ANGIOGENIC PROFILE AND SMOKING
IN THE FINNISH GENETICS OF PRE-ECLAMPSIA CONSORTIUM (FINNPEC) COHORT

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BACKGROUND
The biological mechanism by which smoking reduces the risk of pre-eclampsia (PE) is not well established.

OBJECTIVES
To study first and third trimester serum levels of soluble fms-like tyrosine kinase 1 (sflt-1), placental growth factor (PIGF) and soluble endoglin (sEng) in the Finnish Genetics of Pre-eclampsia Consortium (FINNPEC) cohort to ascertain whether these factors are altered in mothers who smoke.

RESULTS
Concentrations of angiogenic markers in PE and control women according to smoking status are presented in Table 1. The first trimester concentrations of sflt-1, PIGF, sEng and the sFlt1/PIGF ratio in PE and control groups according to the number of cigarettes smoked during pregnancy are presented in Figure 2.

STUDY SUBJECTS
In the FINNPEC Study, 1450 pregnant women with PE and 1065 women without PE (control) were studied (Figure 1). Serum concentrations of angiogenic markers were available from a subset at first and third trimester.

METHODS
Serum samples available from two timepoints:
- I trimester (11.8 ± 0.9 gest weeks): 217 PE women and 238 controls
- III trimester (36.1 ± 3.9 gest weeks): 174 PE women and 54 controls

sflt-1 and PIGF: Electrochemiluminescence immunoassays (ECLIA, Roche Diagnostics GmbH, Mannheim, Germany) on cobas e 601 analyzer (Hitachi High Technology Co, Tokyo, Japan)
sEng: ELSA (R&D Systems, UK)

CONCLUSIONS
Smoking appears to have angiogenic effects in early pregnancy particularly with reduced sFlt-1 and sEng concentrations and elevated PIGF concentrations in both normal and PE pregnancies.

In late pregnancy, the overall pro-angiogenic effects observed in smokers in PE pregnancies may complicate its use as a prognostic and diagnostic marker. However, these findings need to be confirmed in larger studies.