

## **Influence of activated complement and coagulation cascades on endothelial cell dysfunction in early-onset preeclampsia**

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### **Objective**

To evaluate the endothelial dysfunction related to the activation of the complement and coagulation cascade in early-onset severe preeclampsia (PE).

### **Methods**

We assessed the deposits of C5b-9 complement complex and Von Willebrand factor (VWF) on endothelial cells that were exposed in vitro to activated plasma from 4 cases of early-onset severe PE and 4 healthy pregnancies. The endothelial cells were obtained from the human dermal microvascular endothelial cell line (American Type Culture Collection). Activated plasma was obtained from maternal blood samples drawn at diagnosis for cases and at matched gestational age for controls. Nuclei and deposits staining was performed, and micrographs were captured by fluorescent microscopy. The area covered by fluorescent C5b-9 or VWF labelling was calculated and expressed as the average fold increase.

### **Results**

Endothelial cells that were exposed to activated plasma from early-onset severe PE showed significantly higher deposits of C5b-9 complement complex and VWF compared to controls (6.2 and 4.5 fold increase in PE respectively). Moreover, all the control samples were within the normal range whereas PE samples showed significant complement activation.

### **Conclusion**

Complement and coagulation cascades are activated in early-onset severe PE and seem to play an important role in endothelial dysfunction. Future studies are warranted to investigate potential therapeutic targets for PE targeting these cascades.