Coenzyme Q_{10} supplementation reduces corticosteroids dosage in patients with bronchial asthma

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Abstract. Bronchial asthma is a chronic inflammatory disease of respiratory system, with disturbances in the dynamic balance of oxidant-antioxidant capacity of the lungs. Long-term administration of corticosteroids has been shown to result in mitochondrial dysfunction and oxidative damage of mitochondrial and nuclear DNAs. We previously documented decreased coenzyme Q_{10} (CoQ_{10}) and α-tocopherol concentrations in plasma and blood in corticosteroid-dependent bronchial asthma patients. In the present study we demonstrate that CoQ_{10} supplementation reduces the dosage of corticosteroids in these patients.

Patients and methods: This was an open, cross-over, randomized clinical study with 41 bronchial asthma patients (13 males, 28 females), ages 25–50 years. All patients suffered from persistent mild to moderate asthma. The patients were divided into two groups, one group receiving standard antiasthmatic therapy and clinically stabilized, and the second group receiving, in addition, antioxidants consisting of CoQ_{10} as Q-Gel® (120 mg) + 400 mg α-tocopherol + 250 mg vitamin C a day. The groups were crossed over at 16 weeks for a total duration of 32 weeks.

Results and conclusions: Data show that patients with corticosteroid-dependent bronchial asthma have low plasma CoQ_{10} concentrations that may contribute to their antioxidant imbalance and oxidative stress. A reduction in the dosage of corticosteroids required by the patients following antioxidant supplementation was observed, indicating lower incidence of potential adverse effects of the drugs, decreased oxidative stress. This study also demonstrates the significant uptake of CoQ_{10} by lung tissue in a rat model using hydrosoluble CoQ_{10} (Q-Gel®).

Keywords: Bronchial asthma, corticosteroids, coenzyme Q_{10}, oxidative stress, DNA