Abstract

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The role of oral coenzyme Q10 in patients undergoing coronary artery bypass graft surgery.

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OBJECTIVE: Cardiopulmonary bypass (CPB) is known to induce oxidative stress. Because total antioxidant level is reduced during CPB, the supplementation of an antioxidant might help in attenuating the oxidative stress response. The authors sought to evaluate the efficacy of oral coenzyme Q10, in attenuating the oxidative stress to CPB and altering the clinical outcome in patients undergoing coronary artery bypass graft (CABG) surgery.

DESIGN: A prospective, randomized, single-center clinical study.

SETTING: A cardiothoracic center of a tertiary hospital.

PARTICIPANTS: Thirty patients scheduled for elective CABG surgery.

INTERVENTIONS: The study group (n = 15) received oral coenzyme Q10, 150 to 180 mg/d, for 7 to 10 days preoperatively, whereas the control group (n = 15) did not receive any antioxidant or placebo. The anesthesia technique was standardized in both groups. Blood samples for total antioxidant level, blood glucose level, and clinical outcome parameters up to 24 hours postoperatively were compared.

MEASUREMENTS AND MAIN RESULTS: There was no difference in the antioxidant level between the 2 groups at any point of time. However, in the study group, 24 hours after aortic clamp release, it was significantly higher than baseline ($p < 0.05$). The blood glucose was significantly lower in the study group at aortic clamp removal and 4 hours after clamp removal as compared with the control group ($p = 0.01$). The study group had significantly fewer reperfusion arrhythmias, lower total inotropic requirement, mediastinal drainage, blood product requirement, and shorter hospital stays compared with the control group.

CONCLUSION: Oral coenzyme Q10 therapy for 7 to 10 days preoperatively could improve clinical outcome in patients undergoing CABG surgery. A larger study group is recommended for confirmation.

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