

A new study shows that supplementing with a combination of omega-3 fatty acids (EPA/DHA), vitamin C and vitamin E decreases oxidative stress and inflammation after heart surgery and reduces the incidence of atrial fibrillation.

Antioxidant supplementation reduces atrial fibrillation after heart surgery

A type of heart arrhythmia known as atrial fibrillation is a significant complication following heart surgery. Oxidative stress has been suggested as a potential factor in the development of this condition.

In a new study published in the *Journal of the American College of Cardiology*, researchers sought to assess whether antioxidant therapy would reduce the risk of post-operative atrial fibrillation. A total of 203 adult men and women scheduled to undergo cardiac surgery were randomized to receive a placebo or treatment with omega-3 fatty acids (2 gram/day EPA/DHA), vitamin C (1 gram/day), and vitamin E (400 IU/day). The EPA/DHA was given seven days prior to surgery, and the vitamins C and E two days prior. Treatment was continued until discharge from the hospital. Continuous ECG evaluation was conducted for several days after the surgery to detect any new onset atrial fibrillation. In addition to analysis of heart rhythm, biomarkers related to oxidative stress and inflammation were also measured.

Post-operative atrial fibrillation occurred in 9.7% of the patients in the treatment group, and in 32% of the patients in the placebo group. In addition, patients in the placebo group experienced increased biomarkers of inflammation and oxidative stress when compared to the treatment group. The activity of antioxidant enzymes (catalase, superoxide dismutase, and glutathione peroxidase) was significantly higher in the group taking the antioxidant supplements. The placebo group had 3.62 times the risk of experiencing atrial fibrillation any time after surgery than the group supplemented with antioxidants.

The results of this study show that short-term antioxidant supplementation improves patient outcomes after heart surgery by increasing the body's antioxidant potential and reducing oxidative stress and inflammation.

Rodrigo Ramón et al. A Randomized Controlled Trial to Prevent Postoperative Atrial Fibrillation by Antioxidant Reinforcement. *J Am Coll Cardiol*. 2013 July 19. pii: S0735-1097(13)02780-0.