Section: Obstetrics and Gynecology

Original Research Article

THROMBOCYTOPENIA IN PREGNANCY- AN ANALYTICAL STUDY IN A TERTIARY CARE CENTRE IN CHENNAI

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ABSTRACT

Background: Thrombocytopenia defined as blood platelet count below 150,000L is the second leading cause of blood disorders in pregnancy after anemia. Gestational Thrombocytopenia explains 70-80% of all cases of thrombocytopenia in pregnancy. The aim of this study is to review the risks factors for development of thrombocytopenia during pregnancy and their obstetrical implications and management available in tertiary care centre. **Aim and Objectives:** To study the risk factors, management, maternal and perinatal outcome in Thrombocytopenia complicating pregnancy.

Material and Methods: Analysis of 30 pregnant women with Thrombocytopenia who received care at Institute of Obstetrics and Gynaecology, Egmore. **Period of study:** March 2024 to August 2024 (6 months). The details were collected from medical records, including patient parity, cause of Thrombocytopenia, serial platelet count, management, obstetrical complications and neonatal outcome.

Results: Among 30 cases,18 were Gestational Thrombocytopenia,3 were ITP ,7 were Pre eclampsia, 1- Chronic liver disease ,1- Dengue + ve case. Risk factors, management, maternal and perinatal outcome were analysed. All cases had a positive maternal outcome except for one neonatal death due to IVH.

Conclusion: Gestational thrombocytopenia is the most common cause of thrombocytopenia in pregnancy. Though the complications observed in Gestational thrombocytopenia are relatively less, serial platelet monitoring, proper AN care, prompt referral, institutional delivery with 24hrs blood bank facility, ICU Care, NICU care will result in better maternal and fetal outcome. Gestational hypertension patients should be closely monitored for preeclampsia and HELLP syndrome, and are advised strict BP control. Known and newly diagnosed ITP are advised to have proper hematological follow up to avoid complications

Keywords: Gestatioal Thrombocytopenia, Preclampsia, Idiopathic Thrombocytopeinic Purpura, Dengue.

INTRODUCTION

Thrombocytopenia defined as blood platelet count below 150,000L is the second leading cause of blood disorders in pregnancy after anemia.

Gestational Thrombocytopenia explains 70-80% of all cases of thrombocytopenia in pregnancy.

The aim of this study is to review the risks factors for development of thrombocytopenia during pregnancy and their obstetrical implications and management available in tertiary care centre

Aim and Objectives

To study the risk factors, management and maternal, perinatal outcome in Thrombocytopenia complicating pregnancy

Review of Literature

Mc Crae KR et al, thrombocytopenia affects 6-10% of all pregnant females.

Singh N et al, reported prevalence of thrombocytopenia in pregnancy as 8.8%. GT was seen in 64.2% cases, obstetric causes were found in 22.1% cases and medical causes in 13.68% cases. Hypertensive and hepatic disorders were the most common obstetric causes of thrombocytopenia

Parnas M et al, reported the main causes of thrombocytopenia as gestational thrombocytopenia (59.3%), ITP (11.05%), preeclampsia (10.05%), and HELLP syndrome (12.06%).

Khellaf M et al, reported that occurrence of thrombocytopenia during pregnancy is frequent and is around 10% and GT dominates among all causes of thrombocytopenia in pregnancy.

Ozkan H et al, reviewed 29 women with ITP and stated that majority of deliveries were vaginal and none of the neonates had complications attributable to the mode of delivery.

MATERIALS AND METHODS

Retrospective analysis of 30 pregnant women with Thrombocytopenia who received care at Institute of Obstetrics and Gynaecology, Egmore from March 2024 to August 2024 (6 months).

The details were collected from medical records, including patient parity, cause of Thrombocytopenia, serial platelet count, management, obstetrical complications and neonatal outcome.

RESULTS

18 out of 30 cases were gestational thrombocytopenia.13 cases were diagnosed during third trimester, 4 cases at the end of second trimester,1 case in immediate postpartum period. Only 30 to 40% developed significant thrombocytopenia, maternal and neonatal complications.

Out of 30 cases, 7 cases were preecalmpsia & HELLP Syndrome.100% cases developed significant (moderate to severe) thrombocytopenia and recieved ICU care. About 70-80% developed maternal and neonatal complications. 65% of cases required platelet transfusion, strict BP control, long duration of hospital stay.35% of cases required serial platelet monitoring with strict BP control ward.

3 out of 30 Cases were idiopathic thrombocytopenic purpura.100% cases developed severe thrombocytopenia, required platelet transfusion and ICU care, about 70% cases developed maternal and neonatal complications, one neonatal death due to IVH.

One case of chronic liver disease (due to autoimmune etiology) G2P1L1, Previous LSCS was taken, patient had severe thrombocytopenia, required massive platelet transfusion, delivered by LSCS, had no peripartum and neonatal complications. On Postnatal day 7, her platelet count was 75000, discharged on PND 14 with platelet count of 95000.

One case of Dengue + ve, primigravida, gestational age 39weeks + 3days, delivered by labour natural, no neonatal complications. She had severe thrombocytopenia (platelet -14000) on PND 1, required massive platelet transfusion, received ICU Care and had prolonged duration of hospital stay. On postnatal day 7, her platelet count was 65,000, discharged on postnatal day 16, with platelet count of 1.2 lakhs.

Table 1: Causes of thrombocytopenia

PREGNANCY RELATED	NON PREGNANCY RELATED	
Gestational Thrombocytopenia	Thrombotic thrombocytopenic purpura	Disseminated intravasculaer coagulation
Preeclampsia/eclampsia	Herediatry thrombocytopenia	Drug related: heparin
HELLP syndrome	Hemolytic uremic syndrome	Von Willebrand disease Type : lib Bone marrow dysfunction,Hypersplenism
Acute fatty liver of pregnancy	Autoimmune diseases: lupus erythematosus, antiphospholipid syndrome	Nutritional deficiencies:Vitamin B12,folate
	Infections: HIV,HBV,HCV,dengue,sepsis	

Table 2: Parity

Parity	Instead of Cases (%) GT	No.of Cases (%) HELLP	No of Cases (%) ITP	Others
Primi	8 (44.4%)	5(71.4%)	2 (66.7%)	1(50%)
Second gravida	8 (2 prev H/o GT (44.4%)		1 (33.3%)	1(50%)
Multi gravida	2 (11.2%)	2 (28.6%)		

Table 3: Gestational age at Diagnosis

Parity	Instead of Cases (%) GT	No. of Cases (%) HELLP	No of Cases (%) ITP
Known Case			2 (67%)
1st Trimester			1 (33%)
2nd Trimester	6 (33.3%)		
28-34 weeks	9 (50%)	5 (71.4%)	
37 weeks	3 (16.7%)	1 (14.3%)	
Post natal		1 (14.3%)	

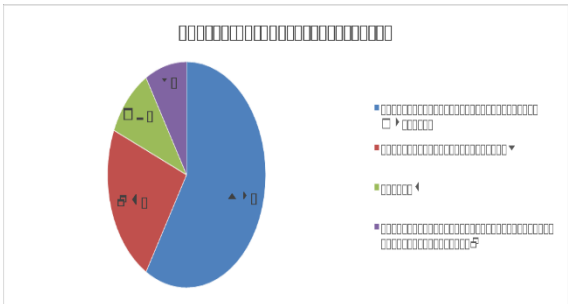

Figure 1: Thrombocytopenia causes

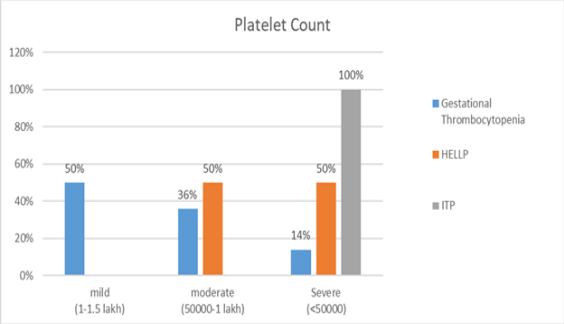

Figure 2: Platelet count

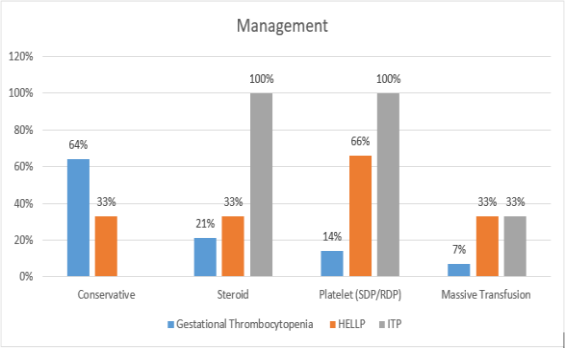

Figure 3: Management

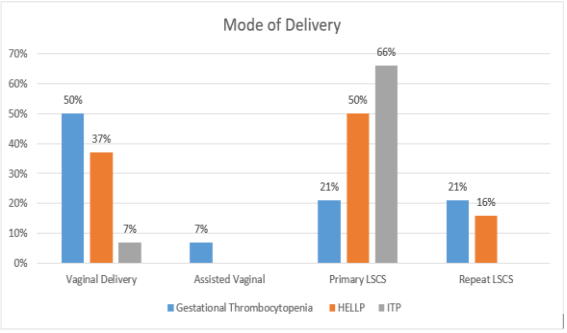

Figure 4: Mode of Delivery

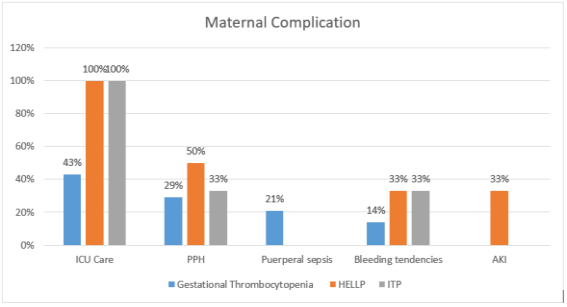

Figure 5: Maternal complication

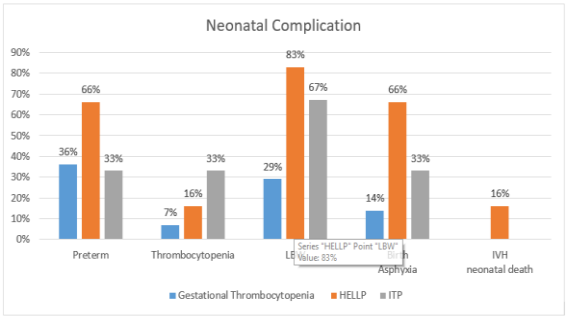

Figure 6: Neonatal complication

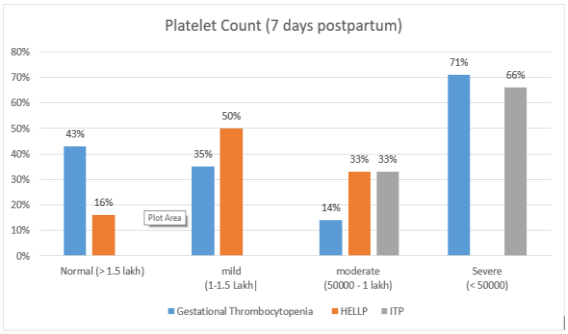

Figure 7: Platelet count

DISCUSSION

General management strategies followed for patients with thrombocytopenia

Antepartum management

- Multidisciplinary approach involving Obstetrician, Hematologist, Rheumatologist, Paediatrician and Anaesthetist is needed. Platelet counts monitoring, monthly till 32 weeks, fortni fortnightly from 32 to 36 weeks and weekly from 36 weeks are recommended.
- If the platelet count falls to <80 x 109/L, T. preddnisone 25mg daily for 4 days given. A rise in platelet count suggests ITP and T. Prednisone continued till delivery.
- In Hypertensive disorders of pregnancy, definitive management is termination of pregnancy. Worsening thrombocytopenia, HELLP, severe hypertension or deterioration in the maternal or fetal condition are indications for delivery.
- For Dengue, Conse Conservative management with IV fluids, IVC diameter monitoring done. Platelet transfusion recommended if platelet count <10 x 109/L or when bleeding manifestations present.

Peripartum Management

- A platelet count of ≥50 x 109/L is considered safe for vaginal and Caesarean birth.
- Women with a platelet count below 50 X 109/L may require a platelet transfusion for birth.
- Decisions regarding neuraxial anaesthesia must be individualised. Consider with stable platelet counts >70 x 109/L and a normal coagulation profile. A higher platelet threshold may be desired if thrombocytopenia is rapid in onset or

if there is a history of bleeding. In women with severe pre-eclampsia / HELLP syndrome and/or rapidly declining platelet counts, the platelet count and coagulation parameters must be checked no longer than 6 hours prior to neuraxial insertion. Even with this interval, rapid changes from normal platelet counts to low platelet counts can occur, so each case should be approached with a degree of caution.

- For women receiving ≥5mg T.prednisolone/prednisone daily over three weeks, adrenal insufficiency is possible. Consider peri-partum hydrocortisone.

Prevention and management of postpartum haemorrhage(PPH):

- Antenatal anaemia correction is important to optimise the haemoglobin prior to delivery.
- Active management of the third stage of labour is recommended to reduce the risk of PPH.
- If PPH occurs, consider other contributing factors. Early use of tranexamic acid is recommended, as is use of a ROTEM-guided critical bleeding protocol.

Management of the neonate:

- The only reliable predictor of whether a neonate will be thrombocytopenic is a history of thrombocytopenia in previous siblings.
- To avoid fetal scalp blood sampling, vacuum or high abdominal forceps delivery based on platelet count.
- Take an umbilical cord platelet count.
- After initial platelet count,

If platelet count <100 x 109/L, daily platelet count monitoring

If platelet count <50 x 109/L, arrange a cranial ultrasound

If platelet count >100 x 109/L, repeat at day 3-5 days

- Intervention is generally not required in asymptomatic infants if the platelet count is >30 x 109/L
- If the platelet count is <30 x 109/L or the infant is bleeding, management includes platelet transfusion +/- IVIg

Postpartum maternal management

- Avoid non-steroidal anti-inflammatories if platelet count <70x109/L.
- Assess for the risk of venous thromboembolism (VTE). If at increased risk for VTE (e.g. caesarean section, antiphospholipid antibodies), consider appropriate thromboprophylaxis. Pharmacological thromboprophylaxis is generally safe if the platelet count is >50 x 109/L though treatment decisions must be individualised.
- Check FBC on day 1 postpartum. Further follow-up depends on clinical factors but a repeat count approximately 2 and 6 weeks postpartum are generally advised. Consider referral to haematologist, for ongoing management of persisting thrombocytopenia.

Specific management

Immune thrombocytopenia

- Treatment is generally indicated in the following situations:
  - platelet count <30 x 109/L
  - platelet count <50 x 109/L and imminent birth or upcoming invasive procedures
  - platelet count <80 x 109/L with significant bleeding
- In a patient with newly diagnosed ITP in pregnancy, refer to haematology, for a trial of steroid therapy in the early third trimester. If an adequate response is achieved, arrange for an additional course of treatment prior to delivery.
- First line therapy is oral prednisolone/prednisone. Second line therapy is IVIg. Dexamethasone is NOT recommended as it crosses the placenta.

Prednisolone/prednisone:

- It is recommended to start prednisolone/prednisone at a low dose (25mg daily) to minimise the cumulative dose and side effects.
- If the platelet count is <30 x 109/L, a higher initial dose (e.g. 40- 50mg daily) may be considered.
- Side effects of prolonged corticosteroids include gestational diabetes, weight gain, hypertension, insomnia, gastritis and mood disturbances.

IVIg:

- Generally used in steroid resistant/refractory cases.
- Occasionally, patients need regular IVIg to maintain a safe platelet count during pregnancy.
- Other treatment options, including splenectomy, need to be considered in patients with ITP unresponsive to IVIg and corticosteroids.

Hypertensive and other thrombocytopenias

- Significant red cell fragmentation syndromes require urgent intervention. Specific therapy depends on the cause and ranges from therapeutic plasma exchange in TTP to renal support and complement inhibitors (e.g. eculizumab) in atypical HUS.
- Urgent referral to a haematologist, if not already involved and consideration of transfer to a tertiary centre with expertise in renal and intensive care medicine is recommended.

CONCLUSION

Gestational thrombocytopenia is the most common cause of thrombocytopenia in pregnancy

Though the complications observed in Gestational thrombocytopenia are relatively less, serial platelet monitoring, proper AN care, prompt referral, institutional delivery with 24hrs blood bank facility, ICU Care, NICU care will result in better maternal and fetal outcome

Gestational hypertension patients should be closely monitored for preeclampsia and HELLP syndrome, and are advised strict BP control

Known and newly diagnosed ITP are advised to have proper hematological follow up to avoid complications.

Platelet count monitoring along with Hemoglobin monitoring in antenatal visits may prompt early diagnosis and management of thromb Thrombocytopenia in pregnancy.

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