Vitamin E and Heart Disease Controversy: Two Major Studies; One Common Flaw

Epidemiological studies have convincingly demonstrated an inverse correlation between cardiovascular disease and high intake vitamin E from diet.[1] However, clinical trials of vitamin E supplementation in cardiovascular patients have yielded conflicting results.[2] Two recent clinical studies, the British Heart Protection Study[3] and the Women's Angiographic Vitamin and Estrogen Study (WAVE)[4] do little to clarify the situation.

Both studies used synthetic vitamin E, although it was necessary to contact both groups to obtain this information, since neither study declared this in their methodology. In fact, in the case of the WAVE study, the researchers were not sure which form of vitamin E they had used, and had to contact the manufacturers to find out.[5] The British Heart Protection Study, in addition, used synthetic beta-carotene.

What is so disappointing about these two studies is not just that they used synthetic vitamins, but that they failed to mention this fact in their publications. We must therefore assume that neither the researchers nor the prestigious journals where they published their results believed that there was any meaningful difference between natural and synthetic vitamin E or beta-carotene.

As anyone who uses nutritional interventions as part of their clinical practice knows, synthetic and natural forms of vitamin E are not equivalent. Vitamin E is the general name for at least eight different compounds found together in food and in natural supplements – the tocopherols (alpha, beta, delta, and gamma) and tocotrienols (alpha, beta, delta, and gamma). Of these eight, synthetic vitamin E contains only alpha tocopherol.[6] Although natural vitamin E is standardized to alpha-tocopherol in bioassays, the other forms of vitamin E are always present.

There is growing evidence that gamma-tocopherol may be the more potent in protecting against heart disease and cancer.[7] Indeed, by giving synthetic vitamin E investigators may have interfered with the protective effect of gamma-tocopherol in the diets of research subjects. Experimental studies show that alpha-tocopherol can block absorption of gamma tocopherol,[8] and that administration of large doses of alpha tocopherol depletes gamma tocopherol in plasma and other tissues. In contrast, supplementation with gamma-tocopherol increases both alpha-tocopherol and gamma-tocopherol levels.[9] The absence of tocopherols other than alpha-tocopherol in these and other studies may therefore account for conflicting results.[10]

Similarly, synthetic and natural beta-carotenes are not equivalent.[11] Beta-carotene is only one of the 600-800 carotinoids that occur together in food. Different carotinoids compete for absorption in the intestines. In one long-term study, the Finnish Smokers Study, supplementation with 20 mg (33,000 IU) synthetic beta-carotene for more than 6 years resulted in a significant decrease in absorption of lutein, another carotinoid.[3] Lutein is thought to have a central role to play in the prevention of heart disease.[4]

The two studies, had they been appropriately designed, could have yielded very useful information on vitamin E and cardio-protection, since they were of significant size and follow-up. However, given the limitations of the forms of vitamin E and beta-carotene used they tell us nothing, one way or another, about the safety or efficacy of natural, full spectrum vitamin E or natural beta-carotene. The WAVE study appeared to show an adverse effect of antioxidants (vitamin C and E) in postmenopausal women with heart disease. No negative effects were observed in the British study (vitamin C and E and beta-carotene), but no benefit either.

What these studies should alert us to is how useless or even dangerous synthetic forms of fat-soluble vitamins might be.

They also highlight one of the weaknesses of current clinical nutritional research, which is all too often undertaken by disease-orientated scientists and physicians with, at best, a very sketchy and outdated knowledge of nutritional science. Given the design of these recent studies, it is hardly surprising there is so much confusion about whether or not vitamin E supplementation is a good idea.

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SARS and Orthomolecular Medicine

We know orthomolecular physicians are used to enduring hardships which require courage. Perhaps that capacity for courage is why very few participants scheduled to attend the 32nd Annual International *Nutritional Medicine Today* Conference in Toronto, April 10–13, cancelled. This is in stark contrast to the huge Toronto Oncology Meeting which was cancelled the week before requiring a change in plans for many thousands of doctors. All *Nutritional Medicine Today* attendees have been asked how their health has been since their stay in Toronto. So far, the respondents indicate good health, as they expected, because of their high nutrient intakes, including vitamin C. A complete statistical report will be offered in the next issue of the *Journal of Orthomolecular Medicine*.

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SARS and Vitamin C

In early April, as we heard the first alarming reports about Severe Acute Respiratory Syndrome (SARS), especially in Asia–even the Hong Kong stock exchange was influenced–but also Toronto, by coincidence I had booked a flight to this Cana-

dian city to attend the annual *Nutritional Medicine Today* conference. Do I have to cancel the trip? I wondered. Do we watch in fear pictures of people wearing face masks in the hospital or shall I increase my vitamin C intake to protect myself against this viral infectious disease?

As long as there is no travel advisory, I decided to go to Toronto as planned. However, I have a look on the internet to see if I can find something (April 2). I key the words 'vitamin' and 'SARS' to search. No important hits. I then go directly to the site of vitamin C expert, Robert Cathcart, who has treated AIDS patients with ascorbic acid, orally and intravenously, for 20 years.

Indeed, Cathcart writes something about it, with the title "Killer Pneumonia Flu, SARS." The message is clear: high dose vitamin C is effective to prevent acute infections. The basis of Cathcart's statement is his own experience gained in the course of his MD practice. Also, he mentions the work of physician Fred Klenner. This pioneer in medicine was the first to apply high dose vitamin C to poliomyelitis and other infectious diseases. He published his findings in July, 1949, in the journal *Southern Medicine & Surgery* under the title "The Treatment of Poliomyelitis and Other Virus Diseases with Vitamin C."

On his site Cathcart mentions almost all current diseases and threats: the Gulf syndrome, the Ebola virus and anthrax. And now also SARS. Is Cathcart right by appointing vitamin C as the cure for all these frightening diseases? Or does he himself suffer from one or another syndrome? I think it is the first option. Though not scientifically proven, it is improbable that all these physicians, who use large doses of vitamin C successfully, fabricated their results.

In my own experience, I take high dosages of vitamin C orally in case of the most common viral illnesses, the flu and the cold. It works to reduce the severity and duration of the infection.

Vitamin C is the most effective anti-virus agent. A few days ago I received an e-mail from a patient: "My seven-year-old daughter came home from school yesterday with a headache and chattering teeth. It was quite obvious that it was the flu, since the last weeks a flu virus was going around in her class. I immediately gave her two grams of vitamin C and consequently one gram every hour until bed time. She did not get diarrhea (so bowel tolerance was not reached) and this morning she was free from fever and rather fit (today I gave her one gram vitamin C every three hours. Do you think that vitamin C helped her to get better?" My answer was "yes." Children especially react quickly. Not only in case of the flu and the cold, but also in case of mono-nucleosis, also a viral disease.

One of the impediments to the acceptance of the efficacy of large dose vitamin C is the fact that vitamin C is not patentable. No company is therefore willing to invest money in the research of this vitamin. That is why we must rely on the experience of individual physicians and, of course, on our own experience. Although it has been known for 50 years, orthodox medicine continues to ignore the value of vitamin C. With the added new threat of SARS, we very much need a treatment for all these viral diseases. There is no alternative.

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