

Antioxidants don't measure up in the latest study of over 20,000 patients

Antioxidant vitamins have long been supported for their potential role in the prevention and protection from the development of coronary heart disease (CHD) and with good reason.

Oxidation of cholesterol particles allows them to accumulate within the artery walls and animal studies using antioxidants have demonstrated a slowing of the formation of plaque within these vessel walls with the addition of antioxidant vitamins. In human studies, antioxidant blood levels have been inversely correlated with the incidence and mortality associated with vascular disease such as CHD and stroke. However, large-scale randomized studies have been lacking and perhaps findings so far have only been indicative of an association between a healthy lifestyle and diet.

The Heart Protection Study involved 20,536 adults with CHD, other vascular disease or diabetes. Participants were randomly allocated to receive antioxidant vitamin supplementation (600 mg vitamin E, 250 mg vitamin C, and 20 mg beta-carotene daily) or matching placebo. Over the follow-up period, participants were assessed for heart and vascular related events such as death, heart attack and stroke, as well as non-cardiovascular events such as the development of cancer were recorded.

Despite a significant rise in the vitamin blood levels in participants who received the antioxidant vitamins, there was no observed difference in any of the measured cardiovascular outcomes over a 5 year period. In addition, there was no difference in the incidence of cancer or other non-cardiovascular disorders.

This information certainly places doubt on the benefit of antioxidant vitamins in the patient population studied. However, it is important to realize that these individuals either had known cardiovascular disease or were at extremely high risk for its development. It has been speculated that perhaps antioxidant vitamins are best utilized in those individuals who have not yet developed cardiovascular disease, but are simply at risk for its occurrence. Potentially antioxidants may still play a role in the primary prevention of these conditions, and therefore this may be the focus of further research.

However, the current large-scale randomized study suggests that antioxidant vitamins play no significant role in the prevention of further cardiovascular events in individuals with known cardiovascular disease or in those who are at high risk.

Title: MRC/BHF Heart Protection Study of antioxidant vitamin supplementation in 20,536 high-risk individuals: a randomized placebo-controlled trial

Authors: Heart Protection Study Collaborative Group

Source: *Lancet* 2002;360:23-33