver enzymes, low platelets), or AFLP(acute fatty liver of pregnancy). Furthermore, autoimmune diseases, including systemic lupus erythematosus, antiphospholipid syndrome, thrombotic thrombocytopenic purpura, hemolytic uremic syndromic, and immune thrombocytopenia may relapse or be first detected during pregnancy resulting in thrombocytopenia[3]

The mechanism(s) of Gestational thrombocytopenia has not been documented , but it may be assumed to be a physiologic adaptation or pregnancy related to the increased plasma volume, pooling or consumption of platelets in the placenta , or changes that occur in uncomplicated pregnancies. The placenta has many vascular characteristics in common with the spleen, a major site of physiologic platelets sequestration. An analysis of placental histology following 40 scheduled cesarean deliveries found that platelets were present in many areas in the perivillous fibrinoid, supporting the concept that platelets sequestration and consumption in the placenta plays a role in gestational thrombocytopenia. A possible role for the PEAR1,CBL, and TUBB1 genes are under study.
GT resolves postpartum, but in some instances, the return to a normal platelet count requires more than six weeks. A normal prepregnancy platelet count is helpful but not always available. A history of mild thrombocytopenia during a previous pregnancy supports the diagnosis of GT because the risk of recurrent GT is 14-fold.[4]

CRITERIA FOR GESTATIONAL THROMBOCYTOPENIA *:*

1. Mild and asymptomatic thrombocytopenia.
2. No past history of thrombocytopenia (except during previous pregnancy).
3. Occurrence during late gestation .
4. No association with fetal thrombocytopenia.
5. Spontaneous resolution after delivery.

AIM: The aim of this study was to know the maternal and fetal outcome among pregnant women with gestational thrombocytopenia .

METHODS

This prospective observational study design was carried out in department of obstetrics and gynecology at sher-I-kashmir institute of medical sciences, soura Srinagar over period of 6 months from January 2024 to June 2024

INCLUSION CRITERIA

- All females after 30 weeks with gestational thrombocytopenia who gave consent to participate in the study.

EXCLUSION CRITERIA

- Females with history of D.M.
- Collagen disorders
- Autoimmune diseases
- Tuberculosis
- Leukemias
- Known case of bleeding disorder
- Seizure disorder

METHODOLOGY :

A total of 422 patients were included in the study after applying inclusion and exclusion criteria . The subjects were screened for thrombocytopenia with a complete blood count and peripheral smear.211 subjects were found to have thrombocytopenia with a platelet count of < 1,50,000 and were taken as cases. 211 age and parity matched term pregnant women having a normal platelet count were taken as controls.
The following characteristics were compared:
Intra and postpartum complications such as placental abruption, postpartum bleeding , need of blood products, mode of delivery ,anesthesia complications, wound complications.

Fetal outcomes with regard to neonatal thrombocytopenia , APGAR Score , birth asphyxia , fetal bleeding complications , neonatal jaundice , NICU admission were compared.

RESULTS :

Normal pregnancy is associated with a physiologic fall in the platelet count that is characterized by a leftward shift in the platelet count distribution .[5] Obstetricians need to rule out pathological causes of thrombocytopenia by judicious use of investigative modalities, so that unforeseen fetomaternal complications can be predicted and managed. The gestational thrombocytopenia usually needs no treatment if there is no bleeding tendency. However , in the presence of other bleeding diathesis ,preexisting thrombocytopenia may worsen the condition .

A prospective observational study was conducted to study the fetomaternal outcome in pregnancies complicated by gestational thrombocytopenia .

The study and the control groups had comparable age , gravidity and period of gestation . The mean age in the study Group was 28.65±2.67 years while that in control group was 28.87±2.61, likewise mean parity was 2.13±0.97 and 2.03±0.81 in the respective groups and mean gestational age was 38.67±1.53 and 38.35±1.12 in Group A and B respectively. Majority of the subjects in both the groups had received antenatal care prior to diagnosis of thrombocytopenia.

About 6.64% of the subjects in the study Group had previous history of thrombocytopenia. 22.75% subjects in study group and 3.80% subjects in control group had previous history of blood transfusion. Majority of the subjects took iron supplementation during the antenatal period in both the groups. History of Corticosteroid therapy in this pregnancy was present in 4.74% and 1.42% subjects in the respective groups.

	STUDY GROUP		CONTROL GROUP	
	Number	%	Number	%
Age	28.65±2.67		28.87±2.61	
Gravida	2.13±0.97		2.03±0.81	
Gestational Age	38.67±1.53		38.35±1.12	
Followed Antenatal Care previously				
Yes	194	91.94%	200	94.78%
No	17	8.06%	11	5.22%
Previous history of thrombocytopenia				
Yes	14	6.64%	4	1.89%
No	197	93.36%	207	98.11%
Previous history of blood transfusion				
Yes	48	22.75%	8	3.80%
No	163	77.25%	203	96.20%
History of iron supplementation in the current pregnancy				
Yes	206	97.63%	204	96.68%
No	5	2.37%	7	3.32%
Corticosteroid therapy in this pregnancy				
Yes	10	4.74%	3	1.42%
No	201	95.26%	208	98.58%

Maternal complications seen in study Group A with thrombocytopenia were intraoperative oozing (21.32%), PIH (22.75%), HEMATOMA FORMATION (3.31%) postpartum haemorrhage (5.21%), need for transfusion of blood or blood products (10.42%), placental abruption (2.0%) were more than in control group which was statistically significant.

MATERNAL COMPLICATIONS COMPARISON IN STUDY / CONTROL GROUP				
	Study group		Control group	
	Number	%	Number	%
Abruption	2	0.94%	0	0
PPH	11	5.21%	6	2.84%
Intra op oozing	45	21.32%	8	3.80%
PIH/HELLP	48	22.75%	18	8.53%
Hematoma	7	3.31%%	4	1.90%
Need for transfusion of blood products	22	10.42%	3	1.42%

Thrombocytopenia per se does not affect mode of delivery. In the study Group 59.7% had vaginal delivery, 39.4% had caesarean section (CS) and 0.9%had instrumental delivery. All the caesarean sections were performed for obstetric/medical indications and none for thrombocytopenia. In control group, 61.6% had normal vaginal delivery, 36.5% had LSCS , 1.9% had instrumental delivery.

MODE OF DELIVERY				
	Study group		Control group	
	Number	%	Number	%
NVD	126	59.7%	130	61.6%
Instrumental	2	0.9%	4	1.9%
LSCS	83	39.4%	77	36.5%

Parameters studied to observe the effect of maternal thrombocytopenia on fetal well-being included birth weight, Apgar score, fetal bleeding complications . More perinatal complications were seen in study group than in control group.

	Study group		Control Group	
	Number	%	Number	%
Jaundice	36	17.06%	13	6.16%
Respiratory distress syndrome	17	8.05%	7	3.31%
IUGR/SGA	12	5.4%	4	1.89%
Neonatal thrombocytopenia	37	17.53%	11	5.21%
Birth Asphyxia	19	9.04%	7	3.31%
Intracranial hemorrhage	0	0	0	0
MAS	22	10.42%	13	6.16%

Majority of the babies in both the groups had their birth weight falling between 3.1-3.5 kg.

	Group A		Group B	
	Number	%	Number	%
1.5-2kg	10	4.7%	2	0.9%
2.1-2.5kg	22	10.4%	6	2.84%
2.6-3.0kg	37	17.53%	24	11.37%
3.1-3-5kg	120	56.87%	147	69.66%
>3.5kg	22	10.4%	32	15.16%

Apgar scores of the babies in the two groups is as under :

	Group A		Group B	
	Number	%	Number	%
<7	68	32.23%	24	11.37%
>7	143	67.77%	187	88.62%

Sixty four babies in Group A and twenty three in Group B needed resuscitation in the form of bag and mask ventilation which was statistically significant result.

	Group A		Group B	
	Number	%	Number	%
Resuscitation	64	30.33%	23	10.9%
No resuscitation	147	69.66%	188	89.1%

Among the 211 patients in Group A, thirty seven babies got admitted in the NICU in view of jaundice and neonatal thrombocytopenia and birth asphyxia. On the other hand, seventeen babies in Group B required NICU admission in view of respiratory distress which was statistically significant.

	Group A		Group B	
	Number	%	Number	%
Admission	37	17.53%	17	8.06%
No admission	174	82.47%	194	91.94%

DISCUSSION :

Platelets are non nucleated cellular fragments of megakaryocytes, they play a role in hemostasis. As the pregnancy advances, platelet count decreases. This is due to hemodilution , secondary to expansion of plasma volume.

In the present study , the incidence of maternal thrombocytopenia was 11.72% which was comparable to the results of other studies

Mean age of women with thrombocytopenia was 28.65±2.67 years and in pregnant women without thrombocytopenia it was 28.87±2.61 which was comparable in both groups.

In the present study the enrolled women had parity of 2.13±0.97 and 2.03±0.81 in the respective study groups , which was comparable between the two groups.

The mean gestational age at delivery in this study was 38.67±1.53 weeks. In the study conducted by Lin et al and Kasai et al the age was similar to our study, 39 weeks and 38 weeks respectively.[8][9]

Majority of the subjects in both the groups had received antenatal care prior to diagnosis of thrombocytopenia.

Approximately 6.64% of the subjects in the study Group A had previous history of thrombocytopenia. In Group A 22.75% subjects and in Group B 3.80% subjects had prior history of blood transfusion. Majority of the subjects took iron supplementation during the antenatal periods in both the groups. In Group A 4.74% subjects and in Group B 1.42% subjects had history of corticosteroid therapy in this pregnancy. These results were similar in the studies conducted by Parfumi et al and Belayneh et al[11][12]

Maternal complications seen in the study Group A with thrombocytopenia like intraoperative oozing(21.32%),PIH(22.75%),hematoma formation (3.31%),postpartum haemorrhage (5.21%),need for transfusion of blood and blood products(10.42%),placental abruption(2.0%) which were more than that in group B. These results were similar in the studies conducted by Arora et al, Chauhan et al, Vishwekar et al ,Brohi et al.[13][7][6][14]

Thrombocytopenia per se does not affect mode of delivery, and normal vaginal delivery was more common in thrombocytopenia in study Group A (59.7%) and Group B(61.6%),this results were in accordance with the study by Chauhan et al, Vishwekar et al[7][6] . All the caesarean sections were performed for obstetric/medical indications and none for thrombocytopenia.

The common perinatal complications seen in this study are neonatal thrombocytopenia, jaundice, MAS, birth asphyxia, RDS and low Apgar score which were in studies conducted by Gilmore et al, Chauhan et al[10][7]

Low Apgar score, need for neonatal resuscitation, low birth weight, NICU admission were more common in thrombocytopenia in this study which is similar to studies conducted by Somani et al and Onisai et al[15][5]

CONCLUSION

Gestational thrombocytopenia is the commonest cause of pregnancy related thrombocytopenia. The early interdisciplinary evaluation of GT is required for optimal care of mother and the neonate.
The present study shows that pregnancies with gestational thrombocytopenia were at high risk of low apgar scores, higher rate of admission to the NICU, intracranial hemorrahge , neonatal death or adverse maternal outcome as compared to the control group.

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