



Prospective Study of Maternal and Perinatal Outcome in Pregnant Mothers with Bleeding Disorders in Tertiary Care Hospital

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

Open Peer Review History:

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/97289>

Original Research Article

Received: 24/10/2022

Accepted: 29/12/2022

Published: 31/12/2022

ABSTRACT

Background: Obstetrical bleeding disorder presents difficulties for both the mother and her offspring. Bleeding disorders, both congenital and acquired, may have deleterious effects on the fetus as well as newborns. In addition they may pose serious complications during pregnancy, parturition and postpartum period. Women who have congenital bleeding disorders and are carriers of X-linked or autosomal disorders, should compulsorily receive counselling to ensure that pregnancy can be carried out safely and with the utmost care. In such cases, Obstetrician, Hematologist and Anaesthesiologist should work together to create a treatment plan. The mother should be closely monitored throughout pregnancy, delivery and in puerperium. Pregnancy related acquired hemostasis disorders may be particularly difficult to diagnose and need to be treated right away.

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Methodology: Pregnant women with a history of bleeding disorder or newly diagnosed by investigations who will give consent to participate will undergo various investigations. Various Investigations will be done related to both congenital and acquired bleeding disorders which are given as under:

- 1) Complete Blood Count
- 2) Peripheral Blood Smear
- 3) Reticulocyte Count
- 4) Coagulation Profile
- 5) Renal Function Test
- 6) Liver Function Test
- 7) Thyroid Function Tests
- 8) USG Whole abdomen and pelvis

The data will be obtained and statistical analysis will be done by using appropriate formula.

Results: The study was conducted on Pregnant Women with a history of bleeding disorder or newly diagnosed by investigations who gave consent to participate in the study presented to the OPD or IPD of Department of Obstetrics and Gynaecology, MTH hospital and MY hospital Indore. A total 150 pregnant women were included as per the inclusion criteria of our study. From the study, majority of cases had gestational thrombocytopenia (78%), 86% of them were free from maternal complications and 80.6% of them had no perinatal complications.

Conclusion: It is essential that strict monitoring of pregnant women to be done to understand the risk behind maternal morbidity and mortality. Early diagnosis and scans to understand the warning symptoms during the intrapartum and postpartum periods is essential.

Keywords: Bleeding disorders; congenital; X-linked; hemostasis; thrombocytopenia; intrapartum; postpartum.

1. INTRODUCTION

The obstetrician in tertiary care centre frequently encountered to women with a variety of congenital and acquired bleeding disorders. In pregnant women with known abnormalities, careful planning and monitoring during gestation are crucial. Acquired hemostasis abnormalities can be particularly challenging to diagnose and treat. The majority of women with these disorders can deliver a healthy baby safely with specialized expert care. Prenatal diagnosis is a crucial component of pregnancy care. Women with bleeding disorders should start their pregnancies with the multidisciplinary support of combined specialty clinics. Thrombocytopenia is a problem that frequently arises during pregnancy. It is the second-most typical haematological finding in pregnancy, right behind anaemia. According to a study conducted by Dr Sarika et al in a tertiary care hospital in Delhi among 1000 pregnant females, the prevalence of thrombocytopenia was 13.4%. Numerous pregnancy-related physiological and pathological changes in platelet number and function may be clinically concerning. When inherited qualitative and quantitative platelet disorders manifest during pregnancy, the risk of bleeding increases resulting in the anemia. According to WHO study in 2019, the prevalence of anemia among women

was 29.9%. 7 to 10 percent [1] of all pregnancies are affected by thrombocytopenia. The majority of studies reveal a 10% reduction in platelet count from pre-pregnancy levels. The normal range of platelets in non-pregnant women is 150-400/10⁹/l [1]. The presence of thrombocytopenia is indicated by a platelet count below 1.5lacs/l. Today, the condition is mainly identified by automated complete blood counts, which frequently include platelet counts. The majority of this decline occurs in the third trimester and is associated with a modification in the histogram's distribution of the platelet count. Thrombocytopenia can be brought on by a variety of factors, ranging from life-threatening syndromes like HELLP syndrome (Hemolysis, Elevated liver enzymes, Low Platelet count) to benign conditions like gestational thrombocytopenia. When thrombocytopenia is found during pregnancy, obstetricians face an intriguing problem. Gestational thrombocytopenia, the most common aetiology, is responsible for almost three-fourths of cases. Pregnancy-related hypertensive disorders complicate thrombocytopenia in 20% of all cases of thrombocytopenia during pregnancy. In Indian women, bleeding during pregnancy is an unstudied condition. At M.G.M. MEDICAL COLLEGE, Department of Obstetrics and Gynecology, this prospective study of maternal

and perinatal outcome in pregnant mothers with bleeding disorders in tertiary care hospitals will help in assessing the outcome and complications arising due out of the bleeding disorders in them.

2. MATERIALS AND METHODS

The Institutional Ethics Committee approved this prospective observational time-bound study at MGM Medical College Indore's OBGY Department. The pregnant mother and/or his/her legally acceptable representative gave voluntary written informed consent for the study. Aim of the present research is Study of maternal and perinatal outcome in Pregnant mothers with bleeding disorders in tertiary care Hospital. Hence Pregnant women with a history of bleeding disorder or newly diagnosed will undergo several tests if they consent. Congenital and acquired bleeding disorders will be investigated. The study included all pregnant women with a bleeding disorder history or identified by investigation. Pregnant women with

normal hematological profile, HIV and immunocompromised pregnant women with bleeding disorders were excluded. Our study included 150 patients.

2.1 Statistical Analysis

The data will be entered in Microsoft Excel spread sheet and analyzed statistically.

Appropriate test of significance will be applied wherever necessary.

3. RESULTS

The study was conducted on Pregnant Women with a history of bleeding disorder or newly diagnosed by investigations who gave consent to participate in the study presented to the OPD or IPD of Department of Obstetrics and Gynaecology, MTH hospital and MY hospital Indore. A total 150 pregnant mothers were included as per the inclusion criteria of our study.

Table 1. Demographic and clinical profile of patients

Particulars	Sub-Particulars	N	%
Age Group	18-25 years	101	67.30%
	26-30 years	42	28.00%
	31-35 years	6	4.00%
	>35 years	1	0.70%
Gravida	1	74	49.3%
	2	48	32.0%
	3 or >3	28	18.7%
Para	0	78	52.0%
	1	50	33.3%
	2 or >2	22	14.7%
LivingChildren	0	80	53.3%
	1	50	33.3%
	2	20	13.3%
Abortion	No abortion	144	96.0%
	1	3	2.0%
	2	3	2.0%
Pallor	Mild	126	84%
	Moderate	20	13.3%
	Severe	04	2.6%
Icterus	None	148	98.7%
	Grade 1	2	1.30%
Edema	Absent	121	80.6%
	Pedeledema	23	15.30%
	Anasarca	04	2.6%
CNS	Normal	150	100.00%
CVS	NAD	150	100.00%
Spleen	Mildsplenomegaly	1	0.7
	Notpalpable	149	99.3

Thus from the study, it was herewith concluded that 86% of them were free from maternal complications and 80.6% of them had no perinatal complications. The majority of subjects (64%) had undergone normal delivery. Thus it is essential that strict monitoring of pregnant women to be done to understand the risk behind

maternal morbidity and mortality. Early diagnosis and scans to understand the warning symptoms during the intrapartum and postpartum periods is essential. Future studies can consider the evaluation of psychological difficulties seen among adolescent girls.

Table 2. Blood transfusion

Particulars	Sub-Particulars	N	%
Blood Transfusion	NO	79	52.6%
	YES	71	47.3%
Blood & Blood Products	PRP	68	45.3%
	SDP	8	5.3%
	RCC/PCV/WHOLE BLOOD	26	17.3%
	FFP	12	8.0%

Table 3. Obstetric risk analysis

Particulars	Sub-Particulars	N	%
Obstetric Risk	Gestational Thrombocytopenia	117	78%
	Dengue	3	2%
	Anemia	10	6.6%
	Pancytopenia	1	0.7%
	Idiopathic Thrombocytopenic Purpura	2	1.3%
	Preeclampsia	17	11.3%
	Antepartum Eclampsia	8	5.3%
	HELLP syndrome	8	5.3%
	Sepsis	1	0.7%
	Sickle Cell Anemia	1	0.7%

Table 4. Maternal and perinatal complications analysis

Particulars	Sub-Particulars	N	%
Maternal Complications	No Complications	129	86%
	Episiotomy Hematoma	1	0.7%
	Surgical Site Infections	1	0.7%
	Post Partum Hemorrhage	10	6.6%
	Severe Preeclampsia	1	0.7%
	Antepartum Eclampsia	1	0.7%
	Post Partum Eclampsia	1	0.7%
	Sepsis	2	1.3%
	Blood Reactions	2	1.3%
	Perinatal Complications	No Complications	121
Respiratory Distress		14	9.3%
Thrombocytopenia		1	0.7%
Neonatal Jaundice		7	4.6%
Transient Tachypnea Of Newborn		1	0.7%
Low Birth Weight		6	4%
Early Neonatal Death		3	2%

Table 1 depict demographic and clinical profile of the patients. Most of the pregnant mothers were in the age group of 18-25 years(67.3%). Most of participants were primigravida(49.3%).Majority of cases have mild anemia(84%),13.3% cases have moderate anemia and 2.6% cases have severe anemia. Edema was absent in majority of cases(80.6%).Systemic Examination was normal in all cases.

Table 2 depict Blood transfusion analysis. It was observed blood transfusions were not required in majority(52.6%) of them.

Obstetric risk analysis has been done in Table 3. The predominance of obstetric risk is seen in gestational thrombocytopenia (78%), anaemia (6.6%), and preeclampsia (11%).

According to the above table, in majority of the cases there were no maternal(86%) and perinatal complications (80.6%).

4. DISCUSSION

In the present study, the assessment of the maternal and perinatal outcomes of pregnant mothers with bleeding disorders in tertiary care hospital was done.

In our study, the majority of participants were in the age group 18-25 years (67.30%). 28% of participants were in the age group 26-30 years, 4% of participants were in the age group of 31-35 years and 0.7% were >35 years. According to the study of Habas Elmukhtar et al. [2]. Mean age of patients with thrombocytopenia was (32.56±1.5), with their ages ranging between 18 and 49 years. Our study was comparable with study findings of Kiranmaie S. [3]in their study, the mean age of pregnant women with thrombocytopenia was 26±4.32.

According to the present study, positive cases of dengue were 2% and negative cases were 98%. Non-dengue cases outnumber dengue cases. For the cases analyzed for D- Dimer, it is observed that the deranged cases were 1.3% and the D- DIMER value was normal in 98.7% of them. The thyroid profile was deranged in 2% of the cases and 98% of the cases had normal thyroid profile.

In our study, majority(49.3%) of cases were primigravida 52% cases were nulliparous. Our study is comparable with Habas Elmukhtar et al. [2] in 2013, 544 Study group of pregnant women

with thrombocytopenia were included in a total of 10,272. Most of the patients were primigravida 179 (39%), gravid 2, para one was 72(16.4%), and the rest all were gravid 3 or more (42.6%).

In our study 84% cases had mild anemia, 13.3% cases had moderate anemia and 2.6% cases had severe anemia. The majority of cases had mild anemia.

In 98.6% cases, icterus was absent and 1.3% cases, had grade 1 icterus.

In our study, Edema was absent in majority (80.6%) cases, Pedel edema was seen in 15.3% cases, and Anasarca was seen in 2.6% cases.

On per abdomen examination, mild splenomegaly was seen in 0.7% of cases, while it was non-palpable in 99.3% of them.USG Whole abdomen was normal in 92% of cases.

In our study, Gestational thrombocytopenia, dengue fever, anemia, pancytopenia, idiopathic thrombocytopenic purpura, preeclampsia, HELLP syndrome, sepsis, and sickle cell anaemia are the obstetric risks. The predominance of obstetric risk was seen in gestational thrombocytopenia (78%), anaemia (6.6%), and preeclampsia (11%) whereas Kiranmaie S [3]. In the year 2019 conducted a study in which 73(68.2%) patients were diagnosed with gestational thrombocytopenia, 22 (20.5%) were pre-eclampsia and 12 (11.2%) were eclampsia.

From our study, in majority of the cases there were no maternal complications(86%) and perinatal complications (80.6%).Other maternal complications were surgical site infections, episiotomy hematoma, post partum hemorrhage, preeclampsia, eclampsia and blood reactions. Considering the perinatal complications there were 2% cases of early neonatal deaths, 9.3% cases with respiratory distress,4% cases with low birth weight, and 4.6% cases with neonatal jaundice.

Onisâi M et al. [4] in 2012 conducted a retrospective study to assess perinatal outcomes and complications of pregnancy in women presenting with thrombocytopenia. The Incidence of thrombocytopenia in pregnancy was 11.11 percentage {104/936}. Severe thrombocytopenia as a risk factor for premature delivery {RR = 8.69, p < 0.01}. Preeclampsia or HELLP syndrome associated with severe thrombocytopenia leads to the highest rates of

prematurity {Relative Risk=7.97, p=0.00, respectively 12.32}. Severe thrombocytopenia also a risk factor for low-birth-weight newborns, (2047.50±938.98 g) (p=0.02) v/s (3224.86±496.00 g) in controls.

In the study by Sen et al. [5] the maternal outcome was observed in 388 women where 12.1% women were admitted to the ICU, 9.3% required mechanical ventilation and 0.8% died. Among the other 266 women, 19.4% of the 31 women with first-trimester infection had a miscarriage, 1.1% had a termination of pregnancy, 2.3% had a stillbirth and 94.4% delivered a live-born infant. The rate of preterm birth before 37 weeks gestation was 26.3%.

Kiranmaie S [3]. In the year 2019 conducted a study to found Out of 107 cases, PROM was observed in 24 patients (22.4%), 18 pts had an antepartum hemorrhage, 13(12.1%) pts had a postpartum hemorrhage, 6(5.6%) pts had HELLP syndrome, 3(2.8%) had DIC. Out of 107 cases, neonatal death occurred in one case (0.9%) diagnosed as eclampsia, and maternal deaths were observed in 3 pts (2.8%) diagnosed as eclampsia with DIC. Premature births were noticed in 27 (25.2%) out of 107 cases.

Kongwattanakul et al. in his study found 9.9% cases of postpartum hemorrhage; 10.3% in the non-severe features preeclampsia group and 9.4% in the preeclampsia with severe features and HELLP syndrome group. Placental abruption was 1.4% and heart failure at 0.4% only occurred among women in the preeclampsia with severe features group.

**Blood transfusion is the process of introducing blood products into a person's circulation intravenously. In the current study, there was a predominant absence of blood transfusions of 52.6%. Blood and blood products such as PRP, SDP, RCC, PCV, whole blood, and FFP. PRP transfusion was done in majority of the cases(45.3%). Oteng-Ntim et al. pointed out the urgent need for adequately powered trials of transfusion modalities in this high-risk group of pregnant women with the appropriate choice of maternal and perinatal outcome measures.

** In our study, the majority of the subjects (64% of them) had normal deliveries, while 34% had caesareans. According to the study by Prakash et al. [6], 44% of the women required a cesarean section and 34% had complications either during pregnancy or labor.

Thus early detection and prevention of adverse maternal and perinatal outcomes in women with bleeding disorders are essential.

5. CONCLUSION

The study has considered various types of complications faced during delivery. The majority of the female considered for analysis were under the age group of 18 to 25 years of 67.3% and only 4% were 31 to 35 years of age. The conditions of pallor, icterus, and edema were mild(84%), and none (98.6%).100%of them had normal CNS and CVS examination. USG whole abdomen was normal in 92%of cases.47.3% needed a blood transfusion and 52.6% were not in need of blood transfusion.78%of the cases had gestational thrombocytopenia, Thus from the study, it was herewith concluded that 86% of them were free from maternal complications and 80.6% of them had no perinatal complications. The majority of subjects(64%) had undergone normal delivery. Thus it is essential that strict monitoring of pregnant women to be done to understand the risk behind maternal morbidity and mortality. Early diagnosis and scans to understand the warning symptoms during the intrapartum and postpartum periods is essential. Future studies can consider the evaluation of psychological difficulties seen among adolescent girls.

CONSENT

As per international standard or university standard, patient(s) written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:

The peer review history for this paper can be accessed here:
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