Blood pressure in obese pregnant rats

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Introduction: Monosodium glutamate-induced obesity can modify blood pressure values.

Objective: To evaluate the influence of pregestational obesity on the blood presure.

Methods: Newborn female Wistar rats were divided into 2 groups to receive MSG (4 mg/g of body weight;) or NaCl 0.9%, subcutaneously, on days 2, 4, 6, 8, and 10 of life. At 90 days the animals injected with monosodium glutamate were determined the corporal weight (g) and the corporal length (cm) for the calculation of the Lee index (cube root of the body weight/corporal length). With values higher than 0,300 obesity was confirmed. Rats were then mated overnight with healthy males of the same substrain, starting from 120 days of age. Gestational day 0 was defined when sperms were found in vaginal smear. Systolic (SAP) and diastolic (DAP) arterial pressures and heart rate were measured on the rat tail at 18 days of gestation. For it it was used non-invasive blood pressure system (CODA TM, Kent Scientific corporation). The mean arterial pressure (MAP) was calculed by the following formula: DAP + [(SAP- DAP)/3]. These investigation have been conducted in conformance with the Ethical Principles for the use of animals in research. InfoStat program and Statistic package (version 10.0) were utilized. To compare continuous nonparametric variables between groups, the Mann-Whitney U test was used. A P value < 0,05 was considered significant.

Results: SAP, DAP and MAP were significant decrease in obese pregnat rats compared to control. There was no significant difference in heart rate between groups.

Conclusion: monosodium glutamate-induced obesity affect blood pressure values, probably due to parasympathetic system hyperactivation.

Key words: pregestational obesity, blood pressure, Wistar rats