Section: Obstetrics and Gynecology

Original Research Article

A STUDY ON EVALUATION OF THROMBOCYTOPENIA IN PREGNANCY AT TERTIARY CARE HOSPITAL

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ABSTRACT

Background: Upto 12% of pregnancies are affected by pregnancy-induced thrombocytopenia, according to a research. It usually manifests without severe symptoms or clinical indicators in the third trimester and is modest. There is paucity of research that has focused on the same from south Indian settings. The aim is to Evaluate the thrombocytopenia in pregnancy. **Materials and Methods:** We did this as a hospital based study in our college OG department of GDMCH to evaluate the causes of thrombocytopenia in pregnancy and to determine the maternal and fetal outcome in thrombocytopenia mothers. Detailed clinical history, obstetric examination was done and all relevant investigations were done and the values were entered into a semi- structured data collection proforma. Patients were followed up until the delivery to note the maternal and neonatal outcomes. **Result:** We included 100 participants, of whom 54% were between 26-30 years, and 46% at 36 weeks of gestational age. Parity was almost evenly split between primi parous (53%) and multiparous (47%) women. Comorbidities included gestational diabetes mellitus (24%), gestational hypertension (26%), heart disease (5%), and thyroid disease (12%). Thrombocytopenia was primarily due to obstetric causes (76%), with gestational thrombocytopenia being the most common (48.6%). Other obstetric causes - HELLP syndrome (25%), 9% had eclampsia , DIC among 15% and fatty liver in 1.3%. **Conclusion:** Thus our study warrants the use of comprehensive techniques to evaluate thrombocytopenia to diagnosis and management at the earliest during pregnancy. The study provides a comprehensive evaluation of thrombocytopenia in pregnancy within a South Indian cohort. The findings emphasize that gestational thrombocytopenia, pre-eclampsia, and eclampsia are the predominant obstetric causes, while immune thrombocytopenia and dengue fever are significant non- obstetric contributors.

INTRODUCTION

In the general population, thrombocytopenia is often taken as thrombocyte count less than 150 ×103/μL. While in pregnant women the typical average is greater than 116 × 103/μL for platelets. In 5%–10% of pregnancies during the postpartum phase, thrombocytopenia develops.[1] Upto12% of pregnancies are affected by pregnancy- induced thrombocytopenia, according to a research.[2] It was shown that in almost 75% of thrombocytopenic pregnant women, Gestational Thrombocytopenia (GT) was the reason of low platelets.[3] It usually manifests without severe symptoms or clinical indicators in the third trimester and is modest.[4,5]

We need to rule out other causes of thrombocytopenia before diagnosing GT. ITP (42.3%) and GT (34.6%) were the most common causes of moderate to severe low platelet counts, according to research by Kim et al.[6] When compared to GT, ITP often has much lower platelet counts (52.4 × 103/μL vs. 80.5 × 103/μL, P=0.041).[6] A different study found that GT was seen in 59% and preeclampsia among 22%. Disseminated intravascular coagulation (DIC), antiphospholipid syndrome, dilutional thrombocytopenia, and myeloproliferative neoplasm accounted for 8% of instances with thrombocytopenia in pregnancy.[4] GT is a benign, self-limiting illness that is frequently seen in the third trimester, has no negative consequences, and doesn't need further testing or treatment.[7] For those who did not previously have a history of low platelet counts prior to pregnancy, GT improves quickly throughout the postpartum phase.[8] Severe

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thrombocytopenia (<100 × 103/μL or 70 × 103/μL) during pregnancy is not usually associated with GT; therefore, other possible causes need to be ruled out.[9,10]

Aims and Objectives

- To evaluate the thrombocytopenia in pregnancy.
- Incidence and causes of thrombocytopenia in pregnancy.
- Maternal and fetal outcome in thrombocytopenia mothers.

MATERIALS AND METHODS

We conducted a hospital based prospective observational study in obstetrics and gynaecology department of GDMCH for 1 year period. Detailed clinical history, obstetric examination was done and all relevant investigations were done and the values were entered into a semi-structured data collection proforma. Patients were followed up until the delivery to note the maternal and neonatal outcomes.

Study Participants: Antenatal women with thrombocytopenia attending the hospital during the study period.

Sample Size: 100 Antenatal Women

Sampling Method: Consecutive sampling

Inclusion Criteria

All antenatal women with platelet count less than 1,50,000

Exclusion Criteria

All antenatal women with platelet count more than 1,50,000.

RESULTS

The study included100 participants, primarily aged between 26-30years (54%), with smaller proportions being under 25 years (26%) or over 30 years (20%). Gestational age varied, with nearly half of the participants (46%) beyond 36 weeks, while 27% each were in the <28 weeks and 28-36 weeks categories. Parity was almost evenly split, with 53% being primiparous and 47% multiparous. Only 12% had a previous history of thrombocytopenia, and the majority (88%) did not.

The marital history revealed that 13% of the participants had consanguineous marriages, while a significant majority (87%) were in non-consanguineous marriages [Table 1].

Table 1: General Characteristics

Characteristic	Category	Frequency (%)
Age Group	<25 years	26 (26.0%)
	26–30 years	54 (54.0%)
	>30 years	20 (20.0%)
Gestational Age	<28 weeks	27 (27.0%)
	28–36 weeks	27 (27.0%)
	>36 weeks	46 (46.0%)
Parity	Primi	53 (53.0%)
	Multi	47 (47.0%)
Family History	Yes	12 (12.0%)
	No	88 (88.0%)
Marriage Type	Consanguineous	13 (13.0%)
	Non-consanguineous	87 (87.0%)

Table 2: Causes of Thrombocytopenia.

Causes	
Obstetric causes	76 (76.0)
Non –obstetric causes	24(37.5)

The study investigated 100 participants to identify the causes of thrombocytopenia, with findings categorized into obstetric and non-obstetric causes. Obstetric causes accounted for the majority (76%), while non-obstetric causes made up 24%. [Table 2]

Table 3: obstetric causes.

Obstetric causes	
Gestational thrombocytopenia	37(48.6)
Pre-Eclampsia(HELLP)	19(25.0)
Eclampsia	7(9.2)
DIC(Atonic PPH/ Abruptio placenta)	12(15.7)
Acute fatty liver of pregnancy	1(1.3)

Within the obstetric causes, gestational thrombocytopenia was the most prevalent, affecting 48.6% of the participants. Pre-eclampsia, including HELLP syndrome, was responsible for 25% of the cases, followed by eclampsia at 9.2%. Disseminated intravascular coagulation (DIC), associated with atonic postpartum hemorrhage (PPH) or abruption placenta, accounted for 15.7% of cases, and acute fatty liver of pregnancy was identified in 1.3%. [Table 3]

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Table 4: Non-Obstetric Causes

NON-OBSTETRIC CAUSES	
Immune thrombocytopenia	10(41.6)
Dengue	9(37.5)
DIC(severe anemia)	5(20.8)

For non-obstetric causes, immune thrombocytopenia was the most common, affecting 41.6% of the participants in this category. Dengue fever was the cause in 37.5% of the non-obstetric cases, highlighting the impact of infectious diseases on platelet counts. DIC due to severe anemia accounted for 20.8% of the non-obstetric thrombocytopenia cases, indicating that severe anemia is also a significant non- obstetric contributor to thrombocytopenia. [Table 4]

Table 5: Outcome

MODE OF DELIVERY	
LSCS	52(52.0)
Vaginal	38(38.0)
Operative delivery	10(10.0)
NEONATAL OUTCOMES	
Alive	94(94.0)
Mother Side	55(55.0)
NICU admission	39(39.0)
IUD	3(3.0)
Still birth	3(3.0)
BIRTH WEIGHT	
<2.5kgs	48(48.0)
>2.5kgs	52(52.0)
APGAR	
Normal	46(46.0)
Abnormal	54(54.0)

The study on maternal and fetal outcomes for 100 participants with thrombocytopenia revealed - Delivery methods were nearly evenly split between lower segment cesarean sections (LSCS) at 52% and vaginal deliveries at 48%, indicating a balanced approach to delivery mode based on medical necessity and patient condition.

Neonatal outcomes showed that 39% of newborns required NICU admission, reflecting significant neonatal health concerns. Intrauterine demise (IUD) and stillbirth were each recorded at 3%, indicating serious fetal outcomes in a minority of cases.

Birth weights were fairly evenly distributed, with 52% of newborns weighing more than 2.5 kg and 48% weighing less than 2.5 kg, indicating a substantial proportion of low birth weight babies. APGAR scores, which assess the immediate health of the newborn, showed that 54% of the babies had abnormal scores, whereas 46% had normal scores, highlighting the challenges faced by infants born to mothers with thrombocytopenia. These findings underscore the need for careful monitoring and intervention for both maternal and neonatal health in cases of thrombocytopenia. [Table 5]

DISCUSSION

A platelet count of less than 150,000 is referred to as thrombocytopenia.

A platelet count of 100 – 150,000 indicates mild disease, 50000 to 100000 indicates moderate disease and fewer than 50000 indicates severe disease.

Thrombocytopenia during pregnancy occurs with an incidence of 8%; the most common cause, responsible for about 70% of cases, is gestational thrombocytopenia. In otherwise healthy pregnant cases, the platelet count seldom drops below 70×109 /L during the third trimester, when thrombocytopenia is most noticeable.

Twenty-one percent of instances are related to hypertensive conditions, such as pre-eclampsia and HELLP (hemolysis, high liver enzymes, and low platelets count) syndrome. After delivery, the maternal platelet count typically rebounds to normal levels in three to five days. Low platelets cause preterm deliveries, abruption, maternal fatalities and stillbirths. Around 4.1% of cases are immune-mediated thrombocytopenia, which includes idiopathic thrombocytopenia purpura and newborn autoimmune thrombocytopenia.

Systemic lupus erythmatosis, disseminated intra vascular coagulation, antiphospholipid syndrome, thrombotic thrombocytopenia purpura, fatty liver, HIV infection , and medications are some less frequent causes. Although the exact origin of gestational thrombocytopenia is unknown, belevated plasma volume observed during pregnancy may be the culprit. The reticulo endothelial system, especially in the spleen, destroys circulating platelets attached to antibodies in idiopathic thrombocytopenic purpura (ITP), When an antibody penetrates the placenta during pregnancy, the unborn child may have thrombocytopenia. Because of this, treating pregnant women with ITP is a complicated issue, particularly in light of the possibility of bleeding during the antenatal and peripartum stages for both the mother and the fetus.

We basically conducted a hospital-based prospective observational study in the Obstetrics and

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Gynaecology department of GDMCH to evaluate the causes of thrombocytopenia in pregnancy and to determine the Maternal and fetal outcome in 100 antenatal women with thrombocytopenia.

Based on our study findings we put forth the following recommendations:

- It is important to link and implement routine screening for thrombocytopenia in pregnancy, especially among women with high risk
- It is important to develop standardized SOPs for thrombocytopenia in pregnancy that addresses both obstetric and non-obstetric causes.
- In regions where dengue fever is endemic, it is important to consider public health measures targeting vector control and prevention of dengue infection
- Inter disciplinary approach involving pediatrician, obstetricians, neonatologists hematologists, and infectious disease specialists is necessary to approach the disease holistically
- Encourage ongoing research and data collection to better understand the epidemiology and patho-physiology of thrombocytopenia in pregnancy.

CONCLUSION

It is important to do risk stratification in managing pregnant women with thrombocytopenia.

It is necessary to enhance and develop neonatal care protocols to tackle the high NICU admissions highlights.

Educating pregnant women about the potential complications of thrombocytopenia and the importance of adherence to prescribed treatments and monitoring regimens is crucial.

Strengthening health care infrastructure to support comprehensive care for thrombocytopenia in pregnancy is vital.

This includes ensuring availability of diagnostic facilities, therapeutic agents, and trained healthcare personnel capable of managing complex cases.

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