Bulletin of Environment, Pharmacology and Life Sciences
Bull. Env. Pharmacol. Life Sci., Vol 11 [9] August 2022 : 149-152

Online ISSN 2277-1808
Journal's URL:http://www.bepls.com
CODEN: BEPLAD

ORIGINAL ARTICLE **OPEN ACCESS**

Platelet Count Low Levels as Assign of Gestational Hypertension

S. Srinisha, Rukmani, M. Shwetha, G. Jayalakshmi*
Sri Lakshmi Narayana Institute of Medical Sciences Affiliated to Bharath Institute of Higher Education and Research, Chennai, Tamil Nadu, India.
*Correspondence: jayalakshmi.2k15@gmail.com

ABSTACT
The goal of this study was whether a low platelet number might be used as a predictive element in determining the severity of prenatal hypertension. The platelet 1.0 -1.5 lakhs category had a high rate of maternal and fetal problems. The peripheral placenta was found in 53% of instances, while the center placenta was found in 47%. In a countries like India, where primary health centers play a critical role in providing medical care to the vast bulk of antenatal mothers, cheap and practical assessments like platelet quantification will assist in early indication of disease activity and referral to a tertiary center for timely management, thus working to improve maternal and fetal outcomes.
Keywords: *hypertension; platelet; prenatal delivery; preeclampsia; vascular diseases.*

Received 26 .04.2022 Revised 23.06.2022 Accepted 11.07.2022

INTRODUCTION

Hypertensive syndromes are a frequent medical problem that might make pregnancy more difficult. Hypertensive diseases remain the biggest causative factor of maternal deaths, according to a WHO systemic evaluation of maternal mortality globally. Hypertension, along with haemorrhage and illnesses, is a lethal trifecta that contributes to maternal mortality and morbidity, impacting 7-15 percent of pregnant women and responsible for a quarter of all prenatal admissions [1].Preeclampsia has become more common as the prevalence of risk variables. In affluent nations, hypertension diseases are responsible for about 16% of maternal mortality, and more than half of this hypertensive-related mortality is preventable [2].Hypertensive syndromes are accounts for a substantial amount of maternal morbidity as well as maternal deaths. Hypertension in childbirth has a long-term influence in the form of persistent hypertension and heart disease risk. Prenatal hypertension can develop to eclampsia, which is characterized by hypertension, proteinuria, edoema, and epileptic type convulsions and necessitates an urgent medical abortion and intensive care [3].

Preeclampsia is the most common recognized risk factor for miscarriage during pregnancy. Preeclampsia is linked to fetal growth restriction, prematurity, and newborn intensive care hospitalization [4]. Thrombocytopenia is a complication of prenatal hypertension that affects 7 to 8% of all births [5]. Thrombocytopenia is defined as a low number of platelets 6 caused by a multitude of factors varying from benign illnesses like pregnancy thrombocytopenia to more serious medical conditions.

Thrombocytopenia is typically mild to moderate in preeclampsia, but it can be extreme in eclampsia, and patients are more prone to develop HELLP syndrome. Thrombocytopenia is caused by four mechanisms: insufficient platelet generation, rapid destruction, platelet pooling, and artifactual thrombocytopenia. Prenatal is also linked to modifications in platelet production and degradation, implying that platelet production and destruction are both boosted during pregnancy [6]. Thrombocytopenia has been linked to neonatal and maternal morbidity and mortality in both the fetus and the mother. The severity of the illness process and the length of time that PIH syndrome lasts is determined by the severity of maternal thrombocytopenia. Higher maternal and foetal mortality and morbidity are proven to lower platelet counts. As a result, simple tests like platelet count can aid in predicting the course of disease and planning quick treatment to decrease maternal and foetal death and morbidity [7-9].

MATERIAL AD METHODS

INCLUSION PARAMETERS

Pregnant women above the age of twenty two weeks who were hospitalised to the department of Obstetrics and Gynecology at Sri Lakshmi Narayana Medical College and Hospital and also attended the outpatient clinics and were confirmed with prenatal hypertension.

EXCLUSION PARAMETERS

1. Haematological disorders
2. Endocrine disorders.
3. Multiple pregnancy.

This is a prospective cohort study that took place at Sri Lakshmi Narayana Medical College and Hospital in the Department of Obstetrics and Gynecology for one and a half years, from August 2020 to February 2021.The study included 100 cases who were hospitalised after visiting the outpatient clinics. As per blood pressure and proteinuria, these patients were classified as having gestational hypertension, moderate preeclampsia, or serious preeclampsia. Patients with gestational hypertension have a blood pressure of more than 140/90 mmHg but no indications of proteinuria.

Thrombocytopenia is described as a low platelet count of less than 1, 50,000 per cubic millimetre. The comprehensive background, clinical signs, and investigations as listed in the proforma were used to carry out this research. Blood will be drawn from the antecubital vein and placed in an EDTA tube before being examined in an automated cell counter. The numbers will be thoroughly crosschecked if there is thrombocytopenia. The information was then entered into the prescribed format and assessed to meet the study's goals and objectives. The patients were examined for maternal problems till birth and the early postpartum period. Mode of delivery, time of delivery, disease progression, and complications such as abruption, eclampsia, imminent eclampsia, HELLP Syndrome, DIC, pulmonary oedema, and maternal mortality were all studied. In the case of RDS, MAS, and birth asphyxia, the foetal prognosis was reported in terms of IUGR, preterm, IUD, and NICU admission. Decreased platelet counts in pregnant women were evaluated and managed according to conventional guidelines for the management of hypertension complicating pregnancy. This information was then collated, and association tests such as the chi square were used to assess the data.

RESULTS

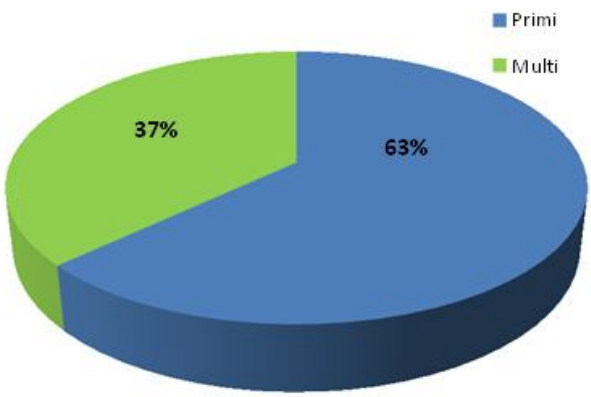
There have been 83 instances in the age category 22-35 years, eight instances in the age group 21 years, and nine patients in the age group >35 years among the 100 patients of PIH. The age distribution of patients is presented in **Table 1**.

Table 1. Age Distribution

Age (Years)	Frequency	Percent
<21	8	8.0%
22-35	83	83.0%
>35	9	9.0%
Total	**100**	**100**

With 63 patients, primigravida had the greatest rate of preeclampsia. In our research, we found 37 instances of multigravida. The parity distribution of patients is shown in **figure 1**.

Figure 1: Parity Distribution



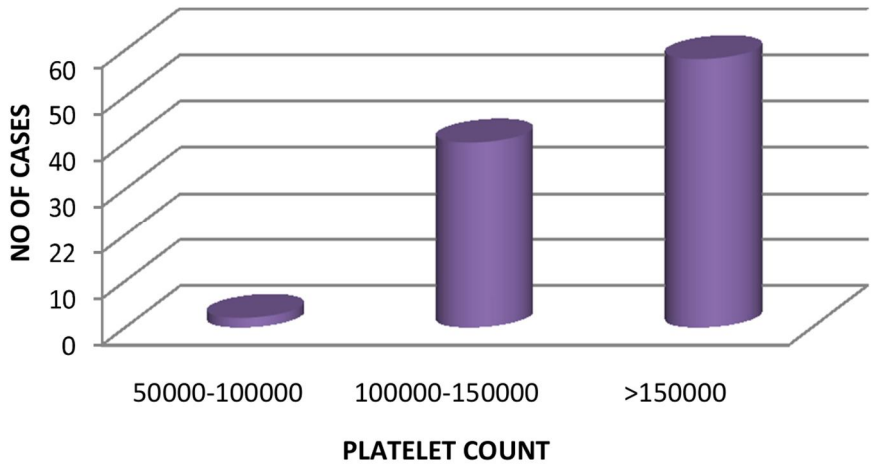
There were 13 instances between 22 and 34 weeks of pregnancy, 42 cases between 34+1 and 37 weeks, and 45 instances beyond 37 weeks of pregnancy. This demonstrates that our research study had a decreased rate of early-onset preeclampsia (**Table 2**).

Table 2.Distribution of gestational age during diagnosis

Gestational Age (Weeks)	Frequency	Percent
22 - 34	13	13.0
34^{+1}-37	42	42.0
> 37	45	45.0
Total	**100**	**100.0**

There were 58 instances in which the platelet count was greater than 150000. There were 42 instances of thrombocytopenia, with two instances in the 50000-100000 range and 40 instances in the 100000-150000 range. In our investigation, there were no cases of serious thrombocytopenia (**Figure 2**).

Figure 2. Platelet Count Distribution



There were 55 instances of mild preeclampsia, 30 instances of gestational hypertension, and 15 instances of severe preeclampsia among the 100 PIH patients.

DISCUSSION

The prevalent in the general handful of cases in our study was 22–35 years old, with 83 cases. There were eight cases under the age of 21 and nine cases above the age of 35. According to the study, the patients usually were between the ages of 22 and 25 [10, 11]. However, in the study that was conducted [12].The majority of the patients were between the ages of 25 and 29. The smaller age group may be attributed to the earliest age of marriage and first birth that we see in our country. The most common age group for thrombocytopenia was 22–35 years old, with 34 instances (80.9 percent). In the age range of 21 years, there were three occurrences of thrombocytopenia out of eight cases (7.14 percent).Thrombocytopenia was detected in five out of nine cases in people above the age of 35. (11.9percent). Complications were more common in the youngest and oldest age groups [13]. Preeclampsia is largely an illness that affects first-time mothers. The number of primigravida (63%) outnumbered multigravida in our analysis of 100 PIH patients (37 percent). This is comparable to what has been found in other investigations. Gupta et al. 56 found that 58.6% of PIH cases were primiparous and 41.1 percent were multiparous, compared to which revealed that the majority of PIH patients were nulligravida 62 percent [14].

This is also in line with the findings in the literature that states 53.8 percent and 61 percent primigravida instances, respectively, and 46.1 percent and 39 percent multigravida patients. The relationship between parity and different types of PIH was not substantial. This was in line with the findings of the investigation [15, 16]. Preeclampsia that develops after 34 weeks is known as late-onset preeclampsia (LOPE)[17]. LOPE had a larger incidence of 87 percent in our study than EOPE, which had a lower incidence of 13 percent. The laterally situated placenta was found in 53 cases (53%), while the central placenta was found in 47 cases (47 percent).Both uterine arteries demonstrated identical barrier in

individuals with a centrally placed placenta, and uteroplacental circulation is met equally by both side arteries.

CONCLUSION

Platelet estimation is a vital assessment for women with PIH, according to the findings. It is proportional to the severity of the sickness, and thus to the result of the mother and foetus. In this investigation, it was discovered that a decreased platelet count was associated with illness progression, resulting in maternal - perinatal morbidity and mortality. Premature birth has been the most common problem in the research, which found that using corticosteroids at the right time can improve lung maturity, lowering RDS, intraventricular haemorrhage, and perinatal mortality. In females with thrombocytopenia, the risk of pregnancy complications such as abruption, DIC, and eclampsia was significant. As a result, continuous monitoring, early hospitalization, and, if necessary, termination of pregnancy could help to avert severe consequences. Hypertensive diseases, which contribute significantly to maternal morbidity and mortality, constitute the most critical and intriguing unsolved topic in obstetrics. Platelet estimate is a straightforward, practical, and cost-effective tool for reducing the disease's consequence on maternal and fetal health by detecting the disease's seriousness early.

REFERENCES

1. Berg CJ, Harper MA, ArkinsonSM, et al (2005). . Preventability of preg- nancy-related deaths. Obstet Gynecol. ;106:1228–1234
2. Damani Z. (2016). Platelet Count in Women with Pregnancy Induced Hypertension in University Hospital Center of Mother and Child Healthcare &147;Koco Gliozheni&148;, Tirana, Albania. Mater Socio Medica. 28(4):268. doi:10.5455/msm.2216.28.268-270
3. Fiona M, Chris R, James W, et al. (2005). The pre-eclampsia community guideline (PRECOG): How to screen for and detect onset of pre- eclampsia in the community. BMJ ;30:576–580
4. Mohapatra S, Pradhan B B, Satpathy U K, Mohanty A, Pattnaik JR. (2007). Platelet estimation: Its prognostic value in pregnancy induced hypertension. Indian J PhysiolPharmacol. 51(2):160-4.
5. McCrae KR. (2019). Pregnancy induced thrombocytopenia: pathogenesis and management. Blood. 80;2697-714.
6. Khan KS, WojdylaD, Say L, et al. (2006). WHO analysis of causes of mater- naldeath: a systematic review. Lancet. ;367:1066–1074.
7. American College of Obstetricians &Gynecologists. (2002). Diagnosis and Management of Preeclampsia and Eclampsia. Practice Bulletin No.33. Washington, DC: ACOG.
8. De Wolf F, De Wolf-Peeters C, BrosensI, et al (1980).The human placental bed: electron microscopic study of trophoblastic invasion of spiral arteries. AmJ ObstetGynecol 137:58.
9. Karumanchi S A (2016). Angiogenic factors in preeclampsia from diagnosis to therapy. Hypertension 67:1072.
10. Wallis AB, Saftlas AF, Hsia J, Atrash HK. (2008). Secular Trends in the Rates of Preeclampsia, Eclampsia, and Gestational Hypertension, United States, 2187 -2204. Am JHypertens. 21(5):521–526.
11. Duley L. (2009). The Global Impact of Pre-eclampsia and Eclampsia. SeminPerinatol. 33(3):130–137.
12. Goldenberg RL, Rouse DJ. Prevention of premature birth. N EnglJ Med.2198;339(5):313–322.
13. Zhou Y, DamskyCH, Fisher SJ: (1997). Preeclampsia is associated with failure of human cytotrophoblasts to mimic a vascular adhesion phenotype. J ClinInvest 99(9):2152.
14. Fisher S, Roberts JM: (2015). The placenta in normal pregnancy and preeclampsia. In Taylor R N,RobertsJ M, Cunningham FG (eds): Chesley's Hypertensive Disorders in Pregnancy, 4th ed. Amsterdam, Academic Press.
15. Hertig AT: (1945). Vascular pathology in the hypertensive albumin urictoxemias of pregnancy. Clinics 4:602.
16. Bharathkumar N, Sunil A, Meera P, Aksah S, Kannan M, Saravanan KM, Anand T.(2021). CRISPR/Cas-Based Modifications for Therapeutic Applications: A Review. Molecular Biotechnology. 6:1-8.
17. Chase VL, McBride CA, Badger, et al: (2017). Association of pre-pregnancy and longitudinal change in angiotensin-II with preterm preeclampsia. Abstract No. 934, AmJ ObstetGynecol216:S530.

CITATION OF THIS ARTICLE

S. Srinisha, Rukmani, M. Shwetha, G. Jayalakshmi. Platelet Count Low Levels as Assign of Gestational Hypertension. Bull. Env. Pharmacol. Life Sci., Vol 11[10] August 2022 : 149-152