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Hereditary or maternal hypertension damage offspring kidneys in rats

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The objective of the study was to analyze the effect of hereditary hypertension or induced by chronic nitric oxide inhibition during pregnancy on glomeruli and microvasculature of the kidneys in fetal and neonates. Total nine sub-groups allocated from 3 main groups of fetuses (20th d) and newborns (2nd and 15th d) offspring's from normotensive mothers (C), SHR and L-NAME was performed. The right kidney from fetuses and newborns were removed, seccioneted and stained by hematoxylin and eosin. Pro-Plus image analysis system was used to performing the quantitative analyses. The glomerular area and the number of glomeruli per area were determined per animal in 25 fields. Also, it was assessed the thickness of tunica media of renal micro vessels. The significant difference (*) was considered if $P<0.05$. The nephrons number was lower in L-NAME (2.18±0.82*; 2.18±0.73*) group compared to C (2.51±0.83; 2.71±0.79) at 2nd and 15th d, respectively. The glomerular area in hypertensives (L-NAME: 1.80±0.46; 1.91±0.44* and SHR: 1.70±0.47*, 1.53±0.42* at 2nd and 15th d, respectively) was smaller than C (1.83±0.62 and 2.17±0.61, at 2nd and 15th d, respectively). The kidneys of hypertensives fetuses presented more connective tissues in between of renal cortex and medulla, meaning retard of development. Great accumulation of collagen was found in tubular interstitium, periadventitia, renal cortical vessels and glomeruli at 15th d. Thickening of the media of arterioles was found in hypertensives animals at 2nd and 15th d compared to C. Also, wall-to-lumen ratio of arterioles was greater in hypertensive compared to C at 2nd d. Maternal hypertension, hereditary or artificially induced, causes structural changes in the offspring rats kidneys and impairs renal development which potentially may lead to hypertension in later life.

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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