

Platelet transfusion in pregnancy: clinical profile and pregnancy outcome

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ABSTRACT

Background: Thrombocytopenia, being second important hematological disorder of pregnancy can result in maternal and neonatal morbidity and mortality in some women. Some of these disorders are not associated with adverse pregnancy outcomes while in others it is associated with maternal and neonatal morbidity and mortality. So this study was conducted to evaluate the various causes of thrombocytopenia associated with platelet transfusion and its effect on maternal and neonatal outcome.

Methods: It is a retrospective data analysis of 70 peripartum women admitted in a tertiary level hospital with thrombocytopenia, requiring platelet transfusion over a period of 9 months (January 2013 to September 2013). Patients were analyzed for the cause of thrombocytopenia, requirement of platelet transfusion, additional treatment, duration of hospital stay and maternal and neonatal morbidity and mortality.

Results: In this study, pre-eclampsia and HELLP was present in 37.1% (n=26) of women requiring platelet transfusion while obstetrical hemorrhage (APH, PPH and Rupture uterus), combined iron deficiency anemia and infective causes accounted for 27.1% (n=19), 17.1% (n=12) and 15.7% (n=11) of women respectively. One case each of APLA and idiopathic thrombocytopenia was seen. 70% of women had to stay in hospital for more than 5 days. Four women expired and the incidence of morbidities was 73.1%. Prematurity was present in 41.1% neonates and three expired in nursery. Neonatal morbidity and mortality was not affected by maternal thrombocytopenia.

Conclusions: Thrombocytopenia associated with pathological conditions like HELLP, dengue and malaria were associated with profound maternal and neonatal morbidity.

Keywords: Thrombocytopenia, Platelet transfusion, Maternal outcome, Neonatal outcome

INTRODUCTION

Thrombocytopenia in pregnancy is one of the important hematological disorders other than anemia. Thrombocytopenia affects 6% to 10% of all pregnant women.¹ It is defined as a platelet count of less than 1.5 lac/milliliter.² This may result from a number of diverse etiologies. While some of these are not associated with adverse pregnancy outcomes, others are associated with maternal and neonatal morbidity and mortality which may lead to platelet transfusion in these patients. Thus,

this study was conducted to find out the various causes of thrombocytopenia requiring platelet transfusion and its effect on maternal and neonatal outcome.

METHODS

This is a retrospective analysis of 70 peripartum women with thrombocytopenia requiring platelet transfusion. The study was conducted over a period of 9 months (January 2013 to September 2013) in a tertiary level hospital in East Delhi, India. All patients admitted in obstetrical

emergency unit during peripartum period requiring platelet transfusion were included in the study. The clinical details of all women were collected by reviewing their hospital as well as their perinatal records.

RESULTS

During the study period of 9 months, a total of 7983 deliveries were conducted, of which 884 patients (11.2%) had thrombocytopenia. Records revealed that 70 women received platelet transfusion during this period.

Table 1: Demographic and obstetric profile.

Parameters	Number of women (n=70)	Percentage (%)
Maternal age (years)		
20-25	35	50%
26-30	25	35.7%
31-35	9	12.85%
>35	1	1.42%
Parity of patients		
Primigravida	19	27.1%
2 nd -4 th gravid	38	54.28%
>4 th gravid	4	5.7%
Period of gestation age (weeks)		
<37	38	54.28%
37-39	17	24.28%
>39 Weeks	6	8.57%
Postpartum	9	12.85%
Severity of thrombocytopenia		
Mild	5	7.14%
Moderate	24	34.28%
Severe	41	58.57%

All women belonged to low socio-economic strata. As depicted in table 1, the mean age of the patients were 25.2 years and majority were multiparous (n=42). In this study, 61 antepartum women carrying singleton fetus presented with thrombocytopenia of which, 38 women were less than 37 weeks of gestation and nine were postpartum women. Severe thrombocytopenia (platelet count below 50,000) was found in 41 women, moderate thrombocytopenia (50,000 to one lacs) in 24 and five had mild thrombocytopenia (one lac to 1.5 lacs).

The main etiology of thrombocytopenia requiring platelet transfusion was preeclampsia and HELLP Syndrome (n=26). It is seen that in 12 women anemia was found to be associated with thrombocytopenia and 11 had an underline infectious cause. Obstetrical haemorrhage in form of ante-partum haemorrhage (APH), postpartum haemorrhage (PPH) and rupture uterus are found in 19 women. In this study, only one woman with Antiphospholipid antibody syndrome (APLA) and a single case of idiopathic thrombocytopenic purpura (ITP) as the etiology for thrombocytopenia was present. Both of them

required platelet transfusion due to associated obstetrical hemorrhage (Table 2).

Table 2: Etiology of platelet transfusion.

Etiology of platelet transfusion	Number of women (n=70)	Percentage (%)
Hypertensive disorder of pregnancy	26	37.1%
Anemia	12	17.1%
Infection	11	15.7%
APH	8	11.4%
Rupture uterus	6	8.57%
PPH	5	7.14%
APLA	1	1.4%
ITP	1	1.4%

The maximum duration of hospital stay was 35 days with the mean duration being 6.1 days where as in 70% (n=49) women the duration of stay in hospital was more than 5 days. There were 4 patients (5.7%) who expired during the study period of which 3 had severe thrombocytopenia and one had moderate thrombocytopenia. Intensive critical care was required in 11 women and 6 subjects were shifted to medicine unit in view of underline medical disorder or developed medical complications. The incidence of morbidity was as high as 73.1% in form of acute renal failure, lung infections, wound dehiscence, ICU admissions, operative interventions and paresis. There were operative intervention in 35 women form of caesarean section (n=29) and hysterectomy (Table 3).

Table 3: Maternal and Fetal outcome.

Maternal outcome	Number of women (n=70)	Percentage (%)
Obstetrical hysterectomy (postpartum+cesarean)	6	8.57%
ICU care	11	15.7%
Wound infection	15	21.42%
Acute renal failure	4	5.71%
Lung infection	5	7.14%
Paresis	1	1.4%
Neonatal outcome	Number of neonates	Percentage (%)
Live birth	57	81.42%
IUD	13	18.57%
Low birth weight	29	41.42%
NICU admission	19	27.14%

The prevalence of low birth weight in babies born to mothers with thrombocytopenia was 41.4% (n=29) in study group. Such a high rate can be attributed to preterm induction and associated obstetrical complications requiring preterm intervention. There were 13 intrauterine deaths. Babies requiring nursery care were 27.1% (n=19) of which maximum stay there was 10 days.

Three babies expired in nursery due to low birth weight and septicemia (Table 3).

DISCUSSION

The present study was aimed to evaluate physiological and pathological causes of thrombocytopenia in pregnancy which lead to platelet transfusion during pregnancy and also find out the associated morbidity and mortality in mother and fetus. All the women who required platelet transfusion in peripartum period were included whereas the study by Parnas et al and Vyas et al included the women with moderate to severe thrombocytopenia however Dwivedi et al considered all women with thrombocytopenia.²⁻⁴

During the study period there were 11.2% (n=884) women who had thrombocytopenia of total deliveries which is similar to the study Boehlen et al.⁵ But other study quoted the prevalence of thrombocytopenia ranging from 6-10%.¹ Also in a study by Olayemi E et al the incidence of thrombocytopenia is almost 15.3% due to undiagnosed cases of malaria over there.⁶ Out of 884 women with thrombocytopenia, only 70 of them (0.87%) required platelet transfusion which constituted the study group but 6 patients (3%) required transfusion in the study by Parnas et al.²

The mean age of patient receiving platelet transfusion was 25.2 years which was similar the study by Dwivedi et al but lower than that reported by Wang DP et al and in Parnas et al of 29.4 years and 30.7 years respectively in their study population.^{2,4,7} It indicates early marriage and conception in the Indian subgroup.

Hypertensive disorder of pregnancy was the important etiology for platelet transfusion (37%) whereas Vyas et al, Parnas et al and Dwivedi et al reported it to be a cause in 22%, 22.1% and 42.55% respectively.²⁻⁴ Anemia associated with thrombocytopenia was seen in 17.1% of subjects where Dwivedi et al found to be as high as 27.15%.⁴

India is an endemic zone for diseases like dengue, malaria and typhoid. Thrombocytopenia in pregnancy requiring platelet transfusion during peripartum period was attributed to 15.7%

(n=11) in the present study. The immediate obstetric complications in form of APH, PPH and rupture uterus was found in 19 women and were treated as per immediate obstetric management as well as vigorous transfusion. Only one woman had APLA and one had ITP. Women with ITP required platelet transfusion as she developed abruption which is similar to study by Parnas et al were one patient of ITP had transfusion.²

Maternal complication in form of operative intervention was as high as 50% in our study group but other reported 36.2% and 37.5%.^{2,3} In our study group, 6 women had to

undergo hysterectomy and 4 women expired but Parnas et al, Dwivedi et al, Vyas et al did not have any mortality.²⁻⁴ This is probably because our institute is a tertiary care referral centre and women would come generally in very terminal stages in emergency.

Women with thrombocytopenia are more likely to deliver preterm (less than 37 weeks) which is due to increase need for labor induction in face of obstetrical complications such as HELLP, abruption, etc associated with thrombocytopenia. Due to need of early induction by women with preeclampsia and HELLP, 29 preterm deliveries were seen. There were 13 IUD due to women presented in shock or severe obstetric complication in form of rupture uterus or obstetrical hemorrhage. Nursery admission and care was required by 19 neonates of whom three expired. There were no bleeding tendencies in neonates of our study group as also in Parnas et al and Dwivedi et al. The complications in neonates were due to prematurity. None of the neonates had thrombocytopenia but Parnas et al and Dwivedi et al had it in 3.51% and 17.02% respectively.^{2,4} This is because majority of women had hypertensive disorder of pregnancy, infections and immediate obstetrical complications which does not lead to thrombocytopenia in neonates.

Limitation of the study included a small group of patients and the data is from single institute.

CONCLUSION

To conclude, severe thrombocytopenia is a marker of grave medical condition rather than a cause. Thus identification and timed management of these underline causes is important. Further studies are required to screen high risk population with thrombocytopenia to make the effective screening and management program.

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