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Evaluation of oxidant/antioxidant status and ECP levels in asthma

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Abstract: Inflammatory and immune cells, such as eosinophils, macrophages, and neutrophils, generate more reactive oxygen species in patients with asthma than they do in healthy individuals, and oxygen radicals contribute to tissue injury in asthma. We aimed to measure total oxidant status (TOS) and antioxidant status (TAS) in order to assess oxidative and antioxidative capacity. Eosinophil cationic protein (ECP), total IgE, and eosinophils (%) were measured to evaluate the level of inflammation. Materials and methods: The study included 56 non-smoking asthma patients that were followed-up at the respiratory disease and allergy outpatient clinics, where they received ongoing treatment for 5 months (May 2008-October 2008). Patients with malignancy or chronic diseases, such as DM, chronic renal disease, and rheumatoid arthritis, were excluded. The patients with asthma were divided into 2 subgroups according to the level of asthma control: controlled and partially controlled. Results: Despite the absence of statistically significant differences in TAS and TOS in the asthma and control groups ($P > 0.05$), the levels of ECP, eosinophils, and total IgE were higher in the asthma patients (27.4-16 mg/dL, $P = 0.008$; 2.8%-1.7%, $P = 0.03$; 59-19.3 IU/L, $P < 0.001$, respectively); there were no statistically significant differences between the asthma subgroups. Conclusion: Therapy administered to the asthmatic patients prevented generation of excess oxidants, although eosinophilic inflammation persisted.

Key words: Asthma, oxidative stress, total oxidant status, total antioxidant status, eosinophil cationic protein

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