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A study to evaluate fetal and maternal outcome in pregnancy complicated by thrombocytopenia in a tertiary hospital

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Abstract
Introduction
Severe maternal thrombocytopenia during term pregnancy is fraught with the risk of hemorrhage at the time of delivery and the cesarean section withthe additional risk of fetal thrombocytopenia. The study was planned to evaluate the incidence of thrombocytopenia and feto-maternal outcome in affected pregnancy.
Aim- To find the incidence of thrombocytopenia in pregnant women and analyze the maternal and fetal adverse outcome in affected women occurred in one year.
Material and method- It is a retrospective descriptive study of the medical record sheet of patients who had given birth at this tertiary institute during the period from 01 Jan2019 to 31 Dec 2019. The data were collected from documents about history, examination, investigation report, delivery/ LSCS note, post-operative /postpartum status, baby birth weight, APGAR score, NICU admission, and neonatal death. The data were collected in an excel sheet and analyzed by statistical method.
Result: The incidence of thrombocytopenia in pregnancy was 7.1%, withmild in 5.6%, moderate in 1.1%, and severe in 0.4% cases. Gestational thrombocytopenia was observed in 107 (67.7%), primary ITP in 2 (1.2%), H pylori-associated ITP in 15(9.4%), PIH/HELLP syndrome 23 (14.5%) and myelodysplasia –pancytopenia 1(0.6%). There was no significant association between age and gravidity with thrombocytopenia. But a significant association with increasing parity was observed. Significant association of thrombocytopenia with anemia, normal delivery, PPH, low APGAR score, NICU admission was observed in the study. No significant association was observed of maternal age, gravidity, and birth weight with maternal thrombocytopenia. There was no case of neonatal intracranial hemorrhage in the observed group.
Conclusion
Thrombocytopenia second only to anemia, in pregnancy,is affected in 7.6% cases, with mild (5.6%), moderate (1.1%), and severe (0.4%) cases. An appropriate diagnosis and timely management of the serious condition provides an optimum outcome.

Keywords:pregnancy, thrombocytopenia, feto-maternal, outcome*.*

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I. Introduction:

Platelet a very important blood corpuscle, has been observed to change the count within a range of 150–450 × 10^9 per liter in healthy adults as measured either using a hemocytometer or by a counter. It has a short life span of 7-10 days in circulation. The range of count remains similar in pregnant and non-pregnant females but slightly lower level within the normal range in pregnant women towards the later part of pregnancy.Platelets, also called thrombocytes, in association with the coagulation factors react to bleeding from blood vesselsdue to trauma byclumping forming a blood clot. Platelets do not have a nucleus; they are fragments of cytoplasm enclosed in cell membrane derived from the megakaryocytes a large cell in the bone marrow. [1,2,3]. Platelet becomes activated before the formation of a clot. Circulating un-activated platelets are biconvex discoid structures, 2–3 μm in its greatest diameter. Activated platelets have cell membrane projections on the surface which help in clot formation.Megakaryocyte and platelet production is regulated by thrombopoietin, a hormone produced in the kidneys and liver. A megakaryocyte produces between 1,000 and 3,000 platelets in a lifetime. In a healthy adult, an average of 10^{11} platelets is produced daily. Platelets are stored

in the spleen and are released by splenic contraction induced by the sympathetic nervous system. Low platelet counts below $150x10^9$ per liter is termed as thrombocytopenia affects about 6.6%–11.6% of pregnant women.[4, 5]Causes of thrombocytopeniain pregnant women broadly may be divided into – a) conditions specific to pregnancy such as gestationalthrombocytopenia (GT),preeclampsia/eclampsia, HELLPsyndrome, and acute fatty liver of pregnancy; b) conditions non -specific to pregnancysuch as pseudo-thrombocytopenia due to error in laboratory technique, primary immune thrombocytopenic purpura (ITP), secondary ITP associated to H pylori, thrombotic thrombocytopenicpurpura, hemolytic uremic syndrome (HUS); autoimmune diseases like lupus, anti-phospholipid syndrome; infections such as HIV, HBV, HCV, sepsis; disseminated intravascular coagulation; drug-related causes- heparin; von Willebrand disease Type IIb, bone marrow dysfunction, hypersplenism, nutritional deficiencies- vitamin B12, folate, etc. [6,7]

Although most of the cases of thrombocytopeniaremain undiagnosed during pregnancy and complete the course of childbearing without any adverse fetal and maternal effects, occasional cases of severe maternal hemorrhage and very rarely fetal intracranial bleeding are encountered. The risk of fetal intracranial hemorrhage is feared to increase by head trauma occurring during the passage of the fetus through the birth canal during vaginal delivery in women with thrombocytopenia. But in practice the incidence was found to be low, less than 1% in a large study.[8,9]

The short life span of platelet along with rapid consumption and production reflect the health status of the women.The institution is located in a very poor socioeconomic area inhabited by a population affected by poverty, malnutrition, infestation,and poor hygienic environment. Several un-booked pregnant women complicated with a very low platelet count and significant anemia attend the hospital at odd hours in labor and put great stress on health care resources and sub-optimal feto-maternal outcome. The study was planned to evaluate the incidence of thrombocytopenia in pregnant women and feto-maternal outcome in affected pregnancy.

Aim - To find the incidence of thrombocytopenia in pregnant women and analyze the maternal and fetal adverse outcome in affected womenoccurred duringthe year 2019.

II. Materialand method

It is a retrospective descriptive studyof the medical record sheet of patients who had given birth at this tertiary institute during the period from 01 Jan2019 to 31 Dec 2019. All the medical records of patients who were admitted for laborpain,irrespective of their booking status was included in the study. The data were collected from documents abouthistory, examination,investigation report, delivery/ LSCS note, post-operative /postpartum status, baby birth weight, APGAR score, NICU admission, and neonatal death.The data were collected in the excel sheet and analyzed by statistical method.

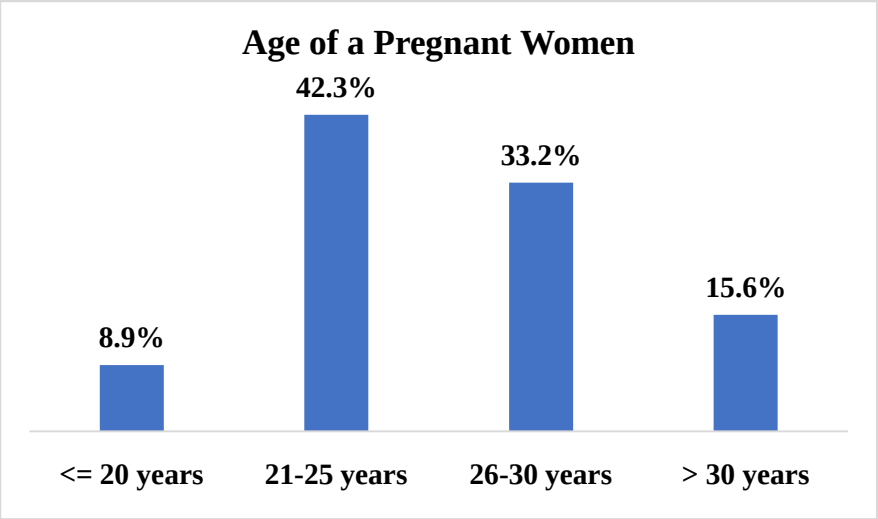
III. Results

The total number of admission in the labor ward during the period was 2235. The standard procedure of assessment of the patient in labor was followed. The patients whose platelet count reportedlow onan automated machineless than 1.5 lac/ml werere-examined manually on counting chambers. The severity of Thrombocytopenia was graded as standard practice as (i) mild (1.5 -1 lac/ml),(ii) moderate– (1- 0.5 lac/ml) and (iii) severe- (below 0.5 lac/ml).(10, [I) They were investigated to evaluate the cause of thrombocytopenia from the past medical history of ITP, SLE, H pylori infection, myelodysplasia, malnutrition, history of treatment with heparin,blood test for complete hemogram, bleeding time, clotting time, renal function test, liver function test, HBsAg, HCV & HIV, dengue IgM serology, coagulation tests (PT, APTT, FDP, and fibrinogen). The labor was managed as per obstetrics protocol. Patients whose platelet count was less than 80 thousand were observed closely by repeated platelet count to find the pattern of change in the count. Those who had clinical features of H pylori infection were treated by a standard anti-H pylori drug regime. Oral steroid preparation was also used to improve the count. Those whose count fell to the very low level of less than 50,000/dL single donor platelet were harvested and transfused. General anesthesia was given in very low platelet count. Epidural analgesia was avoided. For vaginal delivery platelet count aimed to maintain above at 50,000/dl and for Cesarean section 80,000/dl. Another treatment was based on etiology. A maternal outcome like mode of delivery, the number of platelet transfusion, any complications were noted. Perinatal outcomes include live or stillbirth, complications like intrauterine growth restriction, low birth weight; 5 minute APGAR score, admission in NICU for birth asphyxia, neonatal death were observed.Six weeks postpartum platelet count was repeated.

The age group of 21-25 years constituted 42.3% of cases and 26-30 years constituted 33.2%, mean age was 26.03 SD was 4.62. (Table 1).

Table1. Age distribution of pregnant women.

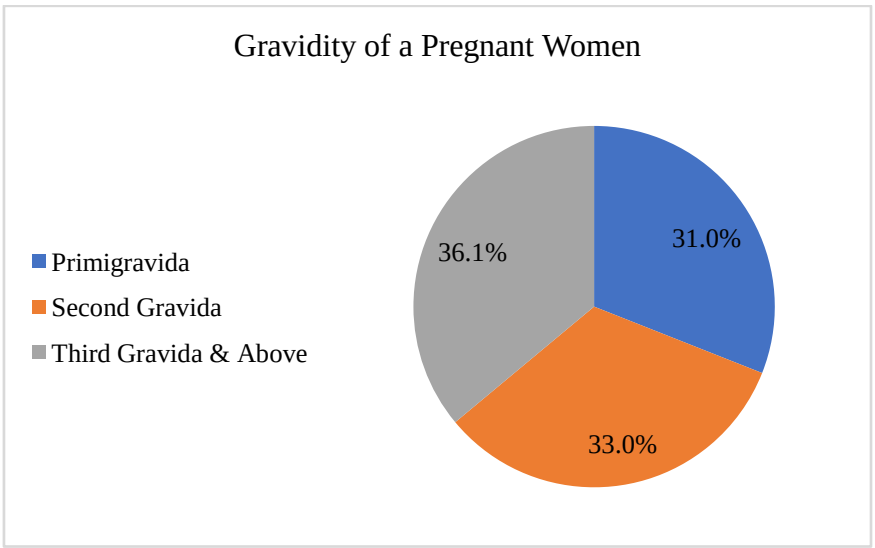
AGE	Frequency	Percent	Mean	SD
<= 20 years	198	8.9%	26.03	4.62
21-25 years	945	42.3%		
26-30 years	742	33.2%		
> 30 years	348	15.6%		
Total	2233	100.0%		



The gravidity of the pregnant women was stratified,it was observed that primigravida constituted 31 %, second gravida 33%, thirdgravida, and more was 36.1%. (Table 2)

Table 2. Distribution of gravidity of pregnant women.

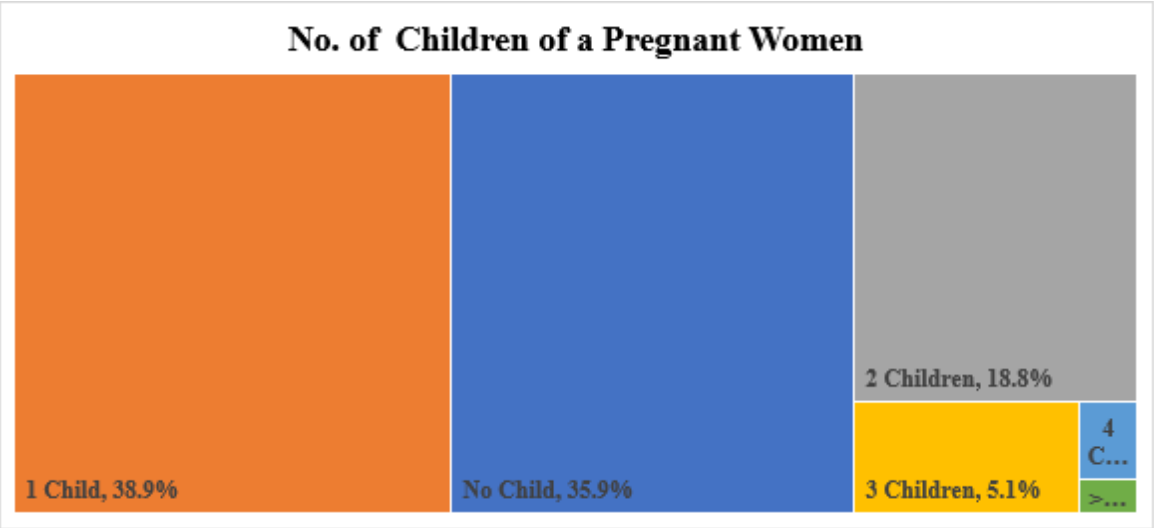
Gravidity	Frequency	Percent
Primigravida	692	31.0%
Second Gravida	736	33.0%
Third Gravida& Above	805	36.1%
Total	2233	100.0%



The parity of pregnant women wasstratified,nullipara(35%), single child (38%), two-child (18%) as depicted. (Table no 3).

Table 3. Distribution of parity of pregnant women.

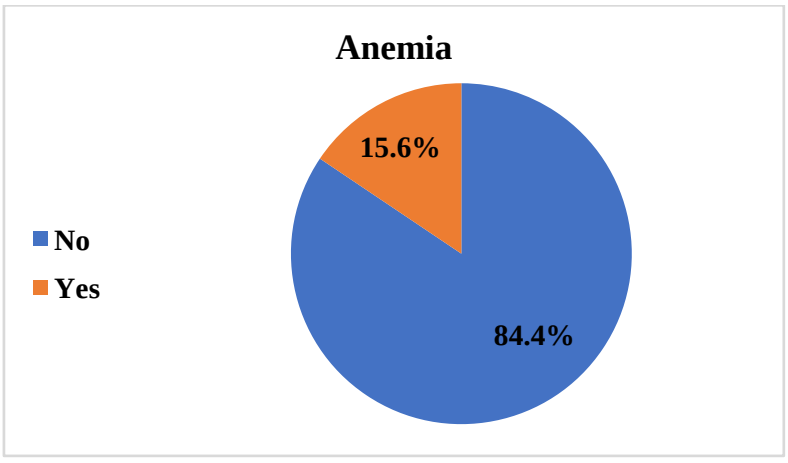
Parity	Frequency	Percent
No Child	802	35.9%
1 Child	869	38.9%
2 Children	420	18.8%
3 Children	113	5.1%
4 Children	20	0.9%
>4 Children	9	0.4%
Total	2233	100.0%



The hospital is located in a low socioeconomic area, anemia, and malnutrition prevalent in women. The pregnant women with anemia were observed in (15.6%) of cases. (Table 4)

Table 4. Distribution of anemia in pregnant women.

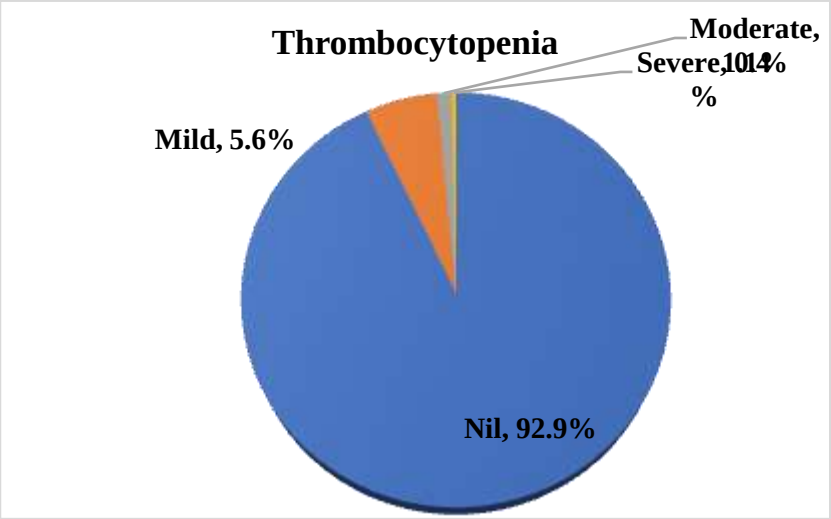
Anemia	Frequency	Percent
No	1885	84.4%
Yes	348	15.6%
Total	2233	100.0%



The pregnant women who were diagnosed ashaving lowplatelet by automated cell counter were put into re-examination by manual cell counter chamber.Thrombocytopenia was observed in 158(7.1%) pregnant women 7; mild(5.6%), moderate (1.1%), and severe (0.4%). (Table 5)

Table5. Distribution of Thrombocytopeniain pregnant women.

Thrombocytopenia	Frequency	Percent
Nil	2075	92.9%
Mild	125	5.6%
Moderate	25	1.1%
Severe	8	0.4%
Total	2233	100.0%

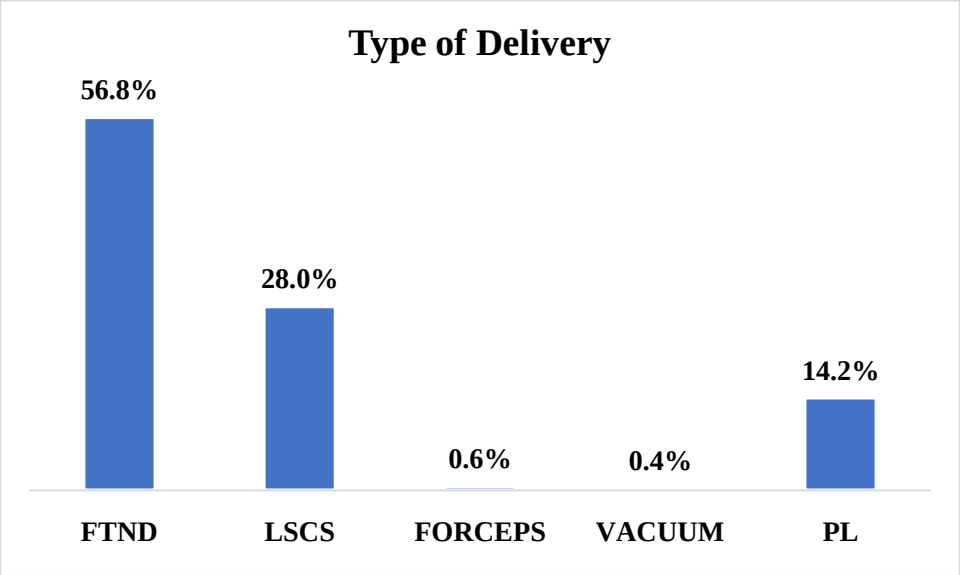


Total number ofdeliveries were 2233 of which normaldelivery (56.8%), LSCS (28%), pretermlabor (14.2%), forceps delivery (0.6%) and vacuum extraction (0.4%) was observed. (Table 6)

Table. 6. Type of delivery

Delivery Type	Frequency	Percent
FTND (Full Term Normal Delivery)	1269	56.8%
LSCS (Caesarean)	626	28.0%
FORCEPS	14	0.6%
VACUUM	8	0.4%

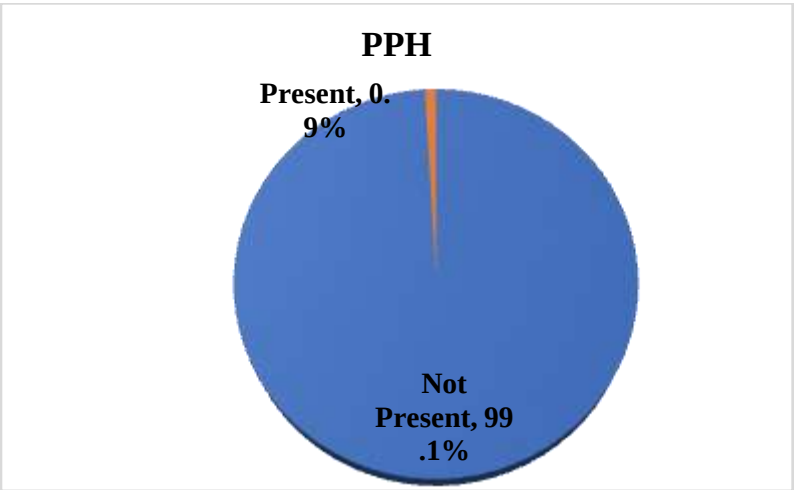
PL (Preterm Labor)	316	14.2%
Total	2233	100.0%



Third stage complication such as severe PPH needing blood transfusion was observed in (0.9%) deliveries. (Table 7)

Table7. Distribution of severe PPH in pregnant women.

PPH (severe)	Frequency	Percent
Not Present	2213	99.1%
Present	20	0.9%
Total	2233	100.0%

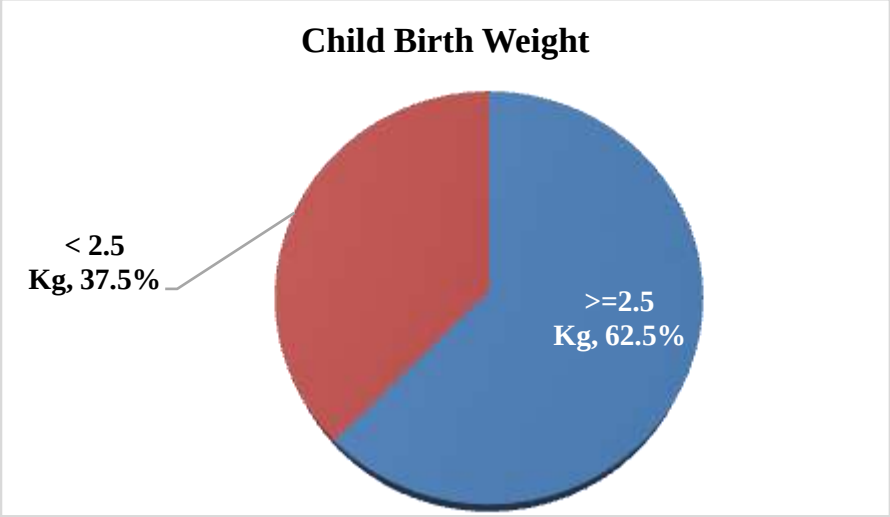


The birth weight of the newborn was recorded by digital weight machine immediately after birth; birth weight less than 2.5 kg was taken as low birth weight in full-term deliveries. (Table 8)

Table 8. Distribution of birth weight in new born.

Child Birth Weight	Frequency	Percent

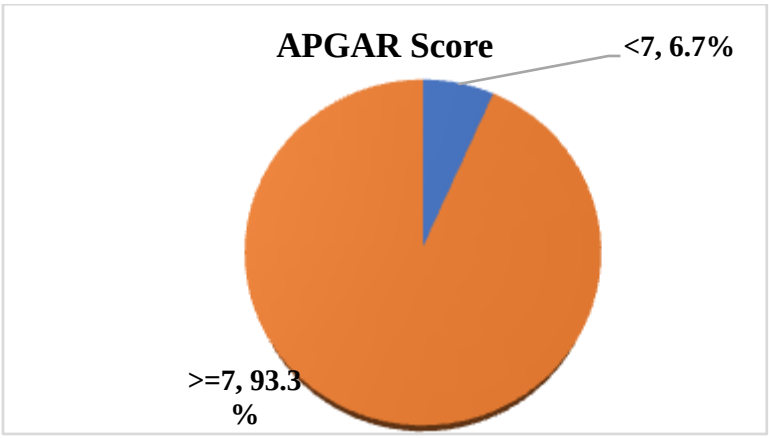
>=2.5 Kg	1395	62.5%
< 2.5 Kg	838	37.5%
Total	2233	100.0%



The health status of the newborn baby was assessed by APGAR score at 5 minutes. A score of more than 7 is considered as a healthy neonate needing no resuscitation; 6.7% of neonates needed resuscitation at birth. (Table 9)

Table 9. Distribution of APGAR score innewborn babies.

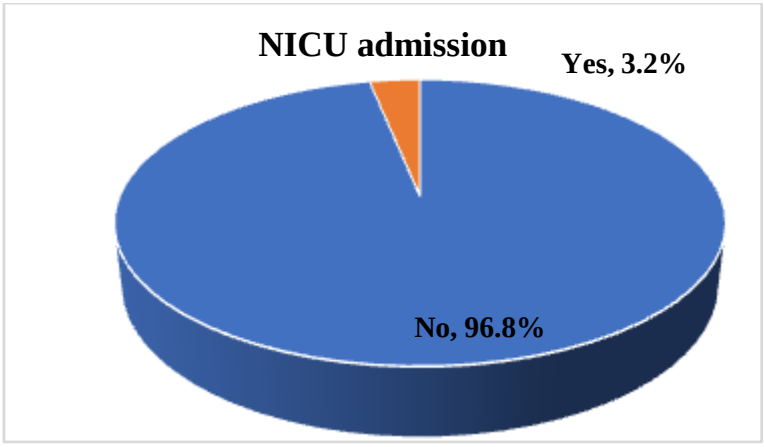
APGAR Score	Frequency	Percent
<7	149	6.7%
>=7	2084	93.3%
Total	2233	100.0%



The neonates who needed NICU admission for further management constituted (3.2%) of all new burns. (Table 10)

Table10. Distribution of NICU admissionof newborn babies

NICU Admission	Frequency	Percent
No	2162	96.8%
Yes	71	3.2%
Total	2233	100.0%

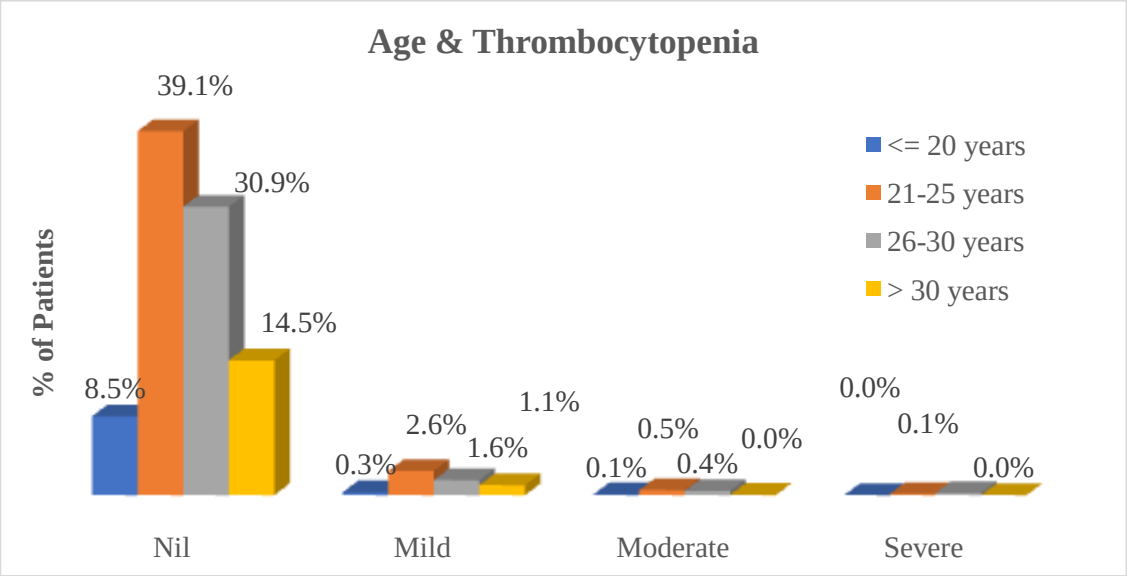


Part B: Correlation of variables with Thrombocytopenia

1) Association of thrombocytopenia with the age of pregnant women: the statistical correlation of age and incidence of thrombocytopenia were examined. Therewas no correlation between age and incidence of thrombocytopeniaasthe p-value was greater than 0.05 (0.294). (Table 11)

Table.11 Correlation of Age and Thrombocytopenia

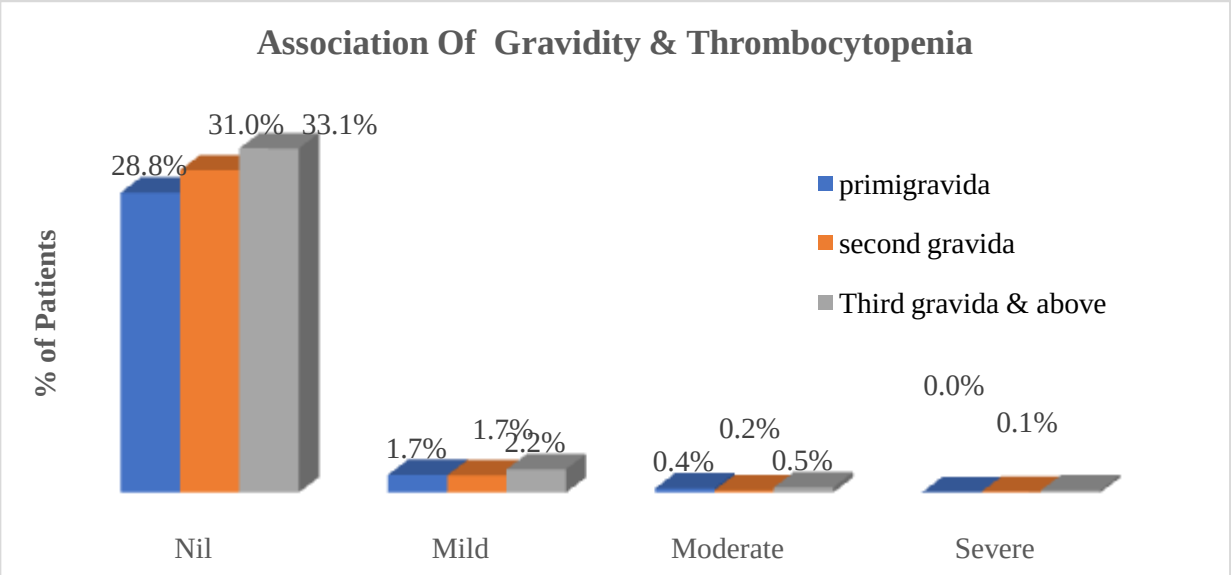
AGE	Thrombocytopenia									
	Frequency					%				
	Nil	Mild	Moderate	Severe	Total	Nil	Mild	Moderate	Severe	Total
<= 20 years	189	7	2	0	198	8.5%	0.3%	0.1%	0.0%	8.9%
21-25 years	872	58	12	3	945	39.1%	2.6%	0.5%	0.1%	42.3%
26-30 years	691	36	10	5	742	30.9%	1.6%	0.4%	0.2%	33.2%
> 30 years	323	24	1	0	348	14.5%	1.1%	0.0%	0.0%	15.6%
Total	2075	125	25	8	2233	92.9%	5.6%	1.1%	0.4%	100.0%
Chi-Square Value	10.738[a]	Df	9	Sig.	0.294					



2) **Association of Thrombocytopenia with gravidity:** Association of thrombocytopenia in pregnant women was assessed by the statistical correlation with the incidence of thrombocytopenia were examined. There was no association was observed as the p-value was greater than 0.05 (0.458). (Table 12)

Table12. Correlation between Gravidity and Thrombocytopenia

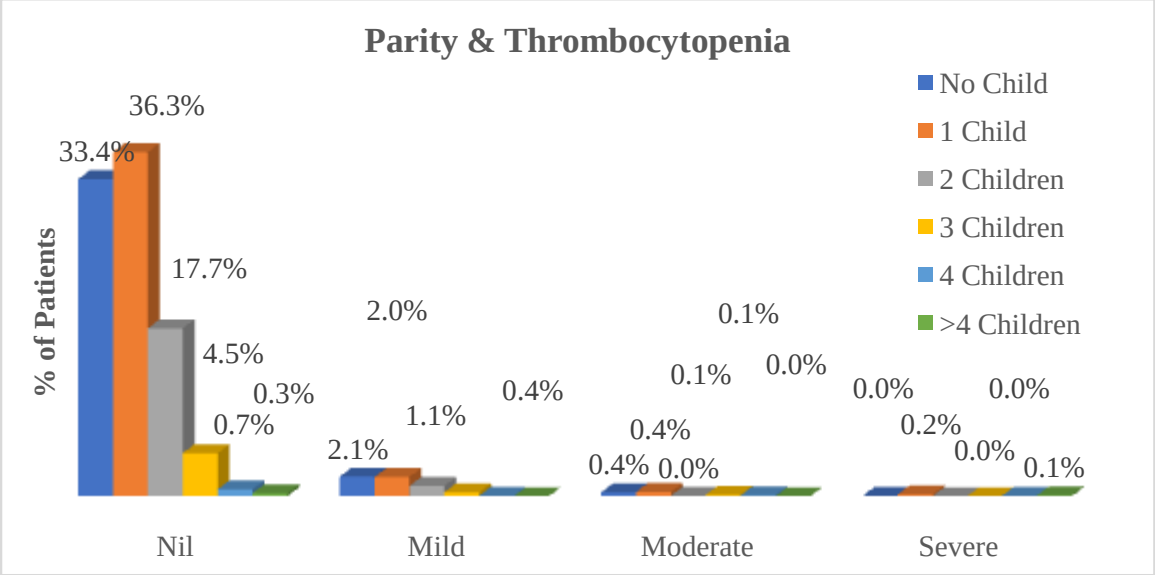
Gravidity	Thrombocytopenia									
	Frequency					%				
	Nil	Mild	Moderate	Severe	Total	Nil	Mild	Moderate	Severe	Total
Primigravida	644	38	9	1	692	28.8%	1.7%	0.4%	0.0%	31.0%
Second gravida	692	37	5	2	736	31.0%	1.7%	0.2%	0.1%	33.0%
Third gravida& above	739	50	11	5	805	33.1%	2.2%	0.5%	0.2%	36.1%
Total	2075	125	25	8	2233	92.9%	5.6%	1.1%	0.4%	100.0%
Chi-Square Value	5.693[a]	Df	6	Sig.	0.458					



3) Association of Thrombocytopenia with parity: Parity has shown a significant relationship with thrombocytopenia as the p-value is lesser than 0.05 (0.000). This infers that anincrease in parity is associated with thrombocytopenia. (Table 13)

Table13. Correlation of parity and Thrombocytopenia

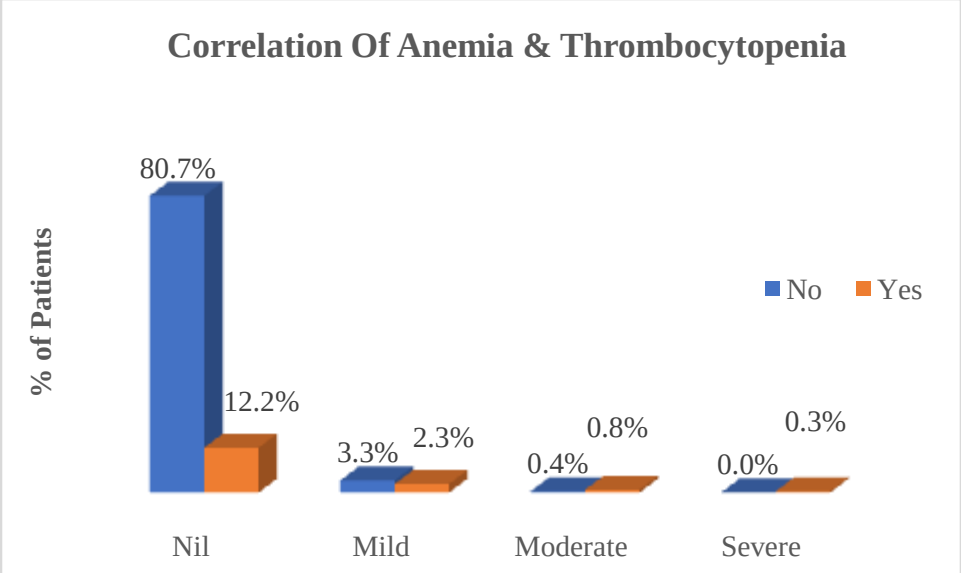
Parity	Thrombocytopenia									
	Frequency					%				
	Nil	Mild	Moderate	Severe	Total	Nil	Mild	Moderate	Severe	Total
No Child	746	46	9	1	802	33.4%	2.1%	0.4%	0.0%	35.9%
1 Child	810	45	10	4	869	36.3%	2.0%	0.4%	0.2%	38.9%
2 Children	395	24	1	0	420	17.7%	1.1%	0.0%	0.0%	18.8%
3 Children	101	9	3	0	113	4.5%	0.4%	0.1%	0.0%	5.1%
4 Children	16	1	2	1	20	0.7%	0.0%	0.1%	0.0%	0.9%
>4 Children	7	0	0	2	9	0.3%	0.0%	0.0%	0.1%	0.4%
Total	2075	125	25	8	2233	92.9%	5.6%	1.1%	0.4%	100.0%
Chi-Square Value	157.747[a]	Df	15	Sig.	0.000					



4) Association of Thrombocytopenia with anemia: the association between anemia and Thrombocytopenia was assessed statistically; the p-value was lesser than 0.05 (0.000). This infers that the patients with anemiahad a significant association with thrombocytopenia. (Table 13)

Table13. Correlation of anemia andThrombocytopenia

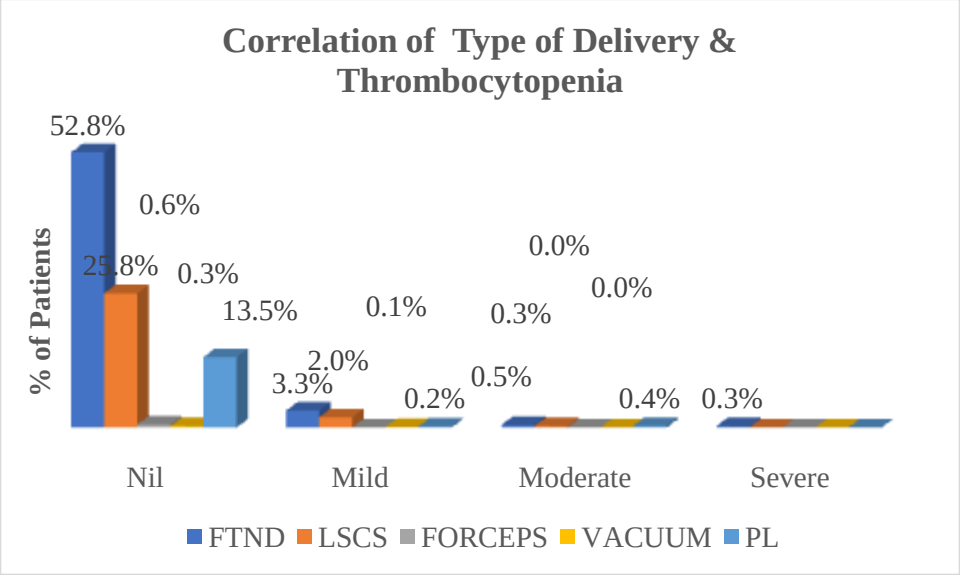
Anemia	Thrombocytopenia									
	Frequency					%				
	Nil	Mild	Moderate	Severe	Total	Nil	Mild	Moderate	Severe	Total
No	1803	73	8	1	1885	80.7%	3.3%	0.4%	0.0%	84.4%
Yes	272	52	17	7	348	12.2%	2.3%	0.8%	0.3%	15.6%
Total	2075	125	25	8	2233	92.9%	5.6%	1.1%	0.4%	100.0%
Chi-Square Value	157.637[a]	Df	3	Sig.	0.000					



5) Association of Thrombocytopenia with the type of delivery: Type of delivery was assessed statistically;patients with Thrombocytopenia hadmore normal delivery as p-value lesser than 0.05 (0.013). (table 14)

Type of Delivery	Thrombocytopenia									
	Frequency					%				
	Nil	Mild	Moderate	Severe	Total	Nil	Mild	Moderate	Severe	Total

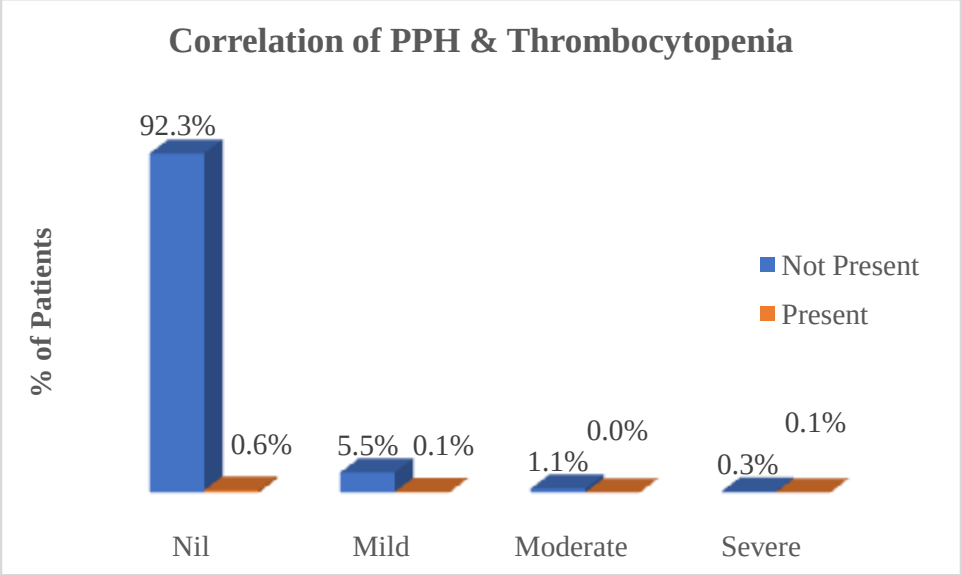
FTND	1179	73	11	6	1269	52.8%	3.3%	0.5%	0.3%	56.8%
LSCS	575	44	6	1	626	25.8%	2.0%	0.3%	0.0%	28.0%
FORCEPS	13	1	0	0	14	0.6%	0.0%	0.0%	0.0%	0.6%
VACUUM	6	2	0	0	8	0.3%	0.1%	0.0%	0.0%	0.4%
Preterm Labor	302	5	8	1	316	13.5%	0.2%	0.4%	0.0%	14.2%
Total	2075	125	25	8	2233	92.9%	5.6%	1.1%	0.4%	100.0%
Chi-Square Value	25.469[a]	Df	12	Sig.	0.013					



6) Association of Thrombocytopenia with PPH: Patients with thrombocytopenia had a higher incidence of PPHas shown a significant relationship;as p-value was less than 0.05 (0.000). (Table 15)

Table15. Correlation of postpartum hemorrhageandThrombocytopenia

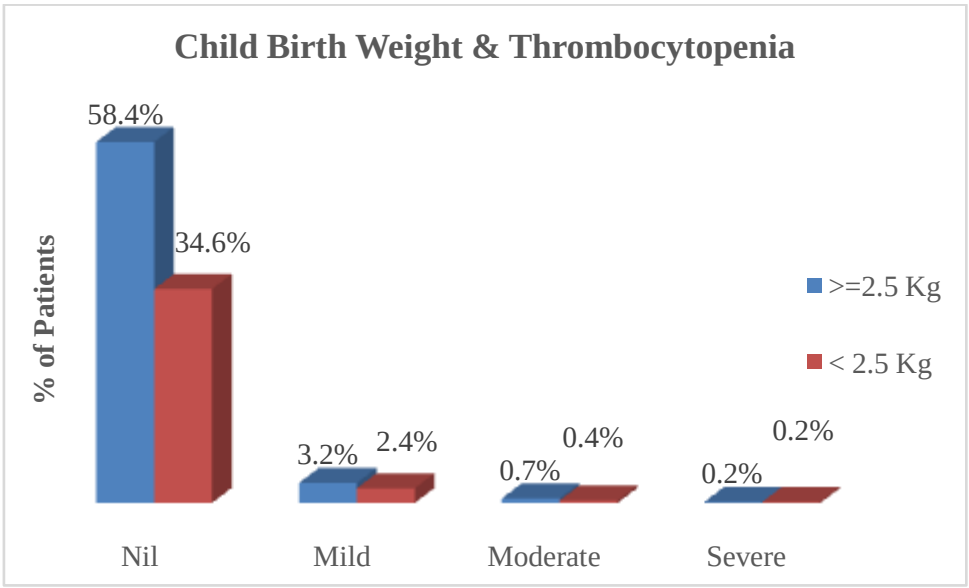
PPH	Thrombocytopenia									
	Frequency					%				
	Nil	Mild	Moderate	Severe	Total	Nil	Mild	Moderate	Severe	Total
Not Present	2061	122	24	6	2213	92.3%	5.5%	1.1%	0.3%	99.1%
Present	14	3	1	2	20	0.6%	0.1%	0.0%	0.1%	0.9%
Total	2075	125	25	8	2233	92.9%	5.6%	1.1%	0.4%	100.0%
Chi-Square Value	59.408[a]	Df	3	Sig.	0.000					



7) Association of Thrombocytopenia with birth weight: Birthweightof the child and thrombocytopenia in pregnant women was assessed statistically; it shown no relationship of birth weight with thrombocytopenia as p-value is greater than 0.05 (0.260).(Table 16)

Table16. Correlation of Thrombocytopenia and birth weight

Child Birth Weight	Thrombocytopenia									
	Frequency					%				
	Nil	Mild	Moderate	Severe	Total	Nil	Mild	Moderate	Severe	Total
>=2.5 Kg	1303	72	16	4	1395	58.4%	3.2%	0.7%	0.2%	62.5%
< 2.5 Kg	772	53	9	4	838	34.6%	2.4%	0.4%	0.2%	37.5%
Total	2075	125	25	8	2233	92.9%	5.6%	1.1%	0.4%	100.0%
Chi-Square Value	1.914[a]	Df	3	Sig.	0.591					

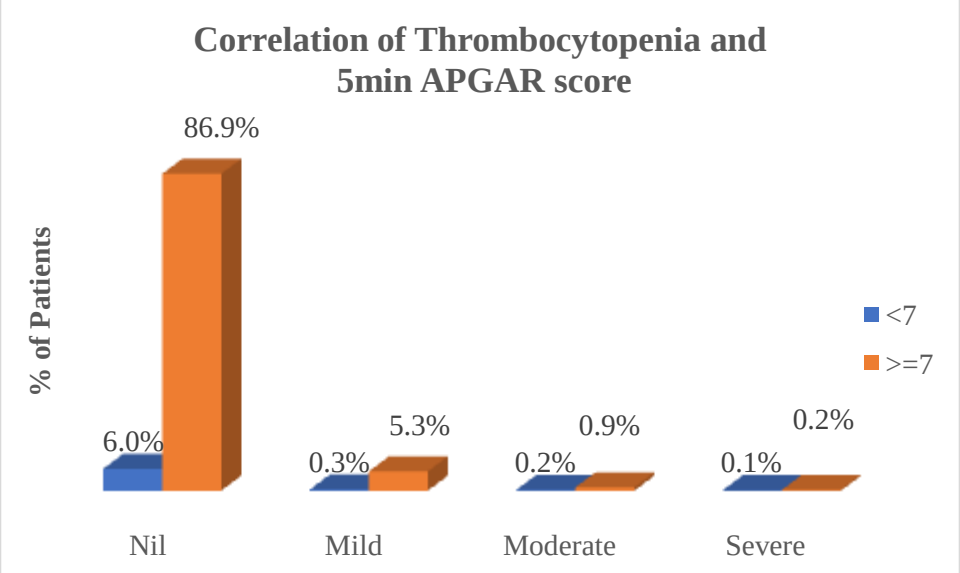


8) Association of thrombocytopenia with 5 minutes APGAR score:the association of patients with thrombocytopenia hada low 5 minute APGAR score statistically.The p-value lesser than 0.05 (0.000). This

infers that the baby born to patients with severe thrombocytopenia had low 5minutes APGAR Score. (Table 17)

Table17. Correlation of Thrombocytopenia and 5 minutesAPGAR score of neonates

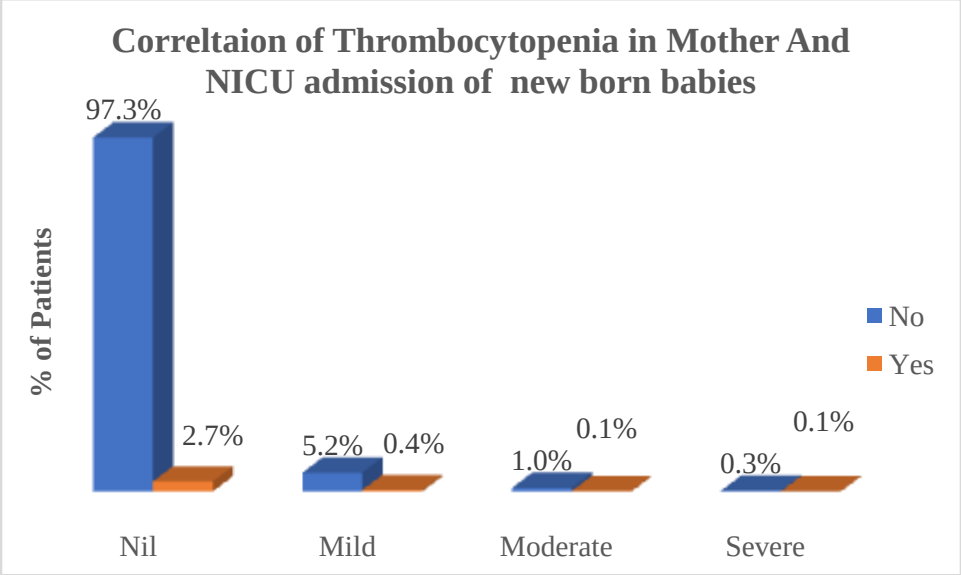
5MAPG	Thrombocytopenia									
	Frequency					%				
	Nil	Mild	Moderate	Severe	Total	Nil	Mild	Moderate	Severe	Total
<7	134	7	5	3	149	6.0%	0.3%	0.2%	0.1%	6.7%
>=7	1941	118	20	5	2084	86.9%	5.3%	0.9%	0.2%	93.3%
Total	2075	125	25	8	2233	92.9%	5.6%	1.1%	0.4%	100.0%
Chi-Square Value	19.724[a]	Df	3	Sig.	0.000					



9) Association of thrombocytopenia with NICU admission:the association of Thrombocytopenia and NICU admission of the newborn was assessed statically. Babies born of the thrombocytopenic mother had higher NICU admission significantly as p-value lesser than 0.05 (0.000). (Table 18)

Table18. Correlation of Thrombocytopenia in pregnancy and NICU admission

NICU admission	Thrombocytopenia									
	Frequency					%				
	Nil	Mild	Moderate	Severe	Total	Nil	Mild	Moderate	Severe	Total
No	2018	116	22	6	2162	90.4%	5.2%	1.0%	0.3%	96.8%
Yes	57	9	3	2	71	2.6%	0.4%	0.1%	0.1%	3.2%
Total	2075	125	25	8	2233	92.9%	5.6%	1.1%	0.4%	100.0%
Chi-Square Value	26.516[a]	Df	3	Sig.	0.000					



The aetiology of thrombocytopeniawere as gestationalthrombocytopenia in 107 (67.7%), primary ITP in 2 (1.2%) , H pylori associated ITP in 25(15.8%), PIH/HEELP syndrome 23 (14.5%) and myelodysplasia–pancytopenia 1(0.6%).

Table 19: Etiology of Thrombocytopenia

Disease	Number	Percentage
Gestational Thrombocytopenia	107	67.7
PIH/HEELP Syndrome	23	14.5
Primary ITP	2	1.2
H pylori associated ITP in 15(5%),	15	9.4%
Pancytopenia	1	0.6
Total	158	100

Severe cases of thrombocytopenia were treated by platelet transfusion/single donor platelet, steroid, and blood transfusion in addition to standard obstetrics care. Ten neonates had an episode of thrombocytopenia and were treated by standard protocol. There was no case of intracranial hemorrhage in the newborn or neonatal death.

IV. Discussion:

Thrombocytopeniacomplicatespregnancy in a large number of women, the frequency of which is second only to anemia. A mild and moderatedegree of thrombocytopenia isusually well tolerated by pregnant women with no feto-maternal complication. The gestational thrombocytopenia (GT) accounts formore than seventy percent of cases. It usually affects less severely and platelet count remains above about eighty thousand per milliliter.[11] The platelet count in GT usually returns to normal followinga few months postpartum.A more severe degree of thrombocytopeniais observed in immune thrombocytopenia and pregnancy-induced hypertension /HELLP syndrome, thrombotic thrombocytopenic purpura TTP, DIC, and myelodysplastic disorders. The role of H pylori infection in inducing ITP is significant as it can be treated by standard treatment regimen and the improvement of platelet count is observed within a few weeks. The prevalence of H pylori infection in the general population is very high in unhygienic living conditions with poor sanitation facilities. In the Indian subcontinent prevalence of *H. pylori* can be as high as 80 percent or more in rural areas. The most common manifestation of *H. pylori* infection in India is peptic ulcer disease, with a predominance of duodenal ulcer disease, over gastric ulcers as high as 8:1 to 30:1. [12].

Immune thrombocytopenia is an uncommon cause of thrombocytopenia in pregnancy, low as 1 in 1000 and 1 in10,000. In 30% of cases, it is diagnosed during pregnancy and childbirth. ITP develops related to viral infection (human immunodeficiency virus [HIV], hepatitis C, and Helicobacter pylori), autoimmune disease, and other challenges.Factors that induce primary ITP and why its course worsens in some pregnant patients are not well understood. H pylori infection-associated ITP is postulated to hypotheses that have been proposed regarding the mechanism by which H. pylori induces the development of ITP. One suggested theory is that cross-reactive antibody against H pylori to platelet surface antigen by molecular mimicry.[13]. Antiplatelet antibodies can cross the placenta and inducethrombocytopenia in the fetus. Many poorly understood factors such as the maturity of the fetal reticuloendothelialsystem, influencethe development of fetal thrombocytopeniawhich

cannot be predicted using available clinical or laboratory parameters.A study had reviewed 788 patients with ITP, including 494 H pylori-infected patients collected from 17 studies, in 2007. Platelet counts increased in ITP patients who received eradication treatment, compared with untreated patients, and the weighted mean difference (WMD) in platelet count was 34.0 × 109 /L regardless of the outcome of H. pylori eradication.**[14,15,16]**

The platelet counts increased significantly in H. pylori-infected patients after successful H. pylori eradication, compared with the following groups: untreated. Inconsistent correlation of neonatal thrombocytopenia was observed with the severity of maternal thrombocytopenia, the level of maternal platelet-associated immunoglobulin, maternal splenectomy, or several other parameters. The predictor of neonatal thrombocytopenia identified is a history of thrombocytopenia in the elder sibling. Up to 50% of women with preeclampsia may have thrombocytopenia, and its severity generally parallels. Occasionally,Thrombocytopenia may precede other manifestations of preeclampsia such as hypertension. Unlike preeclampsia, HELLP is more common in multiparous women. Thrombotic thrombocytopenic purpura (TTP) and HUS, collectively referred to as thrombotic microangiopathies (TMAs), are not pregnancy-specific, although they occur with increased frequency during or about pregnancy. TTP is strongly associated with a severe deficiency of ADAMTS-13, a metalloprotease that cleaves ultra-large von Willebrand factor (VWF) multimers, the most hemostatically active species of VWF. Deficiencies of ADAMTS-13 are usually acquired, resulting from neutralizing autoantibodies. ([17]

In another study from Europe, the prevalence of thrombocytopenia in pregnant women was 15.3% compared with 4% in controls. Most cases of thrombocytopenia were mild (76%), only 4% of the women with thrombocytopenia had severe thrombocytopenia.[18]

In all cases of thrombocytopenia, whether in pregnant or non-pregnant individuals, the peripheral blood film should be examined closely to evaluate for ethylenediaminetetraacetic acid-dependent platelet clumping, causing "pseudo-thrombocytopenia." In such cases, determination of the platelet count in a citrate tube may eliminate clumping and lead to more accurate readings.[19]

Disseminated intravascular coagulation (DIC) may arise from several events in pregnancy, such as placental abruption, amniotic fluid embolism, sepsis, uterinerupture causing a rapid release of tissue factor-rich material into the maternal circulation initiating activation of coagulation, with consumption of coagulation factors and severe hypo-fibrinogemia andthrombocytopenia. hemolytic uremic syndromes (HUS), thrombotic thrombocytopenic purpura (TTP) are life-threatening diseases needing multispecialty involvement.

In the study,the incidence of thrombocytopenia was 7.1%, gestational thrombocytopenia in 107 (67.7%), primary ITP in 2 (1.2%), H pylori-associated ITP in 15(9.4%), PIH/HELLP syndrome 23 (14.5%) and myelodysplasia –pancytopenia 1(0.6%). There was no significant association between age and gravidity withthrombocytopenia. But a significant association with increasing parity was observed. Significant association of thrombocytopenia with anemia, normal delivery, PPH, low APGAR score, NICU admission was observed in the study. No significant association was observed with birth weight. The high incidence of H pylori-associated ITP is a preventable condition that can be treated by an appropriate anti-H pylori regimen for its complete eradication.A study conducted on pregnancy with thrombocytopenia in India had reported of 80.59% of cases were diagnosed to have gestational thrombocytopenia, 15%of cases had thrombocytopenia associated with hypertensive disorder/ HELLP syndrome. [20] A study in Africa had reported the prevalence of Thrombocytopenia in pregnant women as high as 15.3% compared with 4% in non-pregnantcontrol. [21]

In another study had concluded the presence of gestational thrombocytopeniain 70-80%, hypertensive disorders for approximately 20%, and immune thrombocytopenic purpura for about 3-4% of all cases of thrombocytopenia in pregnancy.[22]

Management of thrombocytopenia in pregnancy, especially during pregnancy, near term, and at labor need judicious utilization of therapeutic options depending on the etiology which ranges from the administration of treatment of H pylori, immunosuppressant, steroid, intravenous immunoglobulin, high doses of Rh immunoglobulin, thrombopoietinmimetics, platelet transfusion, andplasmapheresis.[23,24,25,26,27,28]

V. Conclusion:

Pregnancy with thrombocytopenia is a relatively common condition in obstetrics practice, the gestational thrombocytopenia (67.7%) accounts for the majority of them followed by the hypertensive disorder of pregnancy and HELLP syndrome 14.5%), H pylori-associated Thrombocytopenia and (9.4%).primary ITP (1%). There was no significant association of age and gravidity with the prevalence of thrombocytopenia. But a significant association with increasing parity was observed. Significant association of thrombocytopenia with anemia, normal delivery, PPH, low APGAR score, NICU admission was observed in the present study. There was no case of neonatal intracranial hemorrhage in the observed group. No significant association was observed with the birth weight of neonate. Screening for thrombocytopenia, anemia, and H pylori infection during the

terminal part of pregnancy and timely intervention may improve the outcome and minimize serious maternal hemorrhage, fetal and neonatal complications.

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