Evaluation of Platelet Counts in the Normal Pregnancy and other Gestational Conditions at Tertiary Care Hospital of Sindh

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Author's contribution

Article Information

Original Research Article

ABSTRACT

Background: During gestational period, the most common disorder is hypertension that directly affects the gestation. The frequency of gestational hypertension is increasing day by day and ultimately the pressure is developed on the endothelial wall. Gestational hypertension mostly reduces the platelet counts.
Aim of Study: The major theme of this research is evaluating the count of platelet during pregnancy and other gestational conditions.
Methodology: A Retrospective research was carried out for the period of 06 months at Gynae and Obstetrics ward at tertiary care hospital of Sindh, Pakistan. Total 104 females were selected with different gestational age and trimester. A questionnaire was filled by all participants that were

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comprised of demographic data and gestational conditions such as preeclampsia, eclampsia, parity and seizure episodes. Females with highest risk factors diseases such as Diabetes, Hepatic disorder, Anemia, renal disorder and cardio vascular disease were not included in our research. Blood samples were collected from all selected participants for proper platelet count and data was compared with normal ranges of platelet count among the pregnant females. Data was analyzed by using statistical software 24.00 versions.

Results: It was observed that 49 patients were having normal pregnancy, 32 had preeclampsia and 23 had eclampsia. 38 participants were first timer & 52 were having second time parity. 58 participants had 2nd trimester of pregnancy. According to condition of anemia, 27 had severe anemic condition whereas 43 had moderate anemic condition. 49 participants had reduced level of platelet count and 17 had very low platelet count. Severity of gestation can be managed through proper management and physician instructions. Hypertension was measured through severity scale, 29 patients had moderate level of hypertension and 22 had severe level of hypertension. 19 participants had very abnormal level of blood count.

Conclusion: It was concluded that proper diagnostic test should be conducted on time for proper management of reduced platelet count and there should be proper mass counseling should be conducted in order to overcome the deficiency of platelet count. There should be proper diet and exercise during pregnancy that can manage the condition of hypertension. Severity of gestation can be managed through proper management and physician instructions.

1. INTRODUCTION

Gestation is basically considered as precious blessing from nature but sometime it leads to numerous complications that is very much hazardous to female's health [1]. Hypertension is common disorder observed during gestational period among females as blood pressure of pregnant females raised than the normal given ranges [2,3]. Hypertension during pregnancy is called as Gestational hypertension and it leads to severe outcomes, if it is not managed properly on time [4]. Eclampsia and preechampsia are the pathological conditions observed among the pregnant ladies due to their elevated blood pressure [5]. During first pregnancy, the blood pressure is raised than the normal readings and about 140/90mm of Hg is recorded without any condition of proteinurea [6]. Whereas, in the condition of preeclampsia, the blood pressure is raised than the 140/90mm of Hg along with repeated episodes of protein urea. In this condition various other symptoms may also appeared such as headache, epigastria and elevated serum enzymes [7,8]. Eclampsia is also pathological condition with repeated episodes of seizure during pregnancy. Gestational hypertension is the general condition with elevated blood pressure and similar sign and symptoms are being observed among the conditions of eclampsia and preechampsia [9,10]. Elevated blood pressure during pregnancy is responsible for the morbidity and mortality of both mother and fetus. Since last 30 to 40 years, it was observed that the elevated blood pressure

during pregnancy is very much common disorder [11,12]. It is very much difficult to understand regarding gestational hypertension and pregnancy. Endothelium is directly connected with regulation of homeostasis and thrombosis and dysfunction leads to activation of aggregation and reduce the count of platelets and its reduction is directly proportional to severity of disease [13]. According to some literatures, it was found that storage of platelets within the damaged endothelium leads to reduce the number of platelet count as compared to normal levels of platelets [14]. The frequency in the reduction of platelet depends upon the severity of disease and its rate is varies from female to females. At the time of labor pain the reduction of platelet is on the peak and can be recovered after delivery [15,16]. Some other mechanism is also described to be the major cause of gestational hypertension due to secretion of numerous chemicals such as enthothelin, nitric oxide and peptides [17]. Gestational mortality totally relies upon the mal practice of diagnosis of blood count and its proper management, during 1st trimester of pregnancy [18]. Laboratory tests play an important role to overcome the problem of gestational hypertension, most probably platelet count reduces to severe condition in 2nd trimester and it initiate the condition of hypertension. Proper diagnosis and good laboratory practices can become best management tools to treat such type of condition [19]. Number of people in our country had over financial burden, so in this case cost-effective laboratory tests and

supplements can reduce the burden to hypertension from the pregnant ladies [20]. So, current study was design to ensure the evaluation of total platelet count during pregnancy and other gestational condition at tertiary care hospital of Sindh.

2. MATERIALS AND METHODS

A Retrospective research was carried out for the period of 06 months at Gynae and Obstetrics ward at tertiary care hospital of Sindh, Pakistan. Total 104 females were selected with different gestational age and trimester. A questionnaire was filled by all participants, that was comprises of demographic data and gestational conditions such as preeclampsia, eclampsia, parity and seizure episodes. Females with highest risk factors diseases such as Diabetes, Hepatic disorder, Anemia, renal disorder and cardio vascular disease were not included in our research. Blood samples were collected from all selected participants for proper platelet count and data was compared with normal ranges of platelet count among the pregnant females. Data was analyzed by using statistical software 24.00 versions.

3. RESULTS

After the collection of proper data and questionnaires from the study subjects, the results were prepared and a total of 104 questionnaires were collected and there sociodemographic data was mentioned in Table 1.

Table 1. Gestational conditions of study subjects

Gestational Condition	Number	Percentage
Normal Pregnancy	41	40.19%
Preeclampsia	29	28.43%
Eclampsia	22	21.56%
Gestational Diabetes Mellitus	10	9.8%

Table 2. Condition of parity of study subjects

Parity	Number	Percentage
Primipara	38	36.53%
2nd Gravid	52	50%
3rd or 4th Gravid	12	11.53%

Table 3. Gestational age/trimester of study subjects

Gestational Age/Trimester	Number	Perecentage
1st Trimester	30	28.84%
2nd Trimester	58	55.76%
3rd Trimester	14	13.46%

Table 4. Anemic condition among the study subjects

Condition of Anemia	Number	Percentage
Mild	34	32.69%
Moderate	43	41.34%
Severe	27	25.96%

Table 5. Condition of platelet count among study subjects

Platelet Count	Number	Percentage
Normal	38	36.53%
Reduced	49	47.11%
Very Low	17	16.34%

Table 6. Severity of gestation among the study subjects

Severity of Gestational	Number	Percentage
Hypertension	58	55.76%
Protein Urea	17	16.34%
Seizure	06	5.76%
Gestational Diabetes	23	22.11%

Table 7. Hypertensive condition of study subjects

Hypertensive condition	Number	Percentage
Mild	53	50.96%
Moderate	29	27.88%
Severe	22	21.15%

Table 8. Total blood count report of study subjects

Blood Count	Number	Percentage
Normal	23	22.11%
Border Line	62	59.61%
Abnormal/Low	19	18.26%

4. DISCUSSION

Current research elaborate that the reduction of platelet count is directly proportional to the severity of disease during the period of gestation such as preeclampsia had low level of platelet count as compared to normal pregnancy whereas; eclampsia has severe condition with reduced platelet count during 2nd trimester and this studies resembles with the consequences of research conducted by Mohapatra et al., [21] Annam et al., Giles et al., Vrunda et al., and Dube et al., [22,23] that elaborates the connection of platelet count with disease condition during gestational period. Number of literature available for the hypertensive disorder during the pregnancy and the condition was evaluated through various diagnostic tests such as prothrombin time, fibronectin level, partial thromboplastin, α1 antitrypsin level, placental growth factor level, or vascular endothelial growth factor. These diagnostic tools need more time and cost to complete for proper evaluation [24,25]. Alternatively, estimation of platelet count is quite rapid, cost-effective and easier method. So, it can be easily performed and also useful for detection of pregnant females [26]. Once proper diagnosis is completed, it is very easy to overcome the complication of pregnancy and it is also beneficial for fetus health. Our study depends on the evaluation of platelet count and hypertensive condition during various trimesters of pregnant females.

5. CONCLUSION

It was concluded that proper diagnostic test should be conducted on time for proper management of reduced platelet count and there should be proper mass counseling should be conducted in order to overcome the deficiency of platelet count. Decreasing platelet counts warn the clinician about the worsening of the disease. Hence, if detected at the appropriate time, pregnancy delivery and even postpartum care can be well planned and complications can definitely be prevented or minimized and woman can have safe motherhood. Second, it is cost-effective, simple, and rapidly performable test. Hence, it can even be used for screening purposes in the community.

ETHICAL APPROVAL AND CONSENT

As per international standard or university standard guideline participant consent and ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
https://www.sdiarticle4.com/review-history/71244