



RESEARCH ARTICLE

THROMBOCYTOPENIA IN PREGNANCY: A HOSPITAL BASED STUDY

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ABSTRACT

Background: Thrombocytopenia is seen in 6 to 10% of pregnant women, with the gestational thrombocytopenia being the most important etiological factor. **Objective:** To study the maternal and perinatal outcome of thrombocytopenia in pregnancy. **Materials and Methods:** In this study, 110 pregnant women, irrespective of their gestational ages were studied in the Department of Obstetrics and Gynaecology, SKIMS, Srinagar over a period of one year from April 2017 to March 2018. Proper history was taken and detailed examination done in all patients. All the women were followed throughout the pregnancy till delivery. Maternal and fetal outcomes were noted. **Results:** Out of 110 patients, 95 (86.37%) had moderate thrombocytopenia and 15(13.63%) had severe thrombocytopenia. In this study, 40% cases were primigravidas, 31% were gravida 2 and 29% were more than or equal to gravida 3. The most common etiological factor was gestational thrombocytopenia (37.2%) followed by pregnancy induced thrombocytopenia (27.2%) and intrahepatic cholestasis (24.5%) in addition to other less frequent causes. Mean gestational age at diagnosis was 37.48 ± 2.87 . There were 2 maternal deaths (1.8%), 3 still births (2.72%) and 2 neonatal deaths (1.8%). The complications were more frequent in those with severe thrombocytopenia. **Conclusion:** Proper management and timely adequate administration of blood and blood products have a significant impact on maternal and fetal morbidity and mortality.

INTRODUCTION

Thrombocytopenia, defined as platelet count less than 150000, is seen in 6 to 10 % of pregnant women. Gestational thrombocytopenia, also known as incidental thrombocytopenia of pregnancy is the most common form and affects upto 8% of pregnancies and 65-80% of cases of thrombocytopenia in pregnancy (Renu Misra, 2014). The decreased platelet count is mostly due to hemodilution and increased physiologic platelet turnover. The etiology of thrombocytopenia in pregnancy can thus be classified as:

Pregnancy related causes

- Gestational thrombocytopenia.
- Gestational hypertension.
- Preeclampsia/ eclampsia.
- HELLP syndrome.
- Intrahepatic Cholestasis of Pregnancy.

Other causes:

- ITP (Idiopathic thrombocytopenic purpura)
- TTP (Thrombotic thrombocytopenic purpura)
- Drugs
- Viral infections (Human Immunodeficiency Virus), Hepatitis C, Cytomegalovirus, Epstein Barr Virus, etc).

- Nutritional deficiencies
- Autoimmune causes
- Hypersplenism
- Bone marrow (Myelodysplastic syndrome)

Gestational thrombocytopenia is usually a diagnosis of exclusion, therefore the first step is to rule out other more serious causes. It usually requires no specific intervention, unless severe. Platelet counts usually return to normal within 2 to 12 weeks of delivery (Sherrine, 2014).

Aims and objectives

- To study the severity and etiology of thrombocytopenia in pregnancy.
- To evaluate the maternal and fetal outcome of thrombocytopenia in pregnancy including the associated morbidity and mortality.

MATERIALS AND METHODS

The study was conducted at the Department of Obstetrics and Gynaecology, SKIMS, Srinagar over a period of one year from April 2017 to March 2018.

Sample Size: 110 cases of pregnant women, irrespective of their gestational ages, with platelet counts less than or equal to 100000 were included in the study. Patients were categorized into 2 groups-moderate thrombocytopenia (platelet count more than 50000 to less than 100000) and severe thrombocytopenia (platelet count less than or equal to 50000).

Methodology: The information collected included obstetric history, detailed medical and surgical history and history of drug intake. General clinical examination along with obstetric assessment was done. Appropriate management was done and the details thereof of the mode of delivery and associated complications were noted. Fetal condition was also evaluated. The occurrence of still births, neonatal deaths, low-birth weight babies and NICU admission rate was noted. Apgar score at 5 minutes of less than 4 was taken as birth asphyxia (Brian, 2001).

Data analysis: Continuous variables were summarized as mean± standard deviation. Categorical variables were summarized as percentages. Statistical significance of the variables (taken as p value less than 0.05), if any, was noted.

RESULTS

Of the 110 cases, 95 cases (86.3%) had moderate thrombocytopenia and 15 cases (13.6%) had severe thrombocytopenia (Table 1).

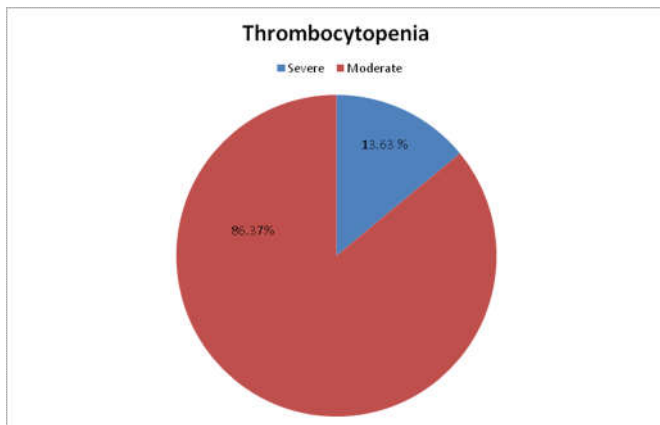


Figure 1. Distribution of cases

Table 1. Distribution of cases

Platelet Count	Frequency (N=110)	Percentage
Severe	15	13.63%
Moderate	95	86.37%
Total	110	100.00%

Table 2. Gestational age at diagnosis

Weeks of Gestation	Frequency (n=110)	Percentage
<20	3	2.72%
20-24	6	5.45%
25-29	8	7.27%
30-34	35	31.82%
35-39	56	50.90%
≥40	2	1.82%
Total	110	100.00%

Mean Age: 37.48 ±2.87

Table 3. Etiology of cases

Cause	Frequency(n=110)	Percentage
Gestational thrombocytopenia	36	32.7%
Pregnancy induced hypertension	30	27.2%
Intrahepatic cholestasis	27	24.5%
HELLP	6	5.4%
Drugs	9	8.18%
ITP	2	1.8%
Total	110	100.0%

Table 4. Mode of delivery

Mode of delivery	Frequency(n=110)	Percentage
Vaginal	47	42.72%
LSCS	61	55.45%
LSCS with hysterectomy	2	1.81%
Total	110	100.00%

Table 5. Fetal outcome

	Frequency (N=110)	Percentage
Live Birth	107	97.27%
Still Birth	3	2.72%
Total	110	100.0%

Table 6. Still Birth

Thrombocytopenia	Frequency(n=3)	Percentage	P value
Severe	3	100.0	
Moderate	0	0	0.00001
Total	3	100.0%	

p value 0.00001

Table 7. Gestational Age at delivery

Weeks	Frequency(N=110)	Percentage
<29	2	1.82%
30-34	6	5.45%
≥35	102	92.72%
Total	110	100.0%

Table 8. Complications in Live born

Complication	Frequency(N=107)	Percentage
Neonatal Asphyxia	12	11.21%
Admission in NICU	41	38.31%
Sepsis	16	14.95%
Neonatal death	2	1.8%
Low birth weight	21	19.62%
None	15	14.01
Total	107	100.0%

Table 9. Neonatal Deaths

Thrombocytopenia	Frequency	Percentage	P value
Severe	2	100.0	
Moderate	0	0	0.0001
Total	2	100.0%	

P=0.0001(significant)

Table 10. Apgar score at 5 minutes of birth

Apgar score	Frequency (N=107)	Percentage
<4	12	11.21%
4-6	7	6.54%
≥7	88	82.25%
Total	107	100.0%

Mean Apgar score at 5 minutes was 8.5±1.02

Table 11. Maternal Complications

Complication	Frequency (N=110)	Percentage
APH	4	3.63%
PPH	30	27.2%
DIC	2	1.8%
Sepsis	2	1.8%
MOF	2	1.8%
Maternal death	2	1.8%

Table 12. Maternal Death

Thrombocytopenia	Frequency(n=2)	Percentage	P value
Severe	2	100.0	0.0001
Moderate	0	0	
Total	2	100.0%	

P=0.0001(significant)

Table 13. Platelet infusion (n=20)

Thrombocytopenia	Frequency	Percentage	P value
Severe	16	80.0%	0.00001
Moderate	4	20.0%	
Total	20	100.0%	

P=0.0001(significant)

When the gestational age at diagnosis was studied in this study, it was found that 50.90% cases were of 35-39 weeks of gestation, 31.82% were of 30-34 weeks of gestation, 7.27% were 25-29 weeks, 5.45% were 20-24 weeks, 2.72% were less than 20 weeks gestational age and 1.82% were greater than or equal to 40 weeks. The mean gestational age at diagnosis was 37.48 ± 2.87 weeks (Table 2). In this study, 40% cases were primigravidas, 31% were gravida 2 and 29% were more than or equal to gravida 3. As shown in Table 3, the most common cause of thrombocytopenia in pregnancy was gestational thrombocytopenia (32.7%) followed by pregnancy induced hypertension (27.2%). Intrahepatic cholestasis of pregnancy was seen in 24.5% cases. HELLP (Syndrome comprising hemolysis, elevated liver enzymes and low platelet count) was observed in 5.4% cases. 8.18% cases were due to different drugs like Tamiflu or heparin used in pregnancy. ITP (IDIOPATHIC THROMBOCYTOPENIC PURPURA) was seen in 1.8% cases.

As depicted in Table 4, 55.45% cases of gestational thrombocytopenia delivered by LSCS, 47.72% cases by vaginal delivery and LSCS with hysterectomy was done in 1.81% cases. Table 5 shows the distribution of live births (97.27%) and still births (2.72%) among the pregnant women with thrombocytopenia. Table 6 shows statistically significant association between still births and severe thrombocytopenia (p value 0.00001). As shown in Table 7, 92.72% cases had gestational age at delivery more than or equal to 35 weeks. Among the remaining patients with preterm delivery, 5.45% cases were of 30-34 weeks gestation at delivery and 1.82% cases were less than 29 weeks gestation. The mean gestational age at delivery is 37.6 ± 1.87 weeks. Table 8 shows complications among the live born babies. 11.21% had neonatal asphyxia, 38.31% needed NICU (Neonatal Intensive Care Unit) admission, 14.95% liveborn babies had sepsis. 19.62% liveborn were of low birth weight and 1.8% died in the neonatal period. Table 9 shows the association of neonatal death with severe thrombocytopenia found to be statistically significant (p value 0.0001). As shown in table 10, the mean Apgar score at 5 minutes was 8.5 ± 1.02 .

Table 11 shows the complications developed by mother in antenatal or post delivery period Antepartum hemorrhage (APH) was seen in 3.63% cases. 27.2% developed postpartum hemorrhage (PPH). Sepsis and DIC (Disseminated intravascular coagulation) were seen in 1.8% cases each. 1.8% cases developed MOF (Multiorgan failure) and consequently died in the postoperative period. Table 12 shows statistically significant association between maternal death and severe thrombocytopenia (p value 0.0001). The association between requirement of platelet infusion and severity of thrombocytopenia was also found to be statistically significant (p value 0.00001).

DISCUSSION

In this hospital based study, conducted over a period of one year, in the Department of Obstetrics and Gynaecology, SKIMS, Srinagar, 110 cases of pregnant women with platelet count less than or equal to one lakh per ml of blood, were included, irrespective of their gestational ages. Their detailed history was taken and complete clinical examination done. Maternal and fetal outcome was noted. Out of 110 cases, 95 (86.3%) had moderate thrombocytopenia (platelet count more than 50,000) and 15 cases (13.6%) had severe thrombocytopenia (platelet count less than or equal to 50000). The mean gestational age at diagnosis in our study was 37.48 ± 2.87 weeks with maximum patients (50.9%) of 35 to 39 weeks gestational age. This was comparable to the study of Parnas *et al.* (2006) in 2006 in which majority of the patients of thrombocytopenia (74.4%) were of 37 to 40 weeks of gestation. In this study it was found that gestational thrombocytopenia was the most frequent cause of thrombocytopenia in pregnancy (32.7%) followed by pregnancy induced hypertension (27.2%) and intrahepatic cholestasis of pregnancy (24.5%). This was comparable to the study of Katke *et al.* (2014) in 2014 in which gestational thrombocytopenia accounted for most cases (30.1%) followed by 27.2% of hypertensive disorders. The less frequent causes in our study included HELLP syndrome (5.4%) and drugs like heparin (8.18%). ITP was seen in 1.8% comparable to the study of Dr Sonali Somani *et al.* (2015) in which 1.58% cases had ITP.

In our study, the most common mode of delivery was lower segment caesarean section (LSCS) in 55.45% cases, done purely for obstetric indications followed by vaginal delivery in 42.72% cases. LSCS with hysterectomy was done in 2(1.81%) cases. In our study, there were 107 (97.27%) live births and 3(2.72%) still births. All the 3 still births were seen in the patients of severe thrombocytopenia. The association of severe thrombocytopenia was therefore statistically significant (p value 0.00001). The mean gestational age at delivery in the present study was 37.6 ± 1.87 with the maximum (92.7%) cases with gestational age more than or equal to 35 weeks at delivery and remaining (7.3%) cases had preterm delivery which was comparable to the study of Vesna *et al.* (2016) in which 10% cases had preterm delivery. In our study among the 107 live born babies, 41(38.31%) cases required NICU admission and 12 (11.21%) developed neonatal asphyxia. 21 babies (19.62%) were of low birth weight. There were 2 neonatal deaths (1.8%) comparable to the study of Parnas *et al.* (2006) in which 2.5% had neonatal deaths. Both the cases of neonatal deaths were seen in severe thrombocytopenia group and the association of the two was found to be statistically significant (p value

0.0001). In the present study the mean apgar score of babies at 5 minutes of birth was 8.5 ± 1.02 similar to that found in the study of Xiaoyue Wang *et al.* (2017) in which mean apgar score at 5 minutes was 9.5 ± 1.9 . Low apgar score less than 6 was seen in 19 (17.7%) cases comparable to the study of Arora *et al.* (2017) in which it was seen in 16.2%. In the present study, the most common maternal complication was postpartum hemorrhage (PPH) seen in 27.2% cases followed by antepartum hemorrhage in 3.63%. Huparikar *et al.* (2016) also reported PPH as the most common complication in these patients (9.89%). 2 cases (1.8%) with severe thrombocytopenia developed DIC, sepsis and multiorgan failure (MOF) and consequently died in the postoperative period. The association between maternal death and severe thrombocytopenia was statistically significant (p value 0.0001). In the present study, 20 cases required platelet transfusion out of which 16 (80%) were severely thrombocytopenic. The association of platelet transfusion with severe thrombocytopenia was statistically significant (p value 0.00001).

Conclusion

Thrombocytopenia is seen in 6 to 10 % of pregnant ladies, the most common cause being gestational thrombocytopenia of pregnancy. While majority of such cases are mild to moderate, few may show severe thrombocytopenia. Patients with severe thrombocytopenia are at risk of serious complications including antepartum hemorrhage, postpartum hemorrhage, preterm delivery, DIC, multiorgan failure and increased maternal and perinatal morbidity and mortality. Management of thrombocytopenia in pregnancy includes early detection in antenatal period and proper evaluation and treatment in peripartum period. Caesarean section is reserved only for obstetric indications. Blood and blood products like Fresh Frozen Plasma and platelet concentrates play an important role in prevention and control of bleeding in patients of severe thrombocytopenia and reduction of maternal and perinatal morbidity and mortality.

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Conflict of interest: none

ABBREVIATIONS

- HELLP: Hemolysis, elevated liver enzymes and low platelet count

- ITP: Idiopathic Thrombocytopenic purpura
- TTP: Thrombotic Thrombocytopenic purpura
- LSCS: Lower Segment Caesarean Section
- NICU: Neonatal Intensive Care Unit
- APH: Antepartum Haemorrhage
- PPH: Postpartum Haemorrhage
- DIC: Disseminated Intravascular Coagulation
- MOF: Multiorgan failure

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