Complement Factor B is Activated in Maternal and Infant Circulations during Preeclamptic Pregnancy

Abstract Type: Original Research
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Objective: An earlier report in a cohort of pregnant women (mostly whites, with 4.6% preeclampsia incidence) showed that complement factor B, a central molecule of alternative complement pathway, could be a predictor of preeclampsia in early pregnancy (Am J Obstet Gynecol 2008;198:385.e1-9).

Whether this observation could be applied to other populations is still unknown. Further, the status of factor B in fetal circulation and its relationship with preeclampsia are unclear. We investigated these important questions by examining a different cohort of pregnant women with high risk of preeclampsia.

Methods: Fifty pregnant women (mostly African Americans, with 14% preeclampsia incidence) were enrolled in this study. Preeclampsia projects were diagnosed before delivery, during hospitalization. Blood samples were collected from maternal and fetal umbilical cord blood immediately after delivery. Plasma levels of Bb, the active fragment of factor B, were quantified by ELISA and statistical analysis was carried out using SPSS software.

Result: Maternal plasma Bb levels were significantly higher in women with preeclampsia than those of normal pregnancy (increased 72%, P=0.02). Our observation of Bb increase is much greater than that reported in the previous study mention above (18%). In addition, Bb levels in the fetal cord blood of preeclampsia group were also significantly higher than those of normal group (increased 92%, P=0.03).

Conclusion: In a cohort of minority pregnant women with high risk of preeclampsia, complement factor B is activated in both maternal and fetal circulations during preeclamptic pregnancy. Activation of factor B may contribute to the systemic inflammatory response in both mothers and fetus.