Evaluation of home blood pressure self-measurements in a high-risk collective

Hackeloer M, Kaban N, Rieger O, Neznansky M, Henrich W, Verlohren S
Department of Obstetrics - Charité University Medicine, Berlin, Germany

Objective
Preeclampsia, with an estimated incidence of 2-5%, presents a highly prevalent burden on pregnant women being one of the main causes of perinatal morbidity and mortality. Self-monitoring of blood pressure in cases of suspected preeclampsia during pregnancy is often prescribed by the attending physician but is not yet systematically recorded or evaluated. We hypothesize that home blood pressure self-measurements can help to early detect women who are at increased risk of developing an adverse preeclampsia-related pregnancy outcome (AO).

Methods
Preeclampsia, with an estimated incidence of 2-5%, presents a highly prevalent burden on pregnant women being one of the main causes of perinatal morbidity and mortality. Self-monitoring of blood pressure in cases of suspected preeclampsia during pregnancy is often prescribed by the attending physician but is not yet systematically recorded or evaluated. We hypothesize that home blood pressure self-measurements can help to early detect women who are at increased risk of developing an adverse preeclampsia-related pregnancy outcome (AO).

Results
Between 11/2020 and 03/2022, a total of 48 patients were enrolled. Of these, 39 performed home blood pressure measurements. In 30 women, an outcome was available, and these were included in the analysis. Of the 30 women, 20 developed an AO, 10 did not, a total of 1056 (817 from women with an AO; 239 from women without an AO) measurements of systolic and diastolic blood pressure in the last 100 days before delivery were available for analysis. The patients submitted a mean of 35.2 ± 41.6 blood pressure recordings each (23.9 ± 23.84; 40.85 ± 47.67). The diastolic blood pressure was significantly different (p=0.016) between women destined to develop preeclampsia and women without adverse outcomes. There was no significant difference in the systolic blood pressure (p=0.47). The mean arterial pressure (MAP) was significantly different in the period 0 to -50 (p=0.036) days before delivery, but not significantly distinct in the period between -50 to -100 days before delivery (p=0.055).

Conclusion
We found significant differences in the diastolic as well as MAP in women with and without AO's that that recorded their blood pressure at home and stored and submitted it via the PreFree-App. This is a first step towards the systematic collection and evaluation of blood pressure self-measurements. Further studies are needed on how these measurements can be incorporated into clinical practice or predictive algorithms.