ORIGINAL RESEARCH

Pregnant women with thrombocytopenia: Fetal outcome

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Received: 12March, 2023 Accepted: 18April, 2023

ABSTRACT
The major concern regarding delivery in mothers with thrombocytopenia of undetermined cause has been the risk of neonatal thrombocytopenia and intracranial haemorrhage (ICH). The two main differential diagnoses that may be difficult to separate until after delivery are gestational thrombocytopenia and ITP, as both are diagnoses of exclusion. Pregnancies complicated with fetal anomalies, preexisting maternal disease (Diabetes mellitus, liver or renal disease, blood dyscrasias, Tuberculosis, epilepsy, collagen disorders) were excluded from the study. Neonates of all cases were tested for thrombocytopenia by cord blood sampling. All women enrolled were followed up by estimation of platelet count till 7th postpartum day. There were 27 (10%) early neonatal deaths, 53 (19.6%) intrauterine deaths, 4 (1.5%) still births and 187 (69%) were healthy babies.

Key words: Pregnant women, thrombocytopenia,fetal outcome

INTRODUCTION

Gestational thrombocytopenia, also known as incidental thrombocytopenia, is the most common cause of thrombocytopenia in pregnancy, affecting 6-7% of pregnant women and accounting for more than two thirds of all cases of pregnancy-associated thrombocytopenia. It is a diagnosis of exclusion, generally causes only mild thrombocytopenia, and occurs in latter half of pregnancy, from mid-2nd or 3rd trimester, with platelet counts above ~100 $X10^9$/L.[1]

There is no absolute minimum platelet count below which gestational thrombocytopenia may be excluded. Most experts consider other diagnosis if the platelet count dips below 70 X 10^9/L. The main differential diagnosis at this level or lower is ITP. However there are reports of more severe thrombocytopenia that non-responsive to steroids, and which resolved postnatally, consistent with gestational thrombocytopenia. It is not possible to differentiate between the more severe form of gestational thrombocytopenia, and ITP, as both are diagnoses of exclusion.[2]

Patients with gestational thrombocytopenia are otherwise healthy, with no history of ITP or other autoimmune disorders. The degree of thrombocytopenia is not severe enough to increase risk of bleeding at delivery, but may compromise the ability to receive epidural anesthesia. General physical examination does not reveal hypertension or findings associated with other causes of pregnancy associated thrombocytopenia. Serological tests like antinuclear antibody and antiphospholipid antibodies are usually negative.[3]

The major concern regarding delivery in mothers with thrombocytopenia of undetermined cause has been the risk of neonatal thrombocytopenia and intracranial haemorrhage (ICH). The two main differential diagnoses that may be difficult to separate until after delivery are gestational thrombocytopenia and ITP, as both are diagnoses of exclusion. The former is

considered a completely benign condition for mother and baby whereas ITP may result in the fetal thrombocytopenia from passage of antibodies across the placenta. Antibodies producedin ITP are immunoglobulin G in nature and are therefore able to cross the placenta, with the potential to cause thrombocytopenia in the fetus.[4]

Mode of delivery is determined by obstetric indications, with avoidance of procedures associated with increased haemorrhagic risk to the fetus:fetal scalp electrode/ samples, ventouse and rotational forceps.[5]

A cord blood sample should be taken to check neonatal platelet count, and intramuscular injection of vitamin K deferred until platelet count is known. Infants with subnormal counts should be monitored, as platelet counts tend to fall to a nadir on days 2-5 after birth. In those infants with a platelet count < 50 X 10^9/L at delivery, transcranial ultrasonography is recommended even if the neonate is asymptomatic.[6]

Treatment of the neonate is rarely required but in those with clinical haemorrhage or platelet counts < 20-30 X 10^9/L, treatment with intravenous immunoglobulin or platelet transfusion is needed.

METHODOLOGY

Platelet count assessment was done through automated blood count analyzer with routine hematological evaluation of the patient. Demographic features, detailed history, presenting complaints if any, findings of general, systemic, and obstetrical examination including pelvic examination were recorded in approved proformaafter takingconsent. Baseline investigations like complete hemogram, blood group and Rh typing, urine analysis, HIV, HBsAg, VDRL serology, special investigation like coagulation profile (PT, APTT, FDP, Fibrinogen) RFT and LFT were done if clinically indicated. History of petechiae, bruising, drug usage, viral infection, thrombocytopenia in previous pregnancy was noted. Detailed work up of all cases was done to ascertain cause of thrombocytopenia. Gestational age was established by menstrual history and clinical examination and confirmed by USG.

Pregnancies complicated with fetal anomalies, preexisting maternal disease (Diabetes mellitus, liver or renal disease, blood dyscrasias, Tuberculosis, epilepsy, collagen disorders) were excluded from the study.

All the cases were followed till delivery to record any maternal complications like postpartum haemorrhage, abruption, puerperal infection and any other morbidity. Duration of pregnancy at the time of delivery, mode of delivery including indication for cesarean section were recorded. Progress of labor was monitored by using partograph and fetal condition monitored using cardiotocograph.

Neonates of all cases were tested for thrombocytopenia by cord blood sampling. All women enrolled were followed up by estimation of platelet count till 7th postpartum day.

Appropriate statistical methods (Proportion, mean, standard deviation, chi square test, and fisher exact test) were used to analyze the data.

INCLUSION CRITERIA

1. Pregnant women with gestational age more than 28 weeks with platelet count less than 1,50,000/microliter.

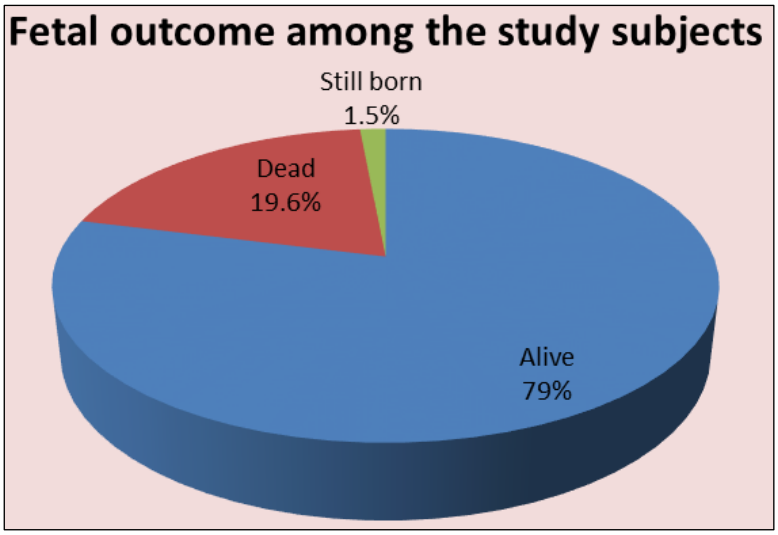
EXCLUSION CRITERIA

1. Women with known history of
   Diabetes mellitus
   Collagen disorders
   Tuberculosis
   Epilepsy
   Liver and Renal diseases
2. Pregnancies complicated with fetal anomalies
3. Pregnancies with gestational age less than 28 weeks.

RESULTS

Table 1: Distribution on subjects based on Fetal Outcome (N=271)

Fetal outcome	Frequency	Percentage
Alive	214	79
Dead	53	19.6
Still born	4	1.5
Total	271	100.0



Graph 1: Fetal outcome among the study subjects

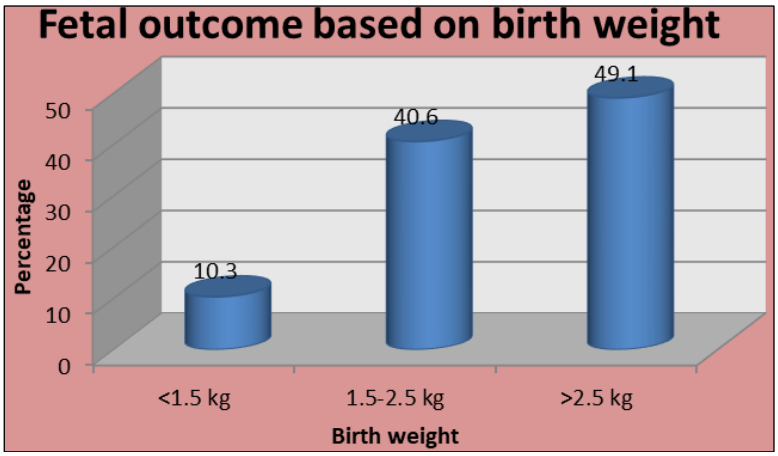
Out of 271 deliveries, 214 (79%) had live births. There were 4 still births (1.48%). 53 (19.6%) babies had intrauterine deaths.

Table 2: Fetal outcome based on Birth weight (N=271)

Birth weight	Frequency	Percentage
<1.5 kg	28	10.3
1.5-2.5 kg	110	40.6
>2.5 kg	133	49.1
Total	271	100.0

Mean ± SD - 2.34 ± 0.58

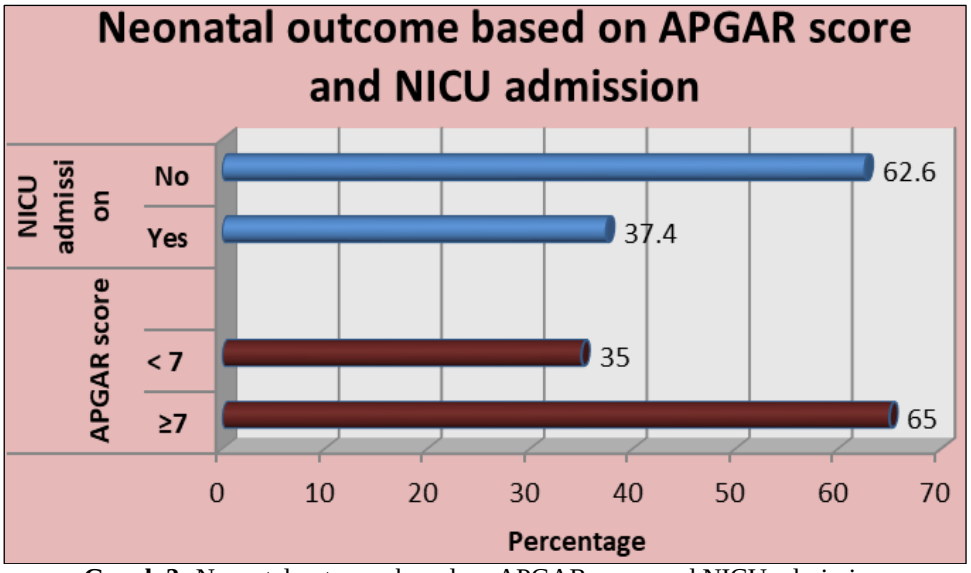
Table 2 classifies fetal outcome based on birth weight. 50.9% of babies were low birth weight. 28 neonates (10.3%) weighed less than 1.5kg. 133 neonates (49.1%) had normal birth weight.



Graph 2: Fetal outcome based on birth weight

Table 3: Distribution based on neonatal outcome (N=214)

Outcome	Frequency	Percentage
APGAR score		
≥7	139	65
< 7	75	35
NICU admission		
Yes	80	37.4
No	134	62.6



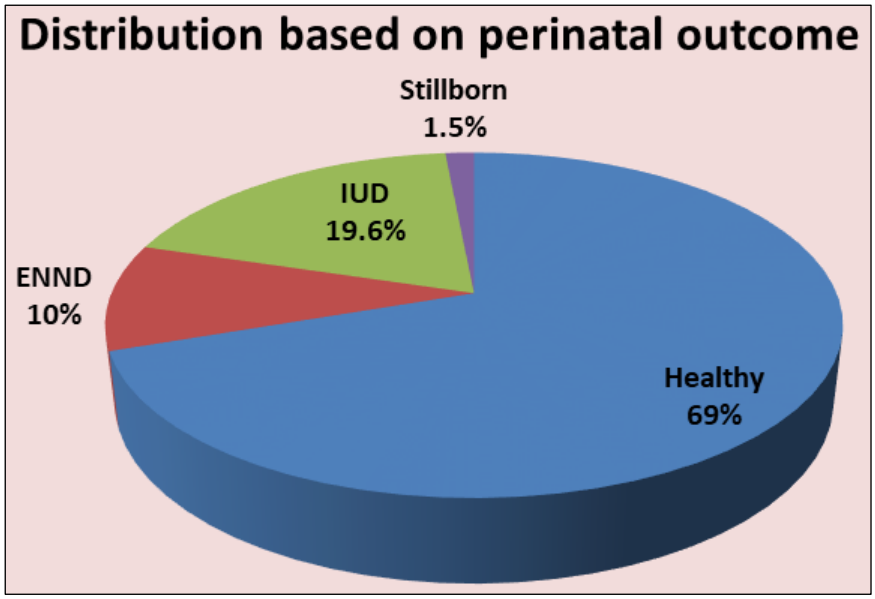
Graph 3: Neonatal outcome based on APGAR score and NICU admission

Table 3 shows distribution of neonatal outcome based on need for NICU admission and low APGAR at 5 minutes after birth. Out of 214 live births, most of the babies 65% (n=139) had a good APGAR score at 5minute and 37.4% (n=80) required NICU admission.

Table 4: Distribution based on perinatal outcome (N-271)

Perinatal outcome	Frequency	Percentage
Healthy	187	69
ENND	27	10
IUD	53	19.6
Stillborn	4	1.5
Total	271	100.0

Table 4 shows distribution of perinatal outcome. There were 27 (10%) early neonatal deaths, 53 (19.6%) intrauterine deaths, 4 (1.5%) still births and 187 (69%) were healthy babies.



Graph 4: Distribution based on perinatal outcome

Table 5: Distribution based on neonatal platelet count (N=214)

Neonatal Platelet Count (lakh/µl)	Frequency	Percentage
50000-100000	2	0.9
100001-150000	2	0.9
>150000	210	98.1
Total	214	100.0
Incidence of fetal thrombocytopenia		1.9%

In the present study, 2 (0.9%) neonates had platelet count between 50000-100000/µl, 2 neonates had platelet count 100000-150000/µl and 98.1% i.e. 210 neonates had platelet count >150000/µl. Incidence of fetal thrombocytopenia in our study was 1.9%.

DISCUSSION

In our study, there were 214 live births (79%), 53 intrauterine deaths (19.6%) and 4 still births (1.5%). In a study by Sonali*et al*.[7] incidence of intrauterine death was 14.29%, which was comparable to our study. In study by Dwivedi*et al*.[8] 2.13% intrauterine deaths which was less compared to our study. In a study by Vyas *et al*.[9] and PallaviSatishVishwekar*et al*.[10] still birth was noted in 8% and 6% respectively which was higher compared to our study.

The mean neonatal weight in our study was 2.4±0.59 kg. In the study by Chauhan *et al*.[11] mean neonatal weight was 2.80±0.32 kg which was higher than our study. In our study 50.9% of neonates were low birth weight which was higher than study by Yuce*et al*.[12] (6.50%) and Chauhan *et al*.[11] (8%)

In our study, 37.4% neonates required NICU admissions. In study by Vyas *et al*.[9] 13.20% neonates were admitted to NICU. In study by Lin *et al*., 0.30% neonates required NICU admission which is very low as compared to our study.

In our study 35% neonates had APGAR score less than 7 at 5 minutes which was higher than study chauhan*et al*.[11] (6.15%). In our study there were 27 (10%) early neonatal death. In study by Sonali*et al*.[7] early neonatal death was noted in 11% of neonates which is similar to our study and in study by Chauhan *et al*.[11] there was only one early neonatal death (1.6%) which was less compared to our study.

CONCLUSION

Mean birth weight in our study was 2.34 ± 0.58 kg. 50.9% neonates were low birth weight. APGAR score < 7 at 5 minutes was seen in 35% of neonates. Out of 271 neonates, 29.5% (n=80) required NICU admission. There were 27 (10%) early neonatal deaths, 53 (18.8%) intrauterine deaths, 4 (1.5%) still born cases.

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