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MEETING ABSTRACT

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**Neurocardiogenic remodelling in normotensive and spontaneously hypertensive pregnant rats**

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**Background:** Normal pregnancy is associated with maternal cardiovascular adaptations in order to provide foetal positive outcome. This circulatory adjustment may affect the health of pregnant women with preexisting hypertension. Similar findings were observed in other species, including rats. The focus of this research was to investigate the influence of pregnancy-induced adaptations on blood pressure and heart rate variability in pregnant Wistar (WR) and spontaneously hypertensive rats (SHR).

**Methods:** All experiments were performed in conscious female WR ( $n=8$ ) and SHR ( $n=6$ ) equipped with a radiotelemetry device. Systolic blood pressure (SBP), diastolic blood pressure (DBP) and heart rate (HR) were derived from the arterial pulse wave as maximum, minimum and inverse inter-beat interval. Spectral analysis of BP and HR was performed on 7-minutes-long recordings in total (0–3 Hz), very low frequency (VLF: 0–0.2 Hz), low frequency (LF: 0.2–0.8 Hz) and high frequency (HF: 0.8–3 Hz) range. Spontaneous baroreceptor reflex sensitivity (sBRS) was evaluated using the sequence method.

**Results:** Pregnancy significantly reduced SBP and increased HR in both strains, without affecting sBRS. By the end of pregnancy, total SBP variability in WR significantly increased, while a significant decrease was observed in SHR. In non-pregnant state there was a significant difference in VLF and LF bands between the two strains, which was not observed in mid and late pregnancy.

**Discussion:** Our results show for the first time differences in neurogenic control of the cardiovascular system during normotensive and hypertensive pregnancies. As expected, accentuated activity of the renin–angiotensin system along with an increased sympathetic drive during hypertension was noticed in non-pregnant SHRs. These phenomena, seen as increased VLF and LF SBP bands, could not be noticed in pregnant SHR dams, probably due to prevalence of mechanisms inducing vasodilation. Normalization of SBP and BP variability in SHRs reveal potential adaptational mechanisms that can be beneficial for maternal health during pregnancy in the hypertensive state.

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