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Preeclampsia, systemic *Lupus erythematosus* and anti-phospholipid antibody syndrome share a common pathogenic mechanism

Rebecca N Baergen, Cathleen E Matrai and **Jacob H Rand**
Weill Cornell Medicine, United States

Background: Preeclampsia (PEC), systemic *Lupus erythematosus* (SLE), and anti-phospholipid antibody syndrome (aPLA) are associated with adverse maternal and fetal outcomes but the pathogenic mechanisms have not been well studied.

Methodology: We investigated the expression of complement activation products and inflammatory biomarkers in these patient groups. We compared each group with control patients who had an unremarkable clinical history and no pathologic placental findings. Immunohistochemistry for C3b, C4d, annexin A5 (A5), and C5b-9 was performed; staining was graded on intensity (0, 1+, 2+, 3+) and distribution (absent, patchy, diffuse). 70% of PEC patients, 50% of SLE patients and 20% of aPLA patients showed at least weak, focal staining for C4d, while controls were negative. A5 staining showed focal loss in all disease groups, while controls did not. C3b staining showed more frequent strong staining in disease groups than controls. C5b-9 staining was localized to areas of fibrin deposition or infarction in all groups.

Conclusion & Significance: Previously, aPLA-associated pregnancy complications have been thought to be a consequence of a unique aPLA pathogenic mechanism. However, the similarity of the IHC findings in aPLA placentas to those from SLE and PE patients i.e. increased complement deposition and loss of A5 expression - suggests that aPLA-associated pregnancy complications may reflect a more general autoimmune mechanism, such as localized deposition of immune complexes and that this mechanism may be operating in other disease conditions associated with poor maternal and fetal outcome.

Biography

Rebecca N Baergen has expertise in Perinatal and Placental Pathology with a concentration on how placental pathology can explain adverse outcome, mechanisms of injury and diagnose underlying maternal and fetal disease. She has built her practice and consultation service after years of experience in clinical evaluation of placental specimens, research, and teaching of medical students, resident physicians and pathologists. She has also experience in many extramural courses of perinatal pathology hosted by many education organizations throughout the world.

rbaergen@med.cornell.edu

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