



First trimester prediction of pre-eclampsia using the neutrophil/lymphocyte ratio and the platelet/lymphocyte ratio

Kirbas A, Ersoy AÖ, Uygur D, Dikici T, Erkaya S, Yakut Hi, Danisman N
Zekai Tahir Burak Women's Health Education and Research Hospital, Ankara, Turkey

Objective

To explore the predictive value of first trimester neutrophil/lymphocyte ratio (NLR) and platelet/lymphocyte ratio (PLR) values for pre-eclampsia.

Methods

Records of 584 pregnant women, who were between 18 and 40 years of age and had a singleton pregnancy were retrospectively reviewed. Those who developed pre-eclampsia during the follow-up period were assigned to the patient group and those who gave birth at term without developing any complication were assigned to the control group. A diagnosis of pre-eclampsia was based on systolic blood pressure ≥ 140 mmHg or diastolic blood pressure ≥ 90 mmHg measured at resting for two times at 4 hours interval after the 20th gestational week, as well as proteinuria of 300 mg/dL detected in spot or 24 hour urine sample or 0.1 g/L detected in spot urine sample analyzed at 4-6 hours interval. Predictive value of NLR and PLR for pre-eclampsia was evaluated by ROC analysis.

Results

NLR values were significantly higher in the pre-eclampsia group compared to the control group. NLR values of the severe pre-eclampsia group were also significantly higher compared to the mild pre-eclampsia group. PLR values were significantly higher in the pre-eclampsia group than the control group. The ROC analysis showed that sensitivity of NLR and PLR is more than 70% with a cut-off value of 3 and 122 respectively. However, their specificity was relatively low (18.7% for NLR and 25.7% for PLR).

Conclusion

Since NLR and PLR are rapid and easily applicable tests and are available in many health institutes, it will be beneficial to use them as predictors. However, more evidence is needed on this subject. Moreover, the knowledge about the role of inflammatory processes that lead to pre-eclampsia will enhance as the studies on NLR and PLR in normal pregnancy and pre-eclampsia are increased.