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Diagnostic Accuracy Of Neutrophil- Lymphocyte Ratio In Prediction Of Preeclampsia

OBJECTIVE: Preeclampsia refers to the new onset of hypertension and proteinuria or hypertension and end organ dysfunction with or without proteinuria after 20 weeks of gestation in previously normotensive women. In Preeclampsia, there is inadequate placentation, due to a deficiency in trophoblastic invasion which causes placental hypoxia, pro-inflammatory cytokine secretion, increased oxidative stress and decreased antioxidants, angiogenic and anti-angiogenic factor release. Hyper activation of inflammatory and immunologic responses in pre-eclampsia causes a marked increase in neutrophil count and modulation of neutrophil count towards greater production of superoxide compared with nitric oxide, which results in endothelial damage and dysfunction. This study aims to identify the diagnostic accuracy of NLR in prediction of preeclampsia.

METHOD: This prospective cohort study was carried out over a period of 11 months after informed consent and ethical clearance. Total 320 pregnant women were recruited and 20 women were lost to follow up due to prevailing COVID-19 scenario, so 300 pregnant women were followed upto 6 weeks after delivery. Out of these 66 developed hypertensive disorders of pregnancy. 2 were excluded because of pregnancy complications like intrauterine fetal death. Thus, study comprised of total 138 subjects, group 1 (non severe preeclampsia)- 32 cases and group 2(severe preeclampsia)- 32 cases and 74 healthy normotensive pregnant women.

5ml of venous blood sample is collected in EDTA vacutainer from pregnant women and sent for Complete Blood Count (CBC) that consists of Absolute neutrophil count, Absolute lymphocyte count. Samples were collected 2 times, first during the enrollment and second after development of disease (group 1and 2) and healthy normotensive pregnant women controls who will be taken after systematic randomization from those who did not develop pre-eclampsia during follow up period. Absolute neutrophil count, Absolute lymphocyte count were obtained by an automated analyzer- SYSMEX XN 1000, done in Department of Pathology, AIIMS RAIPUR, and NLR was calculated from the same.

RESULTS: Those women who developed PE during follow up (group1 and 2) had higher neutrophil to lymphocyte ratio than that of the healthy pregnant women even at early gestation. Also, there was significantly higher NLR seen in group 2(severe PE) compared to group 1(non severe PE).

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