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The heart is a target organ in offspring rats due to maternal hereditary hypertension or nitric oxide synthesis inhibition

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The aim of this study was to analyze the effect of hereditary hypertension or induced by chronic nitric oxide inhibition during pregnancy on the structural changes in rats fetal and neonate coronary microvessels, aorta and myocardial collagen content. Total nine sub-groups allocated from three main groups of fetuses (20th d) and newborns (2nd and 15th d) offspring's from normotensive mothers (C), SHR and L-NAME were studied. Heart and aorta sections were stained by hematoxylin and eosin, Mallory's thichrome, Picrosirius red and periodic acid-schiff reagent. Pro-Plus image analysis system was used to assess the thickness of aorta and myocardial vessels. The tunica media inner and outer border was traced in each micro vessel (external diameter < 50 μ m) image at x100 and, in aorta at x 400 magnification, and areas encircled by tracings were calculated. The significant difference (*) was considered if $P < 0.05$. Aorta wall area and wall-to-lumen ratio increased in hypertensive animals in all ages. The number of elastic lamellae was reduced in hypertension (L-NAME: $7.00 \pm 0.16^*$ and SHR: 7.30 ± 0.19) at 15th d compared to C (7.60 ± 0.17). The Microvessels wall area was greater in hypertensive offspring at 15th d. Lumen area and external perimeter decreased in both hypertension models at 15th d. Wall-to-lumen ratio increased in hypertensive at 2nd and 15th d. Collagen content (%) was higher in SHR at 2nd d ($0.74 \pm 0.02^*$) and 15th d ($2.53 \pm 0.04^*$) and in L-NAME at 15th d ($2.25 \pm 0.04^*$) versus C (0.61 ± 0.02 at 2nd d and 2.12 ± 0.05 at 15th d). Maternal hypertension burdens cardiovascular consequences as described for adult animal's hypertension.

Biography

Sonia Regina Jurado is graduated in Biological Sciences from the State University of Rio de Janeiro (1995), master in Morphology from the State University of Rio de Janeiro (1998) and Ph.D. in Pathophysiology in Clinical Medicine from the Universidade Estadual Paulista Júlio de Mesquita Filho (2005), Brazil. She is an Associate Professor in the Nursing Course at the Federal University of Mato Grosso do Sul (UFMS) and tutor group Tutorial Education in Nursing/UFMS. Professor Jurado has experience in the area of Medicine, Nursing and Biology. She has among papers in scientific journals and conference proceedings.

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