

Abstract

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Supplementation of Vitamin E, Vitamin C, and Zinc Attenuates Oxidative Stress in Burned Children: A Randomized, Double-Blind, Placebo-Controlled Pilot Study.

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OBJECTIVE: The aim of this study was to investigate the effect of supplementation of vitamin E, vitamin C, and zinc on the oxidative stress in burned children.

METHODS: In a prospective double-blind placebo-controlled pilot study, 32 patients were randomized as no supplementation (n = 15) or antioxidant supplementation (n = 17) groups. Supplementation consisted of the antioxidant mixture of vitamin C (1.5 times upper intake level), vitamin E (1.35 times upper intake level), and zinc (2.0 times recommended dietary allowance) administered during 7 days starting on the second day of admittance into the hospital. Energy requirement was calculated by the Curreri equation, and protein input was 3.0 g/kg of ideal body mass index (percentile 50 degrees). Total antioxidant capacity of plasma and malondialdehyde were used to monitor oxidative stress. The time of wound healing was evaluated as the main clinical feature.

RESULTS: Patients (age 54.2 +/- 48.9 months, 65.6% males), who exhibited 15.5 +/- 6.7% of total burn area, showed no differences in age and sex, when compared with controls. Intake of the administered antioxidants was obviously higher in treated subjects (P = .005), and serum differences were confirmed for vitamin E and C, but not for zinc (P = .180). There was a decrease in lipid peroxidation (malondialdehyde level) (P = .006) and an increase in vitamin E concentrations in the antioxidant supplementation group (P = .016). The time of wound healing was lower in the supplemented group (P < .001).

CONCLUSION: The antioxidant supplementation through vitamin E and C and the mineral zinc apparently enhanced antioxidant protection against oxidative stress and allowed less time for wound healing.

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