

Baroreceptor mediated blood pressure control in women with a history of preeclampsia

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Objective. Preeclampsia (PE) is known to be associated with increased cardiovascular risk later in life. The mechanism linking preeclampsia and future cardiovascular risk is largely unknown. We hypothesize compromised autonomic regulation of blood pressure. We therefore investigated baroreceptor sensitivity (BRS) 5 to 10 years postpartum in women with a history of PE and compared the results with healthy controls.

Materials and Methods. Women were passively tilted from 0 to 60 degrees on a tilt table with continuous beat-to-beat blood pressure and heart rate measurements. The mean BRS was calculated based on a five-minute period following one minute of stabilization before and after head-up tilt.

Results. We included 66 formerly PE patients and 44 healthy controls. At 0 degrees, PE patients exhibit significantly high-

er MAP (104.6 ± 11.6 mmHg) and lower BRS (9.2 ± 3.9 ms/mmHg) compared to controls (88.5 ± 11.1 mmHg; 20.0 ± 7.3 ms/mmHg) ($p < 0.05$). With head-up tilt, blood pressure drop in PE patients is significantly more pronounced (-12.2 ± 8.5 mmHg) compared to controls (-4.4 ± 3.6 mmHg). The BRS modulation range was larger in controls compared with PE patients (mean: -12.6 ± 7.4 ms/mmHg *vs* -4.3 ± 4.0 ms/mmHg) independent of baseline MAP.

Conclusions. Women with a history of preeclampsia have reduced baroreceptor sensitivity and less range to modulate this sensitivity. Resultantly blood pressure drop with passive head-up tilt is more pronounced in formerly preeclamptic women, irrespective of initial blood pressure. This suggests compromised autonomic regulation of blood pressure in women with a history of preeclampsia.