TRANSGENERATION EFFECT IN LIVER AFTER NUTRITIONAL INSULT

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Introduction: During the critical period of development, the body can be influenced by external factors, such as undernutrition, and may induce biochemical changes in tissues and organs. Aim: Thus our aim was evaluate the undernutrition effects on the hepatic oxidative metabolism after two generations in juvenile rats. Methods: Wistar rats pregnant were divided into two groups: control, containing 17% casein (NP), and malnourished, containing 8% casein (LP) and maintained during pregnancy and lactation. Part of the animals born of the mating from first generation (F1, NP=5 and LP=11) were evaluated at 30 days of age and the other part of the animals was mated at 70 days of age to obtain the second generation (F2, NP=8 and LP=9). The males from second generation (F2) were also evaluated at 30 days of age. We evaluate body weight, tissue weight, lipid peroxidation (Malondialdeyde-MDA), antioxidant enzymes activity (superoxide dismutase-SOD, catalase-CAT) in liver from first (F1) and second (F2) generations rats. Statistical analysis was performed using the ANOVA two-way test. All results were expressed as percentage compared to control group. Results: There were a significant increase of 39% (p<0.001) in liver weight and 61% (p<0.0001) body weight of F2 LP animals compared to F1 LP, though remained lower when compared to their controls. The MDA levels decreased 79% (p<0.0001) in F2 LP animals compared to F1 LP and it was also reduced compared to their respective control; however the activity of antioxidant enzymes increased significantly (SOD 224%, p<0.001 and CAT 808%, p<0.0001) in F2 LP compared with those of F1 LP, there were also increased compared to their controls (SOD 171%, p<0.01 and CAT 37%, p<0.05). Conclusion: The second generation of animals subjected to a maternal low-protein diet seems to be more resilient to nutritional insult during the perinatal period. Keywords: Undernutrition, liver, oxidative metabolism. Supported by: FACEPE and UFPE.