Platelet Parameters Coagulation Profile in Pregnancy Induced Hypertension Cases and Normotensive Pregnancies

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Abstract

Newly diagnosed hypertension that develops during pregnancy after 20 weeks of gestation and goes away after birth is referred to as pregnancy-induced hypertension. Intrauterine growth restriction (IUGR) and foetal discomfort brought on by PIH have the potential to cause foetal death. A significant health problem that must be addressed, particularly in developing nations, is PIH, which is recognised as a global leading cause of maternal and perinatal morbidity and mortality. Prevalence of hypertensive disorders of pregnancy was recorded in 7.8% of cases in India, whereas concomitant preeclampsia was found in 5.4% of the study population. The two most dangerous side effects are eclampsia and HELLP syndrome (hemolysis, high liver enzymes, and low platelet count). Pre-eclampsia and hypertensive disorders of pregnancy are both frequently associated with hypercoagulability. Thrombocytopenia is the most well-known haematological aberration among all the haematological abnormalities that take place in PIH, and its severity rises as the disease becomes more severe.

Keywords: Clinical Gynecologic Oncology; Biomarkers and Molecular Diagnosis of All, Gynaecologic Cancers; Nausea Pregnancy

Introduction

A hypercoagulable state is brought on by alterations to the coagulation and fibrinolytic systems that occur during a typical pregnancy. Moreover, there is a chance that PIH will see an increase in the hypercoagulable stage of pregnancy [1]. The risk of bleeding complications is increased by PIH-related coagulation abnormalities, particularly after surgical delivery or when inserting an epidural catheter for regional anaesthesia [2]. In order to detect signs of Disseminated Intravascular Coagulation and HELLP Syndrome in patients with a hypertensive disease of pregnancy, coagulation profile tests with full blood cell counts, including platelet counts and platelet indices, are crucial [3]. As they are used to measure the enzymatic activity that result in clot formation, PT and APTT are regarded as functional tests [4]. During pregnancy, the haemostatic system shifts to a more procoagulant condition with lower amounts of naturally occurring anticoagulants like protein C and S [5]. D-dimer and the coagulation factor fibrinogen both show an increase [6]. Postpartum hemostatic alterations gradually return to normal [7]. In order to inform the management of cases before the patients experience life-threatening complications, this study was conducted to evaluate the severity of coagulation alterations in PIH cases using a quick and affordable method [8]. This study's goals and objectives were to compare platelet values and the coagulation profile in normotensive Pregnant women, people with gestational hypertension, and people with pre-eclampsia, as well as the early detection and management of platelet abnormalities and coagulation failure's consequences [9].

Discussion

The current cross-sectional study was carried out over a two-year period in the Obstetrics and Gynecology and Pathology Departments at Hindu Rao Hospital and North Delhi Medical College, Delhi [10]. Upon receipt of the Institutional Review Board's (IRB) ethical clearance (vide no. Dean), 104 patients in total were included in the study. Pregnant women with confirmed pregnancy-induced hypertension, normotensive pregnant women, and preeclampsia cases with more than 20 weeks of gestation who presented in our hospital were all included in the study. In total, 52 instances of PIH and pre-eclampsia were examined for platelet characteristics and coagulation profiles. Groups for study were split up into in the current investigation, there was an inverse link between platelet counts and PT; nevertheless, there was a direct correlation between APTT and the severity of pregnancy-induced hypertension. When it comes to PIH patients, coagulation disorders such HELLP syndrome and DIC are the main reasons for maternal deaths. The information obtained from the current study may be useful in detecting anomalies in platelet parameters and coagulation profiles in PIH patients at an earlier stage. It may also be useful in managing complications associated with PIH, which may lower maternal and foetal mortality. The mean clotting time in our study was 6.69 minutes for patients with gestational hypertension, 6.39 minutes for patients with moderate preeclampsia, and 6.25 minutes for those with severe preeclampsia. 35.71% of patients with pregnant hypertension and 66.67% of those with mild and severe preeclampsia had clotting times greater than 5 minutes. While the majority of cases in study groups for gestational hypertension (64.29%) showed normal bleeding times of less than 5 minutes, the majority of cases in study groups for mild and severe preeclampsia (66.67%) showed an increase towards the upper limit of the normal. Despite the CT levels showing an increase in levels towards increasing grade of hypertension, the results were found to be statistically insignificant. Patients' written informed consent was acquired before this study and its related photographs were published. The editor-in-chief of this journal can examine a copy of the written consent upon request.

Conclusion

In the present study, platelet counts had inverse relationship and

PT; APTT had direct relationship with increasing severity of pregnancy induced hypertension. The coagulation abnormalities like HELLP syndrome and DIC are major causes of maternal deaths amongst PIH cases. Data observed from present study can be helpful in identifying the abnormalities in platelet parameters and coagulation profile in relation to PIH cases at an earlier stage and can prove to be helpful in management of complications arising in relation to PIH and thus can help in reduction of maternal and foetal mortality. Hypertensive disorders are one of the most important causes of perinatal and maternal mortality and morbidity worldwide. A variety of haematological changes are observed in them with thrombocytopenia being the most common one. Moreover, derangements in coagulation and fibrinolytic system can occur in pregnancy causing a hypercoagulable state. In these patients, to rule out DIC and HELLP syndrome, a coagulation profile needs to be done. Change in MPV happened with the increasing grades of pregnancy. In present study we found mild increase in MPV values from normotensive pregnant women to eclampsia patients which correlated with other studies.

Acknowledgement

None

Conflict of Interest

None

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