BIOCHEMICAL EFFECTS OF THE PRETREATMENT WITH VITAMINS E AND C IN RATS SUBMITTED TO INTRASTRIATAL HYPOXANTHINE ADMINISTRATION: PERSPECTIVES TO LESCH NYHAD DISEASE

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We previously demonstrated that intrastriatal injection of hypoxanthine, the major metabolite accumulating in Lesch Nyhan disease, inhibited Na^+,K^+-ATPase activity and induced oxidative stress in rat striatum. Considering these evidences, we evaluated the action of vitamins E and C on the biochemical alteration induced by hypoxanthine administration on Na^+,K^+-ATPase, TBARS, TRAP, as well as on superoxide dismutase (SOD), catalase (CAT) and glutathione-peroxidase (GPx) activities in striatum of adult rats. Animals received pretreatment with vitamins E and C or saline during 7 days. Twelve hours after the last injection of vitamins or saline, animals were divided into two groups: (1) vehicle-injected group and (2) hypoxanthine-injected group. For all parameters investigated in this research, animals were sacrificed 30 min after drug infusion. Results showed that pretreatment with vitamins E and C prevented hypoxanthine-mediated effects on Na^+,K^+-ATPase, TBARS and antioxidant enzymes (SOD, CAT, GPx) activities; however the reduction on TRAP was not prevented by these vitamins. Although extrapolation of findings from animal experiments to humans is difficult, it is conceivable that these vitamins might serve as an adjuvant therapy in order to avoid progression os striatal damage in patients affected by Lesch Nyhan disease.

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Key words: Lesch-Nyhan; hypoxanthine; Na^+,K^+-ATPase; lipoperoxidation; vitamins E and C.