



Conference Abstract

P.34 Preeclampsia Leads to the Delayed Development of Sympathetic Control of the Cardiovascular System in the Offspring

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ABSTRACT

Background: Preeclampsia is a common pregnancy disease characterized by hypertension and kidney failure. Recent studies have shown that even in the case of successful delivery, preeclampsia could induce long-term effects in the offspring. Nevertheless, the effects of preeclampsia on the cardiovascular system of the offspring are poorly studied.

Methods: We induced preeclampsia in pregnant rats by L-NAME (nitric oxide synthase inhibitor) supplementation (250 mg/l in drinking water from gestation day 10 to delivery, daily dose 39 mg/kg). The model was verified by the dam's blood pressure (BP) elevation (tail-cuff) and creatinine clearance reduction (metabolic cages) compared to control dams. Male offspring 16-18-day old were used for BP recording (catheter technique under urethane anesthesia); their isolated arteries were studied by wire myography. Adrenergic nerve plexus was visualized by glyoxylic acid staining.

Results: Offspring of dams with preeclampsia had reduced body weight compared to control. They also demonstrated decreased BP (43.3 ± 1.9 vs 50.5 ± 1.4 mmHg) and diminished response to the ganglionic blocker chlorizondamine (2.5 mg/kg); heart rate didn't differ between the groups. The density of the sympathetic innervation of the right atrium and the saphenous artery was reduced in the preeclampsia offspring. Saphenous arteries from preeclampsia offspring had smaller diameter (276 ± 5 vs. 296 ± 7 micron) and maximal contraction force (9.4 ± 0.4 vs. 10.6 ± 0.4 mN) compared to control.

Conclusions: Preeclampsia is followed by the delay in sympathetic nervous system development in the offspring, which is accompanied by structural and functional alterations in the cardiovascular system.

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