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ABSTRACT BOOK

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PT077

Oxidative stress and antioxidant defense in allergic asthma

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Abstract

Background/aim: Asthma is a chronic and complex inflammatory disease with environmental and genetic factors that contribute to its development. There are evidences that reactive oxygen species, especially free radicals may play important roles in the development and severity of this disease. In this study, we aimed to investigate the levels of some oxidative stress markers, and antioxidant capacity in plasma or serum samples of patients with allergic asthma.

Materials and methods: We analysed malondialdehyde (MDA), protein carbonyls (PC), reduced glutathione (rGSH) levels, ferric reducing antioxidant capacity and catalase activity in blood (plasma or serum) samples of patients with allergic asthma using spectrophotometric methods. Patients and healthy individuals with no history of allergy were included in this study (for each group n=120). Study subjects were divided into 3 groups, according to their asthma control test, as totally controlled (TC), partially controlled (PC) and uncontrolled (UC). Differences in variables were analysed by using appropriate statistical tests, including one-way ANOVA and unpaired t test.

Results: Our results showed that significant increase in plasma MDA and PC levels in all groups of patients compared to healthy subjects ($p<0.001$), especially in UC ones. Besides, significant decrease in plasma rGSH ($p<0.001$) level, plasma FRAP ($p<0.007$) and serum catalase activity ($p<0.01$) was detected in all patients. However, there was no significant differences for these parameters between TC, PC and UC patients.

Conclusion: This research confirmed the presence of severe oxidative stress in asthmatic patients. Further attempts are needed in order to improve antioxidant capacity and supress molecular oxidations, such as lipid peroxidation and protein carbonylation for restoring life quality of allergic asthma patients.

Keywords: Oxidative stress, allergic asthma, antioxidant defence, MDA, protein carbonyls

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