Is there a relationship between decidual vasculopathy and uteroplacental measurements: a pilot study

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Introduction
Decidual vasculopathy (DV) is a histopathological lesion found in 4.5% placenta and related to abnormal spiral artery remodeling. We studied the relationship between abnormal uterine- (UtA) and umbilical artery (UmbA) Doppler measurements and the presence of DV in the postpartum placentas.

Methods
Retrospective cross sectional study: DV group (n=26) vs control group (n=32). Included singleton pregnancies with preeclampsia and/or intra-uterine growth restriction at a median gestational age of 30 weeks.

Materials
UtA and UmbA Doppler were abnormal if bilateral notching was present or the mean pulsatility index (PI) was >95% CI. Placental samples were stained and analysed twice microscopically for characteristics of DV (acute atherosis, fibrinoid necrosis and foam cells residing in decidua basalis). Non-parametric tests and Pearson r’s correlation were performed for statistical analyses.

Results
Baseline characteristics were comparable between two groups. UtA PI was higher and more often classified as abnormal in the DV group (adj OR 7.8 95% CI 2.0-30.3) independent of PE/IUGR. Unremodelled spiral arteries (SpA) were more often observed in the DV group compared to controls (p=0.003). Pre-term births

Conclusion
The presence of DV is strongly associated with abnormal uterine artery Doppler measurements, pre-term births and more admission to the NICU. This could explain the link between abnormal uteroplacental circulation, placental pathology and adverse clinical outcome.