OXIDATIVE STRESS IN BRAINSTEM INDUCED BY OVERNUTRITION DURING LACTATION

Sousa, S.M.\textsuperscript{1,2}; Braz, G.R.F.\textsuperscript{1}; Freitas, C.M.\textsuperscript{1,3}; Santana, D.F.\textsuperscript{1,2}; Fernandes, M.P.\textsuperscript{1}; Lagranha, C.J.\textsuperscript{1,2,3}

\textsuperscript{1}Laboratory of Biochemistry and Exercise Biochemistry, - Federal University of Pernambuco – UFPE, Pernambuco, Brazil

\textsuperscript{2}Postgraduate Program in Neuropsychiatry and Behavioral Sciences, Federal University of Pernambuco – UFPE, Pernambuco, Brazil

\textsuperscript{3}Postgraduate Program in Biochemistry and Physiology – UFPE, Pernambuco, Brazil

Introduction: Overnutrition during critical periods of life may cause an increase in reactive oxygen species and change the redox status in groups of neurons present in the brainstem, influencing the appearance of cardiovascular diseases, particularly neurogenic hypertension and metabolic diseases in the adulthood. Aim: Evaluate the brainstem levels of oxidative stress (Malondialdeyde-MDA), protein oxidation-Carbonyls, activity of antioxidant enzymes (superoxide dismutase-SOD, catalase-CAT) and the levels of reduced glutathione-GSH and sulfhydryl group-SH. Methods: Were used 55-day-old \textit{Wistar} male rats. For inducing the overnutrition the offspring was reduced to 3 pups per cage and the control group was kept with 10 pups per cage. The procedures followed the recommendations of the Brazilian Committee of Animal Experimentation and approval of the Research Ethics Committee of the Center of Biological Sciences-UFPE (Number of the process: 23076.017808/2014-51). Results: The overnutrition significant increases the MDA levels (C= 4.766 ± 0.8296; S= 37.89 ± 5.879; \(P= 0.0051\)) and the protein oxidation (C= 0.04375 ± 0.01553; S= 0.1020 ± 0.01553; \(P= 0.0489\)). No differences were found in the SOD, CAT, GSH and sulfhydryl group-SH. Conclusion: Our results suggest that the overnutrition during the developmental period in male rats induces a oxidative damage in brainstem which could contribute to enhance the risk of diseases in the adulthood. Keywords: Overnutrition, Brainstem, Oxidative balance.