

The Relationship between Serum C-reactive Protein Levels in Early Pregnancy and Preeclampsia Onset

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Abstract

Introduction: Preeclampsia is one of the most common medical complications during pregnancy that can be a major cause of prenatal morbidity and mortality. One of the most studied biomarkers in the prediction of preeclampsia is C-reactive protein. The objective of this study was to assess the relationship between maternal serum CRP concentrations in early pregnancy and the onset of preeclampsia during the gestational period.

Materials and Methods: In this prospective cohort study, serum CRP levels were measured in 400 pregnant women in their 20th week of gestation. They were all followed up till delivery. The data were finally analyzed statistically.

Results: After controlling for the effects of maternal age (< 19 and > 35 years), multiple regression analysis for primiparity, supplementary calcium intake, BMI and CRP depicted a statistically significant relationship between CRP levels and mild (OR = 1.71, 95% CI = 1.39 - 2.11) and severe (OR = 2.45, 95% CI = 1.80-3.34) preeclampsia onsets. Among all the aforementioned variables, only supplementary calcium intake was significantly effective in the prevention of preeclampsia. In ROC curve analysis, the CRP cut-off point in moderate preeclampsia was 5.35 mg/l (with 94% sensitivity and 81% specificity), and in severe preeclampsia it was 5.45 mg/l (with 94.4% sensitivity and 82.5% specificity).

Conclusion: It seems that CRP can help identify pregnant women who are at high-risks of preeclampsia but larger studies are needed to establish a definitive relationship.

Keywords: Calcium supplementation, C-reactive protein, Inflammation, Preeclampsia, Pregnancy.

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