

**Supplemental vitamins C and E reduce post-heart attack deaths in diabetics**

In a communication published online on August 12, 2008 in the journal *Cardiology*, researchers at Grochowski Hospital and the Polish Academy of Sciences in Warsaw report the results of a preliminary study which found that supplementing diabetic patients with vitamins C and E significantly reduced mortality over a thirty day period following acute myocardial infarction (heart attack). The presence of diabetes is known to adversely affect heart attack outcome.

The study included 800 participants in the Myocardial Infarction and Vitamins (MIVIT) study, a placebo-controlled clinical trial designed to assess the safety and outcome of the antioxidant vitamins C and E in heart attack patients.

Subjects were randomized to receive a 12 hour intravenous infusion of one gram vitamin C followed by 400 milligrams vitamin C plus 200 milligrams vitamin E administered orally three times per day, or a placebo regimen.

The researchers compared 30-day cardiac mortality among those who received the vitamins with that of subjects who received the placebo. Although deaths were the same for the treatment and placebo groups in nondiabetic subjects, among the 122 diabetics, mortality was 68 percent lower in those who received the antioxidant vitamins.

The authors remark that the vitamins have synergistic activity, resulting in a reduction in reactive oxygen species formation in heart attack patients. In diabetics, elevated blood sugar significantly increases reactive oxygen species, leading to increased endothelial damage and endothelium-derived nitric oxide inactivation. Additionally, these free radicals play a role in the development of diabetes.

“Early administration of appropriate doses of antioxidant vitamins C and E in diabetic patients with AMI seems to be particularly reasonable in view of increased reactive oxygen species formation in these patients,” the authors conclude. “This may explain the beneficial effects of antioxidant vitamins observed in our study.”

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**Health Concern****Diabetes**

It is crucial that diabetics (and those predisposed to diabetes) understand the ways in which blood glucose causes damage and take active steps to interrupt these processes. The most notorious process is glycation, the same process that causes food to brown in an oven. Glycation (defined as sugar molecules reacting with proteins to produce nonfunctional structures in the body) is a key feature of diabetes-related complications because it compromises proteins throughout the body and is linked to nerve damage, heart attack, and blindness.

Oxidative stress is also central to the damage caused by diabetes. Diabetics suffer from high levels of free radicals that damage arteries throughout the body, from the eyes to the heart. Once again, it is important that diabetics understand their need for antioxidant therapy to help reduce oxidative stress and lower the risk of diabetic complications.

In one clinical study, vitamin C significantly increased blood flow and decreased inflammation in patients with both diabetes and coronary artery disease (Antoniades C et al

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2004). Three studies suggest that vitamin C, along with a combination of vitamins and minerals (Farvid MS et al 2004), reduces blood pressure in people with diabetes (Mullan BA et al 2002) and increases blood vessel elasticity and blood flow (Mullan BA et al 2004).

Vitamin E has been shown to significantly reduce the risk of developing type 2 diabetes (Montonen J et al 2004). One double-blind trial found a reduction in the risk of cardiac autonomic neuropathy, or damage to the nerves that supply the heart, which is a complication of diabetes (Manzella D et al 2001).

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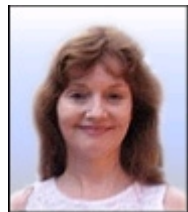
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