International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Kaveri et al. Int J Reprod Contracept Obstet Gynecol. 2024 Sep;13(9):2303-2307
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20242472

Original Research Article

Management of immune thrombocytopenia during pregnancy

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Received: 28 July 2024
Revised: 22 August 2024
Accepted: 23 August 2024

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ABSTRACT

Background: Immune thrombocytopenia or Idiopathic thrombocytopenic purpura (ITP) is the most common cause of thrombocytopenia in the first and second trimesters of pregnancy. The diagnosis and subsequent management of ITP in pregnancy requires a multidisciplinary approach. The proper evaluation of ITP in pregnancy is essential to anticipate and manage complications. Hence, the management of pregnant women with ITP is usually difficult and complicated.
Methods: All patients diagnosed with Immune Thrombocytopenia admitted in the Department of Obstetrics and Gynaecology, Gulbarga Institute of Medical Sciences, Kalaburgi from 01 January 2022 to 31 December 2023 were included in study. Data was gathered through a retrospective chart review of all patients admitted with diagnosis of ITP during this period.
Results: 529 women between 18 and 40 years of age with thrombocytopenia were attended. Out of these 14 pregnancies with ITP were managed at our institute. Majority were primigravida with term gestation. Out of 14 cases 9 cases had to receive corticosteroid and 5 cases did not require any treatment. Maternal complications were in form of pre term labour, abruptio placenta and postpartum hemorrhage. Neonatal outcomes were analyzed in terms of pre maturity, low birth weight (LBW), neonatal intensive care unit (NICU) admission and neonatal deaths.
Conclusions: ITP is a complex and heterogeneous disorder with an uncertain etiology and pathophysiology. Due to the lack of a gold standard diagnostic test, diagnosis relies on the exclusion of other causes of thrombocytopenia. Standard treatments include corticosteroids and intravenous immunoglobulin (IVIG). However, there are still unmet needs in the management of ITP. Our study suggests that a single course of low-dose dexamethasone is more effective in managing ITP during pregnancy compared to conventional treatments.

Keywords: Corticosteroids, Immune thrombocytopenia, Platelets

INTRODUCTION

Immune thrombocytopenia or idiopathic thrombocytopenic purpura (ITP) is the most common cause of thrombocytopenia in the first and second trimesters of pregnancy. Because the incidence of this disease is greatest in females during their childbearing the concurrence of pregnancy and ITP is not unusual. Although it has been estimated that ITP affects only 1 to 2 of every 10,000 pregnancies. Pregnancy has generally not been believed to impact significantly on the development or severity of ITP, however it is observed that thrombocytopenia in individual patients with ITP often worsens during pregnancy and improves after delivery suggesting that pregnancy may lead to exacerbations of the disease in some cases.[1]

It is caused by a cluster of IgG antibodies directed against one or more platelet glycoproteins. Antibody-coated platelets are destroyed prematurely in the reticuloendothelial system, especially the spleen. With platelet counts range from 10,000 to 1,00,000/µl.[2]

The diagnosis and subsequent management of ITP in pregnancy requires a multidisciplinary approach involving the midwife, obstetrician, hematologist and anesthetist. The mode of delivery should be guided by obstetric indication. It is pertinent to consider both the risk of maternal bleeding and thrombosis in maternal ITP. The risk of neonatal intracranial hemorrhage in association with ITP is less than 1%. The proper evaluation of ITP in pregnancy is essential to anticipate and manage complications.[3] Hence, the management of pregnant women with ITP is usually difficult and complicated. We hereby report experience of ITP during pregnancy at our institute in last two years.

Objectives

Objectives of the study were: to investigate risk factors and complications associated with ITP, to determine feto maternal outcome in pregnancy with ITP, and need for blood and blood products in management of ITP.

METHODS

Type of study

It was a retrospective observational study.

All patients diagnosed with ITP admitted in the Department of Obstetrics and Gynaecology, Gulbarga Institute of Medical Sciences, Kalaburgi from 01 January 2022 to 31 December 2023 were included in study. Data was gathered through a retrospective chart review of all patients admitted with diagnosis of ITP during this period. The research team reviewed all charts with Immune Thrombocytopenia as diagnosis. All patients were managed in obstetric ICU and labour room. Patient's demographic data, co-morbidities, gestation age, parity, fetal delivery mode, imaging studies, medications, maternal and perinatal outcome were recorded retrospectively.

Inclusion criteria

Patients with diagnosis of ITP were included in study.

Exclusion criteria

Women with known hematological disorder, gestational thrombocytopenia, pre-eclampsia, eclampsia, HELLP syndrome and diabetes mellitus were excluded.

In each case the diagnosis, ITP, had been established based on standard criteria of thrombocytopenia associated with normal bone marrow examination, normal white and red blood cells and exclusion of other known causes of thrombocytopenia.

Maternal platelet count was determined every two weeks from diagnosis of pregnancy to delivery with more frequent assessments in cases of severe thrombocytopenia).

Platelet counts were performed on blood samples collected in tubes containing ethylenediamine tetra-acetate (EDTA) using an automatic cell counter. In each case pseudothrombocytopenia was excluded by examining a peripheral blood film.

Normal platelet count was defined as >150,000/µl, mild thrombocytopenia as 100,000-150,000/µl, moderate thrombocytopenia as 50,000-99,000/µl and severe thrombocytopenia as <50,000/µl.

Patients were managed under supervision of obstetrician, physician, anesthetist and hematologist.

Antenatal visits were initially twice weekly until 32 weeks, and then weekly until delivery. At each antenatal visits, fetal growth was assessed, any new symptoms noted and platelet count assessed. Treatment at initial diagnosis was administered to patients with a platelet count <50,000/µl in third trimester or to those with significant signs of bleeding. These patients were given dexamethasone 16mg stat followed by 8 mg TID for 4 days, platelet counts were repeated after 1 week. If no improvement was seen patients were started prednisolone 1 mg/kg/day per oral for 4 weeks started and when a normal platelet count was achieved, steroids were tapered within several weeks. In cases of emergencies with severe bleeding platelet transfusion was considered.

Pregnancy was allowed to continue to term. Patients were allowed to go into spontaneous labor, induction of labor was done for obstetrical indications. Labor monitored carefully and intervention in form of operative vaginal delivery or cesarean section was performed for obstetric indication. The third stage of labor managed actively and patients monitored for postpartum hemorrhage. The neonate was cared by the pediatrician.

Statistical analysis

The data collected was analyzed statistically by frequencies and percentages.

Software used were Microsoft office 17 and statistical package for the social sciences (SPSS) 16.

RESULTS

A total 529 women between 18 and 40 years of age with thrombocytopenia were attended. Out of these 14 pregnancies with ITP were managed at our institute.

Out of 14 cases 5 (35.7%) were less than 24 years of age group, 7 (50%) cases were between 25 to 29 years, 2 cases (14.2%) were more than 30 years of age (Figure 1).

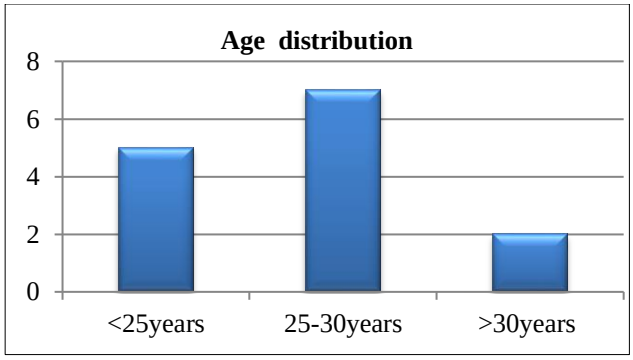

Figure 1: Age distribution.

Out of 14 cases 4 (28.5%) were diagnosed as ITP before pregnancy and 10 (71.4%) diagnosed during pregnancy (Figure 2).

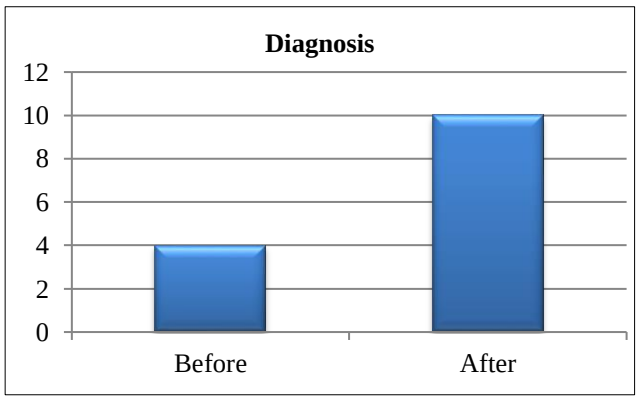

Figure 2: Diagnosis.

Majority were primigravida i.e. 8 (57.1%), multigravida being 6 (42.8%) (Figure 3).

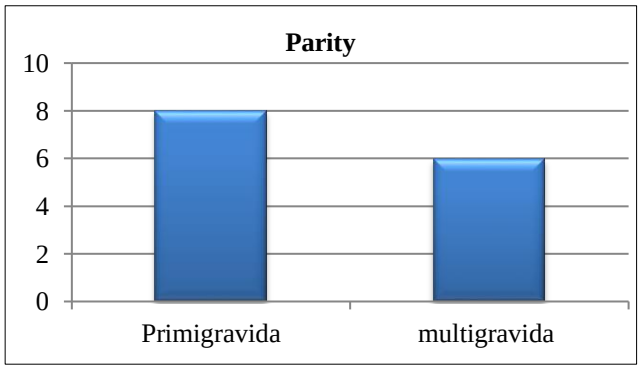

Figure 3: Parity index.

Majority were term gestation that corresponds to 11 (78.5%) cases, preterm were 3 (21.4%) (Figure 4).

Out of 14 cases 9 cases had to receive corticosteroid and 5 cases did not require any treatment (Figure 5).

Majority cases i.e. 10 (71.4%) had vaginal delivery, 4 (28.5%) cases underwent LSCS (Figure 6).

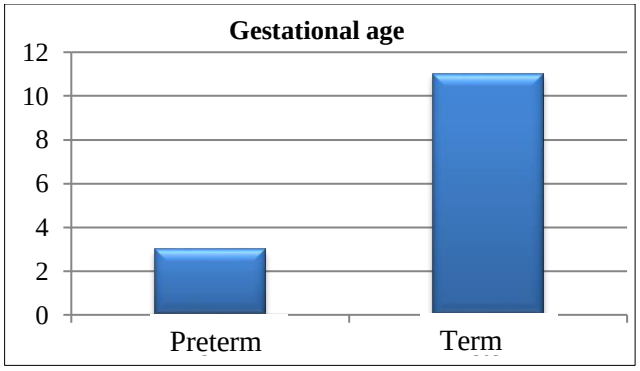

Figure 4: Gestational age.

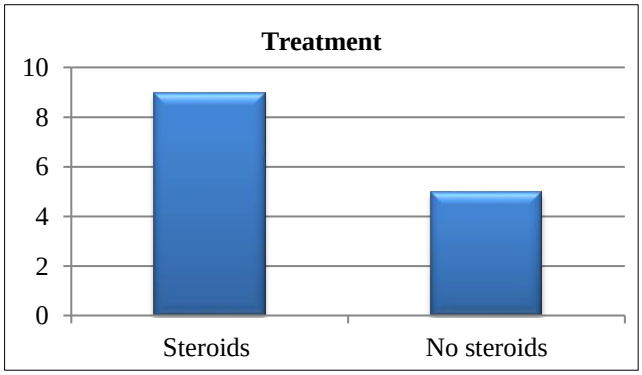

Figure 5: Treatment strategy.

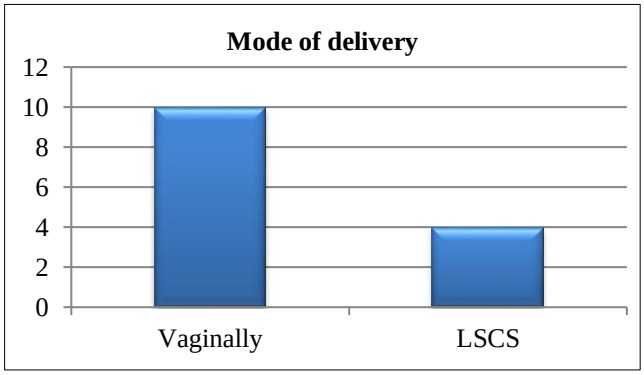

Figure 6: Mode of delivery.

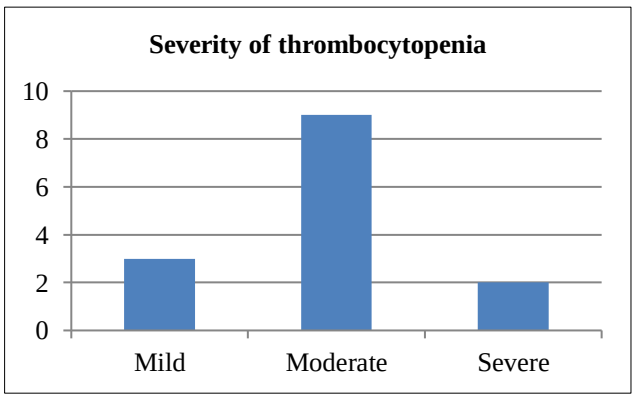

Figure 7: Severity of thrombocytopenia.

Of 14 cases 3 (21.4%) cases had mild thrombocytopenia, 9 (64.2%) had moderate thrombocytopenia and 2 (14.2%) had severe thrombocytopenia (Figure 7).

Table 1: Maternal complications.

Maternal complications	N (%)
Preterm labour	2 (14.2)
Abruptio placenta	1 (7.1)
Postpartum hemorrhage	2 (14.2)
Hysterectomy	1 (7.1)

Neonatal outcome

A total 13 healthy babies were born from 14 pregnancies and 1 being intrauterine fetal demise.

A total 4 babies required NICU admission in view of respiratory distress. All neonates had normal platelet counts.

Table 2: Neonatal outcome.

Neonatal complications	N (%)
Prematurity	2 (14.2)
LBW	1 (7.1)
NICU admission	4 (28.5)
Neonatal deaths	1 (7.1)

DISCUSSION

A total 14 pregnancies in women with ITP managed at our institute. The number of deliveries for our period of study was 15,700. Therefore, the estimate of incidence of ITP in pregnancy is 1 per 1,000 deliveries at our institute.

Care et al conducted a study among prospective national cohort study. The estimated incidence of severe ITP in pregnancy was 0.83 per 10,000 maternities. A total of 22 pregnant women did not receive any antenatal therapy and 85 pregnant women received therapy. There was no difference between asymptomatic treated and untreated cohort in severity of disease and outcome.[4]

There is variation in treatment of ITP in pregnancy. Asymptomatic patients with platelets count >50,000 in 2nd trimester do not required treatment but carefully monitored, both clinically and hematologically.[5]

Treatment includes typical first line therapies such as corticosteroids and IVIG. If unresponsive, the international consensus report suggests combining two first line therapies such as IVIG and prednisolone for synergistic effects. Other drugs that can be safely use to treat ITP in pregnancy include azathioprine and cyclosporine. If splenectomy is required, the consensus report suggest it be performed in 2nd trimester but this is very rarely necessary. Drugs to be avoided includes danazol, cyclophosphamide and mycophenolate mofetil.[6]

In our study 9 patients required corticosteroid therapy and 5 required none. Two patients with severe thrombocytopenia required platelet transfusion. None of our cases required IVIG or splenectomy.

Among 9 patients requiring corticosteroid therapy, 4 patients required additional prednisolone therapy compared to 5 patients who required only dexamethasone indicating role of low dose dexamethasone in pregnancy.

Sun et al conducted a retrospective study to compare the effectiveness of intravenous immunoglobulins and corticosteroids (prednisolone/dexamethasone). 235 pregnancies were reviewed. Treatment was not required in 137 pregnancies (58%) of remaining 98 pregnancies in 91 women 47 (48%) treated with IVIG and 51 were treated with corticosteroids, mean maternal count did not differ between groups.[7]

The major controversial issue in management of pregnant patients with ITP is mode of delivery. But mode of delivery should be based on obstetric indication. In our study 10 had normal delivery and 4 cases underwent caesarean section.[8]

Cook et al conducted study among 32 womens with ITP over 10 years' periods, 14 delivered vaginally and 18 by caesarean section. Six major complications occurred among mothers delivered by caesarean section where non occurred among those born vaginally.[9]

A platelet counts of >50,000 are regarded as safe for normal delivery. A platelet count of >70,000 in absence of other hemostatic abnormalities, regional axial anaesthesia can be safely performed.[10] In present study all the patients who had normal delivery had platelet counts of >50,000. Three cases who underwent caesarean section under spinal anaesthesia had platelet counts of >70,000 and one case that receive general anaesthesia had platelet counts of 40,000.

In large study by Webert et al, six women received epidural analgesia despite platelet count <75,000 without any morbidity.[11]

Majority of women with ITP do not have bleeding complications as the most important mechanism of hemostasis after delivery is normal contraction of uterus. The incidence of postpartum hemorrhage varies from 1.9 to 22%.[12] In our study two patients had postpartum hemorrhage, one managed medically and one underwent peripartum hysterectomy.

Glimore et al reviewed outcomes of 52 pregnancies in 45 women with ITP among whom seventeen pregnancies (33%) were complicated by PPH >500 ml. Ten pregnancies (19%) were complicated by a PPH >1000 ml.[13]

Neonates born to mothers with ITP have increased risk for neonatal thrombocytopenia and haemorrhagic complications.[14] In our study 4 babies required NICU admission and all had normal platelet counts.

In a study conducted by Belkin et al, patients with ITP had significantly higher rates of preterm delivery and perinatal mortality compared with patients without ITP.[15]

Limitations

This retrospective study done in small sample size needs further prospective studies to evaluate the efficacy and safety of low dose dexamethasone in ITP in pregnancy to explore its use.

CONCLUSION

ITP is a complex and heterogeneous disorder with an uncertain etiology and pathophysiology. Due to the lack of a gold standard diagnostic test, diagnosis relies on the exclusion of other causes of thrombocytopenia. Standard treatments include corticosteroids and IVIG. However, there are still unmet needs in the management of ITP. Our study suggests that a single course of low-dose dexamethasone is as effective as conventional treatments in managing ITP during pregnancy. Timely treatment can significantly reduce maternal and fetal complications.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Kaveri, Nahid M, Shali S. Management of immune thrombocytopenia during pregnancy. Int J Reprod Contracept Obstet Gynecol 2024;13:2303-7.