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A Prospective Study on Thrombocytopenia in Pregnancy at Govt THENI Medical College Hospital, THENI

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I. Introduction

Thrombocytopenia (low blood platelet count) is encountered in 7-12% of pregnancies. Now a days, Women are commonly diagnosed with platelet disorders during pregnancy since screening is done with automated blood counts. Thrombocytopenia can result from a wide range of conditions with several of them being pregnancy related. The incidence of gestational throm-bocytopenia is 5-11% and accounts for more than 70% of cases of thrombocytopenia in pregnancy. Pregnancy is associated with physiological and pathological changes in platelet numbers and function which can be of clinical concern.

Due to haemodilution, due to expansion of plasma volume in pregnancy, platelet count in normal pregnancies decrease by approximately 10%, most of which occurs during the third trimester. The physiological thrombocytopenia of pregnancy is usually mild and will not have any adverse effects on mother and fetus.

Thrombocytopenia is defined as platelet count less than 150000/µL. It is second to anemia, as the most common hematological abnormality diagnosed during pregnancy. Thrombocytopenia is diagnosed by automated complete hemogram during routine antenatal screening by obstetricians .It can result from various conditions, several of them being pregnancy related. The normal range of platelets in non-pregnant women is 150,000-400,000/µL. Average platelet count in pregnancy is usually decreased . Decrease in theplatelet count in normal pregnancy is due to haemodilution, increased consumption of platelets and increased platelet aggregation driven by increased levels of thromboxane A2.

- Mild thrombocytopenia is 1,00,000 - 1,50,000/µL.
- Moderate thrombocytopenia is 50,000 - 1,00,000/µL.
- Severe thrombocytopenia is less than 50,000/µL.

Clinical assessment is the most important for evaluation of a pregnant patient with thrombocytopenia. Medical history may include the following:

- Current or previous bleeding problems
- Family history of bleeding
- Alcohol or substance abuse history
- Past obstetrical history, transfusion history
- Examination findings suggestive of thrombocytopenia include the following: petechiae, ecchymosis, nose and gum bleeding, hematuria, gastrointestinal bleeding, intracranial bleeding

Etiologic classification for Thrombocytopenia:
Obstetric: (gestational thrombocytopenia, hypertensive disorders, DIC,multifetal gestation)
Non Obstetric: (ITP, hypersplenism, hepatic disorders, Iatrogenic etc)

II. Aim And Objective Of The Study

The aim of the study is to evaluate the value of platelet count, the prevalence and maternal and foetal outcome in thrombocytopenia in pregnancy at Govt.Theni Medical College Hospital

III. Materials And Methods

STUDY PLACE : GOVT THENI MEDICAL COLLEGE
STUDY DESIGN : PROSPECTIVE OBSERVATIONAL CASE STUDY
STUDY PERIOD : 1 YEAR (JUNE 2019 TO JULY 2020)
SAMPLE SIZE : 100 CASES
ETHICAL CLEARANCE : Obtained
PARTICIPANTS :

The study was conducted in antenatal mothers admitted in labour ward in Dept of Obstetrics and Gynaecology, Govt Theni Medical College, Theni

INCLUSION CRITERIA:

Pregnant women of different trimesters with the platelet count less than 1.5lakhs/ µL were included in the study.

EXCLUSION CRITERIA: Pregnant patients with hereditary haematological disorders,viral infections.

IV. Methodology

In this study, 100 pregnant women, recruited from Department of Obstetrics and Gynecology, Government Theni Medical College, Theni after approval from institutional Ethical Clearance Committee from June 2019 to July 2020. Written informed consent was taken from them. Antenatal women were enrolled in the study at first visit, irrespective of gestational age. Details were entered in the proforma regarding the detailed history of period of gestation, high risk factors, past history, complications during present and past pregnancy.

- **Sample Collection:** Blood specimen was withdrawn with minimal stasis from the antecubital vein using a dry sterile disposable syringe and needle. 3mL of blood is dispensed into EDTAanticoagulant tubes. The specimens were labelled with subject's age, sex and identification number. The EDTA samples were kept at room temperature until processed within 4 hrs of collection.
- **Laboratory Analysis:** Platelet count was done according tomethod of Brecher and Cronkite
- **Laboratory investigation:** All women had platelet count estimation at the time of enrollment. Platelet count assessment was done through automated blood count analyzer with routine antenatal haematological evaluation of the patient. The detailed work up of all cases of thrombocytopenia was done to ascertain the cause of thrombocytopenia
- All women were subjected to blood test for Hb, TLC, DLC,bleeding time, clotting time, RFT, LFT, HBsAg & HIV. Women with fever were tested for Dengue IgM, peripheral smear for malarial parasites. Coagulation tests (PT, APTT, FDP and fibrinogen) were done in those with signs or symptoms of DIC. Maternal outcome regarding mode of delivery, complications occurring during delivery, postpartum period were observed.

V. Results And Analysis

This study was done in hundred patients with thrombocytopenia in pregnancy. Investigation were done to identify thrombocytopenia and to rule out other causes of thrombocytopenia in pregnancy. Data obtained from the study group are analysed and statistically verified by non parametric Chi square (X^2) test. Statistical significance was calculated between platelet count and maternal outcome. A p value of < 0.05 was considered to be stastically significant. One hundred women were recruited in the study. Most women(46%) were in the age group <23 years.

Etiology	No.of cases
Gestational thrombocytopenia	60
Malaria	17
Pregnancy inducedhypertension	12
Eclampsia	4
HELLP	4
Septicemia	1

Idiopathic thrombocytopenicpurpura	2

Platelet count	No.of cases
< 50,000	25
50001 - 100000	68
> 100000	7
Total	100

Platelet count	No.of cases	**Mean Age**
< 50,000 (Severe)	25	24.72
50001 - 100000 (Moderate)	68	23.88
> 100000 (Mild)	7	25.29

Platelet count	No.of cases	**Mean HB**
< 50,000 (Severe)	25	9.46
50001 - 100000 (Moderate)	68	10.54
> 100000 (Mild)	7	11.24

Platelet count	No.of cases	**Mean WBC**
< 50,000 (Severe)	25	10777.6
50001 - 100000 (Moderate)	68	10591.4
> 100000 (Mild)	7	10025.6

Platelet count	No. of cases	**Mean SGOT**
< 50,000 (Severe)	25	43.38
50001 – 100000 (Moderate)	68	27.85
> 100000 (Mild)	7	23.69

Platelet count	No.of cases	**Mean SGPT**
< 50,000 (Severe)	25	42.56
50001 – 100000 (Moderate)	68	41.25
> 100000 (Mild)	7	32.27

Platelet count	No.of cases	**Mean Creatinine**
< 50,000 (Severe)	25	0.81
50001 – 100000 (Moderate)	68	0.76
> 100000 (Mild)	7	0.77

Obstetric code	No.ofcases	**Mild**	**Moderate**	**Severe**
Primi	47	4	34	9

G2A1	15	0	11	4
G2 P1 L1	13	0	11	2
G2 P1 L1 A1	15	0	8	7
G3 P2 L2	10	3	4	3
Total	100	7	58	25

Platelet count	No.of cases	**Mean INR**
< 50,000 (Severe)	25	0.91
50001 – 100000 (Moderate)	68	0.88
> 100000 (Mild)	7	0.77

Hb	No.of cases	**Mild**	**Moderate**	**Severe**
9.0 - 10.0	39	0	17	22
10.1 - 11.0	40	2	35	3
11.0 - 12.0	21	5	16	0
Total	100	7	68	25

Of the total cases, 28 cases needed induction for various obstetrical reasons, of which most common indication was mild pre-eclampsia (12 cases) followed byIUGR (10 cases) and PROM (6 cases). Of the cases studied, only 18 cases needed platelet transfusion and 92 cases did not need any platelet transfusion. Out of moderate to severe cases (93 cases) only 9 cases developed PPH during delivery, all of which were medically managed. No maternal mortality was reported due tothrombocytopenia during the study. Out of 100 neonates, 1 died on the day of birth in 6hrs due to RDS, 6 babiesneeded NICU admission whose APGAR were <7 in 1 and 7 mins,10 were IUGR babies and rest of the babies were normal.

VI. Discussion

Thrombocytopenia is a disorder with an abnormally low platelet count. The most common cause of thrombocytopenia in pregnancy was gestational thrombocytopenia, followed by thrombocytopenia associated with hypertensive disorders, ITP, and other diseases like aplastic anemia or acute leukemia. Because of the presence of maternal anti-platelet antibodies that can cross the placental barrier and enter the foetal circulation, recognition of ITP cases during pregnancy is more important.

Pathogenic mechanisms include insufficient production, abnormal distribution, or excessive destruction of platelets. Excessive destruction can be caused by microangiopathy, hereditary platelet abnormalities, or immunologic mechanisms. The decrease in platelet counts may also be related to pregnancy-specific syndromes such as preeclampsia, HELLP syndrome or acute fatty liver or to non-specific syndromes, like thromboticmicroangiopathies, systemic lupus erythematosus, viral infections, primaryand secondary bone marrow dysfunctions.

There are many research study on the incidence and cause of thrombocytopenia during pregnancy. In the present study, the prevalence of thrombocytopenia disorder among pregnant women were 17% . This in accordance with Olayemi and Akuffo [25], who reported that the prevalence of thrombocytopenia in pregnant Ghanaian women was 15.3% compared with control. Verdy and Uzan, [27] found that 15% of pregnant women was thrombocytopenic . Also, Boehlen *et al.* [7] reported that the incidence of thrombocytopenia in pregnant women were 11.6% when they studied the incidence of thrombocytopenia in pregnant women among 6770 pregnant women. On the other hand, Mbanya *et al*. found that the prevalence of thrombocytopenia was 8.9% in pregnant Cameroon women. In Erbil City, Iraq, Shamoon *et al.*, [28] reported that the prevalence of thrombocytopenia was 8% in pregnant women, with peak incidence during the third trimester. Also, the overall incidence of thrombocytopenia in pregnancy was 8%, but when patients with obstetric or medical conditions were excluded, the incidence dropped to 5.1%. Gestational thrombocytopenia is the most common cause of thrombocytopenia in pregnancy. It mostly manifests in the third trimester of pregnancy.

We found that the incidence of the disease in our hospital over the study period to be 18%. Out of 100 cases, 7% has mild thrombocytopenia, 68% has moderate thrombocytopenia and 25% has severe thrombocytopenia. Most of the cases (47%) are primi gravida and 50% of the cases are in 27-34 week

gestational age, nearly 80% of the cases has HB less than 11gms. 75% of the case had less than 11000 WBC count. No significance exists between the severity and the Age of mothers(p value 0.991), also between the Haemoglobin level and the severity of thrombocytopenia . Regarding etiology, gestational thrombocytopenia had the higher incidence ie. 60%.

Majority of the patients has no clinical manifestation. past obstetric history signifies in only 5% of the study population. obstetric indication decides the mode of delivery, most of the patients were delivered vaginally. 18 cases needed platelet transfusion. 9 cases of moderate to severe thrombocytopenia developed PPH during delivery which were medically managed .no maternal mortality was reported during the study due to thrombocytopenia. fetal distress was reported to be the most common indication for LSCS. gestational thrombocytopenia has no evidence of significant neonatal thrombocytopenia. During this study only 6 neonates developed thrombocytopenia. All mothers were discharged in stable condition and were advised follow up after 6 wks for platelet count review, most of the mothers reported and all were found to have normal platelet count .

VII. Conclusion

Gestational thrombocytopenia (GT) is a recently described clinical entity which is characterized by the incidental detection of mild to moderate reduction of platelet count during pregnancy in an otherwise healthy women with no previous history of autoimmune thrombocytopenia and no conditions known to be associated with thrombocytopenia. Significant neonatal thrombocytopenia is seldom observed, it can recur in subsequent pregnancies, but platelet count usually recovers within 1-6 months postpartum. The baseline low platelet counts during pregnancy and its declining trend with increasing gestational age predispose Indian women to increased risk of thrombocytopenia in pregnancy. Thus, platelet count estimation should be a routine at first antenatal visit for early diagnosis and also to achieve favorable foetal and maternal outcome in all types ofthrombocytopenia during pregnancy. In GT there is no therapeutic answer to steroids and the lack of response is an additional argument for the diagnosis.

In our study we concluded that early interdisciplinary evaluation of thrombocytopenia in pregnancy is required for optimal care of mother and neonate as the risk varies greatly depending on the cause of thrombocytopenia. The common causes of thrombocytopenia in pregnancy are gestational thrombocytopenia, preeclampsia, HELLP syndrome, malaria and dengue. Gestational thrombocytopenia is associated with better maternal and perinatal outcome as compared to pre-eclampsia, HELLP syndrome, ITP which expose them to life threatening complications as placental abruption, postpartum haemorrhage, birth asphyxia and stillbirth. Thus accurate etiological diagnosis is essential for optimal therapeutic management.

Bibliography

[1]. Burrows RF, Kelton JG. Incidentally detected thrombocytopenia inhealthy mothers and their infants. N Engl J Med 1988; 319:142-5

[2]. McRae KR, Samuels P, Schreiber AD. Pregnancy associated thrombocytopenia: pathogenesis and management. Blood 1992; 80:2697-714.

[3]. Anteby E, Shalev O. Clinical relevance of gestational thrombocytopenia of < 100.000/uL. Am J Hematol 1994; 47:118-22.

[4]. Matthews JH, Benjamin S, Gill DS, Smith NA. Pregnancy-associated thrombocytopenia: definition, incidence and natural history. Acta Haema- tol 1990; 84:24-9.

[5]. Aster RH. Gestational thrombocytopenia. A plea for conservative management. N Engl J Med 1990; 323:264-6.

[6]. Samuels P, Bussel JB, Braitman LE, et al. Estimation of the risk of thrombocytopenia in the offspring of pregnant women with presumed im- mune thrombocytopenic purpura. N Engl J Med 1990; 323:229-35.

[7]. Bur- rows RF, Kelton JG. Thrombocytopenia at delivery: a prospective survey of 6715 deliveries. Am J Obstet Gynecol 1990; 162:731-4.

[8]. How HY, Bergmann F, Koshy F, et al. Quantitative and qualitative platelet abnormalities during pregnancy. Am J Obstet Gynecol 1991; 164:92-8. Burrows RF, Kelton JC. Fetal thrombocytopenia and its relation to ma-ternal thrombocytopenia. N Engl J Med 1993; 329:1463-6.

[9]. Ballerini G, Gemmati D, Moratelli S, Morelli P, Serino ML. Anticardiolipin antibody-related thrombocytopenia: persistent remission aftersplenectomy. Haematologica 1995; 80:248-51.

[10]. Sullivan CA, Martin JN Jr. Management of the obstetric patient with thrombocytopenia. *Clin ObstetGynecol* 1995; 38(3):521-34.

[11]. Kam PC, Thompson SA, Liew AC. Thrombocytopeniain the parturient. *Anaesthesia* 2004; 59(3):255-64.

[12]. Burrows RF, Kelton JG. Fetal thrombocytopenia andits relation to maternal thrombocytopenia. *N Engl J Med* 1993; 329(20):1463-6.

[13]. Boehlen F, Hohlfeld P, Extermann P, Perneger TV, deMoerloose P. Platelet count at term pregnancy: a reappraisal of the threshold. *Obstet Gynecol* 2000; 95(1):29-33.

[14]. Sainio S, Kekomäki R, Riikonen S, Teramo K. Maternal thrombocytopenia at term: a populationbasedstudy. *Acta Obstet Gynecol Scand* 2000; 79(9):744-9.

[15]. Rodeghiero F, Stasi R, Gernsheimer T, Michel M, Provan D, Arnold DM, *et al*. Standardization of terminology, definitions and outcome criteria in immune thrombocytopenic purpura of adults and children: report from an international working group. *Blood* 2009; 113(11): 2386-93.

[16]. Gernsheimer T,JamesAH, Stasi R. How I treatthrombocytopenia in pregnancy. *Blood* 2013; 121(1):38-47

[17]. Fay RA, Hughes AO, Farron NT. Platelets in pregnancy: hyperdestruction in pregnancy. *ObstetGynecol* 1983; 61(2):238-40.

[18]. ACOG practice bulletin: Thrombocytopenia in pregnancy. Number 6, September 1999. Clinical management guide l ine s for obs t e t r i c i angynecologists.American College of Obstetricians and Gynecologists. *Int J Gynaecol Obstet* 1999; 67(2):117-128.

[19]. Cunningham FG, Gant NF, Leveno KJ, Gilstrap III LC, Hauth JC, Wenstrom KD. Williams obstetrics, 21st edn. McGraw-Hill,

Hematological disorders; 2001, p. 1307–38 [Chapter 49]
[20]. Shehata N, Burrow RF, Kelton JG. Gestational thrombocytopenia. *Clin Obstet Gyne* 1999; 42(2):327-34.
[21]. Cines DG, Blanchette VS. Immune thrombocytopenic purpura.*N Engl J Med* 2002; 346(13): 995-1008. 2 2 . Sullivan CA, MartinJN Jr. Management of the obstetric patient with thrombocytopenia. *Clin ObstetGynecol* 1995; 38(3):521-34.
[22]. Lim KH, Rivlin M, Preeclampsia − Medscape online, updated 29 May 2011, Available at: http://emedicine.medscape.com/article/796690-overview. Accessed on 01 July, 2011.
[23]. Parnas M, Sheiner E, Shoham-Vardi I, Burstein E, Yermiahu T, Levi I, Holcberg G, Yerushalmi R. Moderate to severe thrombocytopenia duringpregnancy. Eur J Obstet Gynec Reprod Biol 2006;128:163–168.
[24]. Martí-Carvajal AJ, Peña-Martí GE, Comunián-Carrasco G. Medical treatments for idiopathic thrombocytopenic purpura during pregnancy.Cochrane Database Syst Rev 2009;:CD007722.
[25]. 26.Stavrou E, McCrae KR. Immune thrombocytopenia in pregnancy.Hematol Oncol Clin North Am 009;23:1299–1316.

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