

A randomized controlled trial of antioxidant supplementation for pain relief in patients with chronic pancreatitis

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Abstract

Background & aims: Oxidative stress has been implicated in the pathophysiology of chronic pancreatitis (CP). We evaluated the effects of antioxidant supplementation on pain relief, oxidative stress, and antioxidant status in patients with CP.

Methods: In a placebo-controlled double blind trial, consecutive patients with CP were randomized to groups that were given placebo or antioxidants for 6 months. The primary outcome measure was pain relief, and secondary outcome measures were analgesic requirements, hospitalization, and markers of oxidative stress (thiobarbituric acid-reactive substances [TBARS]) and antioxidant status (ferric-reducing ability of plasma [FRAP]).

Results: Patients (age 30.5 \pm 10.5 years, 86 male, 35 alcoholic, and 92 with idiopathic CP) were assigned to the placebo (n=56) or antioxidant groups (n=71). After 6 months, the reduction in the number of painful days per month was significantly higher in the antioxidant group compared with the placebo group (7.4 \pm 6.8 vs 3.2 \pm 4, respectively; P< .001; 95% CI, 2.07, 6.23). The reduction in the number of analgesic tablets per month was also higher in the antioxidant group (10.5 \pm 11.8 vs 4.4 \pm 5.8 respectively; P= .001; 95% CI, 2.65, 9.65). Furthermore, 32% and 13% of patients became pain free in the antioxidant and placebo groups, respectively (P= .009). The reduction in the level of TBARS and increase in FRAP were significantly higher in the antioxidant group compared with the placebo group (TBARS: placebo 1.2 \pm 2.7 vs antioxidant 3.5 \pm 3.4 nmol/mL; P= .001; 95% CI 0.96, 3.55; FRAP: placebo -5.6 \pm 154.9 vs antioxidant 97.8 \pm 134.9 microMFe(+2) liberated, P= .001, 95% CI 44.98, 161.7).

Conclusions: Antioxidant supplementation was effective in relieving pain and reducing levels of oxidative stress in patients with CP.

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