

Inter-arm blood pressure difference in early pregnancy and risk of preeclampsia

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Objective

To investigate associations of inter-arm blood pressure differences (IAD) in the first trimester of pregnancy with development of preeclampsia. Blood pressure differences between arms have been found to be related to the risk of cardiovascular disease, and since preeclampsia and cardiovascular disease share risk factors, we hypothesized that blood pressure differences in early pregnancy would be associated with the risk of preeclampsia.

Methods

The study was conducted in a cohort from a Danish multicentre study: Preeclampsia screening in Denmark (PRESIDE). At the first trimester routine visit, blood pressure was measured at an automated blood pressure station, guiding the patient to comply with international measurement guidelines. Measurements started automatically after rest for 5 minutes, and three simultaneous measurements on both arms were performed. Data were automatically stored from the station into a database. Furthermore, information on maternal characteristics, medical history and pregnancy outcome was collected.

Results

Preliminary results from a study population of 7044 pregnancies, show that 247 (3.5 %) developed preeclampsia. In pregnancies with preeclampsia the absolute diastolic IAD was higher compared to pregnancies without preeclampsia (3.2 and 2.8 mmHg, respectively, $P=0.001$), and an absolute diastolic IAD > 5 mmHg and 10 mmHg was found in 12.6% and 1.6% compared to 9.3% and 1.0% in pregnancies without preeclampsia. There was no difference in systolic IAD in pregnancies with preeclampsia compared to pregnancies without preeclampsia (4.8 and 4.7 mmHg, $P= 0.62$). The systolic IAD was more than 10 mmHg in 8.5% of pregnancies with preeclampsia and in 6.8% in pregnancies without preeclampsia.

Conclusion

The preliminary results indicate that diastolic IAD in the first trimester is associated with risk of preeclampsia. Results from the complete study population and further analyses will be presented at the meeting.