Effect of a high amino acid diet on antioxidant barrier parameters of rat skin. Part 2

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ABSTRACT

Purpose: The imbalance between the formation of reactive oxygen species and antioxidant capacity of the body is known as oxidative stress. Exposition of the skin to free radicals, the origin of the internal and external causes activation of multiple mechanisms to eliminate them and prevent in this way the development of oxidative stress. The aim of this experiment was examining what changes are taking place in the antioxidant barrier of unwounded healthy skin of rats, who are on a high amino acids diet for 7 and 14 days at administered doses of 0.3 and 0.5 g/kg body weight.

Materials and Methods: The study was performed on male Wistar rats divided into 5 groups: 1. control (standard feed), 2. high amino acid diet (WPC-80 80% whey protein) administered for 7 days at a dose of 0.3g/kg of body weight, 3. WPC-80 for 7 days at a dose of 0.5g/kg of body weight, 4. WPC-80 for 14 days at a dose of 0.3g/kg of body weight, 5. WPC-80 for 14 days at a dose of 0.5g/kg of body weight. The concentration of superoxide dismutase 2 and 3, the concentration of catalase specific activity of glutathione peroxidase, the concentration of glutathione and total protein content were determined.

Results: The supplementation of the standard diet by the preparation of WPC-80 administered in a dose 0.5 g/kg body weight for 14 days containing methionine and cysteine (essential amino acids involved in the formation of glutathione), significantly increases the concentration of reduced glutathione.

Conclusions: Enrichment of a standard diet with WPC-80 caused by the significant increases of non-enzymatic antioxidant.

Keywords: WPC-80, skin, rat

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