

Subclinical Renal Damage Induced by High-Fat Diet in Young Rats

Authors : Larissa M. Vargas, Julia M. Sacchi, Renata O. Pereira, Lucas S. Asano, Iara C. Araújo, Patricia Fiorino, Vera Farah

Abstract : The aim of this study was to evaluate the occurrence of subclinical organ injuries induced by high-fat diet. Male wistar rats (n=5/group) were divided in control diet group (CD), commercial rat chow, and hyperlipidic diet (30% lipids) group (HD) administrated during 8 weeks, starting after weaning. All the procedures followed the rules of the Committee of Research and Ethics of the Mackenzie University (CEUA N^o 077/03/2011). At the end of protocol the animals were euthanized by anesthesia overload and the left kidney was removed. Intrarenal lipid deposition was evaluated by histological analyses with oilred. Kidney slices were stained with picosirius red to evaluate the area of the Bowman's capsule (AB) and space (SB), and glomerular tuft area (GT). The renal expression of sterol regulatory element-binding protein (SREBP-2) was performed by Western Blotting. Creatinine concentration (serum and urine) and lipid profile were determined by colorimetric kit (Labtest). At the end of the protocol there was no differences in body weight between the groups, however the HD showed a marked increase in lipid deposits, glomeruli and tubules, and biochemical analysis for cholesterol and triglycerides. Moreover, in the kidney, the high-fat diet induced a reduction in the AB (13%), GT (18%) and SB (17%) associated with a reduction in glomerular filtration rate (creatinine clearance). The renal SRBP2 expression was increased in HD group. These data suggests that consumption of high-fat diet starting in childhood is associated with subclinical renal damage and function.

Keywords : high-fat diet, kidney, intrarenal lipid deposition, SRBP2

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