Correspondence

Another Hatchet Job on Vitamin E

A recent article in the *American Journal of Respiratory and Critical Care Medicine*[1] concludes that the use of vitamin E supplements over a prolonged period of time increases the risk of lung cancer. Not too surprisingly, considering the general media bias against supplements, the article was widely quoted in the press, on the BBC and in at least one popular medical newsletter. They all seem to have swallowed the conclusions of the study "hook, line and sinker" and concur with the authors' recommendation that vitamin E should only be obtained from food.

So what is wrong with that? Plenty as it turns out. First of all, the benefits of vitamin E supplementation are primarily associated with its proven effectiveness in preventing cardiovascular disease and the evidence that it does so is indeed impressive.

The hypothesis that vitamin E can prevent lipid peroxidation caused by free radical reactions was first advanced in 1983 and has since been proven correct by numerous, credible, scientific investigations. There is now general agreement that vitamin E is the most powerful antioxidant in the body's lipid (fat) phase and that its ability to protect cell membranes from oxidation is of crucial importance in preventing and reversing many degenerative diseases. Vitamin E also inhibits blood clotting (platelet aggregation and adhesion) and prevents plaque enlargement and rupture.[2-10]

The evidence that vitamin E can prevent and reverse heart disease is now incontrovertible. In 1992 researchers at the University of Texas reported that vitamin E protects against atherosclerosis (hardening of the arteries) by preventing oxidation of the low-density lipoprotein fraction of blood.[11] In 1993 researchers at the Harvard Medical School released a study showing that vitamin E supplementation prevents heart disease. Nurses who took more than 100 IU/day of vitamin E for more than two years reduced their risk of heart disease by 41%. A related study involving almost 40,000 male health professionals showed that men who supplemented with between 100 and 250 IU/day reduced their risk of heart disease by 37%. Vitamin E is also highly beneficial in the treatment of intermittent claudication and recent research has confirmed its ability to prevent and, in some cases, reverse the progression of atherosclerosis.[10,12-15]

Vitamin E is also highly effective in warding off a heart attack. Researchers at Cambridge University in England reported in 1996 that patients who had been diagnosed with coronary atherosclerosis could lower their risk of having a heart attack by 77% by supplementing with 400 IU or 800 IU/day of natural source vitamin E.[16] Researchers at the Toyama Medical University in Japan have reported that patients with unstable angina can reduce their risk of angina attacks by a factor of six by supplementing with vitamin E (300 mg/day of alpha-tocopherol acetate).[17] Supplementation with vitamin E has also been found useful in preventing complications after heart surgery and helps slow the restenosis (reblockage) of arteries subjected to angioplasty.[13,14,18] More recently, researchers at the Harvard Medical School reported that supplementing with a combination of vitamin E and vitamin C reduced stroke risk in women by 31%.[19]

Secondly, most people do not get anywhere near the amount required for cardiovascular protection from their diet.

In 1959 the average North American diet provided about 20 mg/day of vitamin E, so based on the observation that very few people suffered from any of the more or less obscure vitamin E related deficiency diseases recognized by the medical establishment, the RDA (Recommended Daily Allowance) for vitamin E was set at

30 IU (20 mg) per day. In 1974 this level was lowered to 15 IU/day when the FDA realized that the average diet now only provided 10 IU or less per day.[20] In other words, the RDA was adjusted to conform to the inadequate and steadily decreasing level of vitamin E in the American diet. The absurdity of this whole situation can perhaps best be illustrated by the fact that an eminent scientist and member of the RDA panel, who in 1974 supported the contention that a vitamin E intake of 10-30 mg/day would be adequate for an adult, publicly stated in 1991 that he was himself taking 400 IU of vitamin E every second day. To quote "...The knowledge that undesirable products of lipid peroxidation in human tissues can be decreased by taking vitamin E have persuaded me to personally take a 269 mg (400 IU) supplement of d-alpha- tocopherol every other day."[21,22]

Thirdly, the University of Washington study reported in the *American Journal of Respiratory and Critical Care Medicine* contains several serious flaws:

1. The number of study participants who supplemented with vitamin E and had never smoked was not enough to conclude anything about the effect of lung cancer risk in this group. The report clearly states this: "Because there were few never-smokers with lung cancer, we did not analyze this group."

2. There was no association between vitamin E intake and lung cancer risk in former smokers. Again, the researchers state this clearly: "We found no significant association between incident lung cancer and supplemental vitamin E for either group of former smokers."

3. The researchers did indeed observe a significantly increased risk of lung cancer among current smokers who supplemented with more than 215 IU/day of synthetic alpha-tocopheryl acetate over a period of 10 years. They somehow equate this with a 28% increase in lung cancer risk when supplementing with 400 IU for 10 years.

4. The study participants were followed for 4 years until the end of December 2005 and their intake of vitamins over a previous 10-year period was determined between 2000 and 2002. Lung cancer has a very long latency (incubation) period, probably around 30 years, so determining vitamin intake for only the last 10 years of progression to full-blown disease is not really relevant. Antioxidants such as vitamin E and vitamin C act to prevent the initiation of degenerative disease, but in normal doses are less effective, if effective at all, in slowing or halting progression of existing disease.

5. During the time period in which the lung cancer developed, the powerful effect of passive smoking (exposure to second-hand smoke) was not known or at least not taken seriously. It is now generally accepted that even short-term, second-hand exposure to tobacco smoke is just as detrimental as smoking itself when it comes to lung cancer risk (hence the rapid proliferation in smoking bans).[23-32] In view of the fact that 20-30% of the US population smoked during the period in question it is conceivable that at least some and perhaps quite a few of the never and former smokers would have been exposed to second-hand smoke and therefore, as far as lung cancer risk is concerned, should have been classified as smokers. Not doing so would seriously skew the data so as to show a greater risk of lung cancer among never smokers and former smokers. It is indeed curious that the researchers corrected their results for confounding variables such as age, sex, race, marital status and education, but failed to include correction for perhaps the most important confounding variable of all–exposure to second-hand smoke

This study is seriously flawed and there is no evidence that its findings apply to anyone but current smokers.

Nevertheless, it should be kept in mind that vitamin E should always be taken in its natural ("-d") form and should be a mixture of the four commonly occurring tocopherols and tocotrienols with gamma-tocopherol being the main component. In order to avoid any possible pro-oxidant effects of vitamin E combined with a diet high in polyunsaturated fats vitamin E supplementation should always be accompanied by supplementation with vitamin C (200-500 mg three times daily).[33-35] It would be nice if appropriate amounts of vitamin E could be obtained from a normal diet, but that really is not practical as most foods are very low in this essential vitamin. To obtain a daily vitamin E intake of 400 IU it would be necessary to consume 200 cups of brown rice, 10 cups of almonds, 80 cups of cooked spinach or 12 tablespoons of unrefined, fresh wheat germ oil every day. Supplementation is clearly necessary and no credible medical evidence has ever been published to the effect that supplementing with 400-600 IU/day of natural vitamin E is unsafe except perhaps for current smokers.

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Plasma Vitamin C and Stroke

The paper by Myint et al.[1] demonstrates an inverse correlation between plasma vitamin C and incidence of stroke. The findings of this study are of major importance, since stroke has a high incidence in North America and Europe, and is third in the mortality statistics. Here, we suggest that the benefits result from a direct action of vitamin C.

As Myint et al. explain, their study was limited: plasma levels were based on a single sample, and estimation of diet and supplement use on a questionnaire, at the start of the study. Over a ten-year period, such single measures are poor indicators of behaviour and plasma levels. The weakness of these methods can be confirmed by examining the plasma ascorbate measurements. Supplement takers were split into quartiles (plasma levels <41, 41-53, 54-65, ≥66 μM/L). Generally, as the paper notes, intakes above 100 mg per day result in large changes in (baseline) plasma concentration. Thus, people supplementing with vitamin C at 100 mg per day or above should have plasma levels in the top quartile (>=66 μM/L).[2] However, less than half the paper's supplement takers (559/1138) showed this expected plasma level. Since the most common vitamin C supplements in the UK are 500 mg and 1000 mg, the plasma results provided for supplement users are inconsistent with the questionnaire responses.

The questionnaire, administered a year before the blood samples were taken, asked whether subjects had taken vitamins regularly "during the past year". During the interval between taking the vitamins and giving the blood sample, subjects may have stopped or started supplementing. We suggest that only the top quartile (>=66 μM/L is consistent with regular supplementation, hence the analysis underestimates the effects of supplementation. A caveat to this statement is that if subjects were chronically ill, they might require additional ascorbate to achieve minimal plasma levels; such subjects would remain ascorbate deficient.

Even in the top quartile, subjects had relatively low levels of vitamin C compared to other groups of supplement users. Phar-

macokinetic modelling predicts plasma minimum plasma vitamin C concentrations of 220 μM/L, for a dose of three grams every four hours.[3] Such frequent doses can maintain a dynamic flow of vitamin C through the body.

The inverse relationship between plasma vitamin C and stroke, noted by Myint et al., was consistent across the population, irrespective of lifestyle factors. Specifically, Myint et al. point out that this relationship was independent of fruit and vegetable consumption. The paper's conclusions, suggesting that vitamin C plasma levels are a "biological marker of lifestyle or other factors," are inconsistent with these findings.

Myint et al.'s results were predicted by a pre-existing hypothesis: that inadequate vitamin C is the cause of stroke and heart disease.[4] Since Linus Pauling popularized the claims for vitamin C,[5] there has been a general resistance to direct experimentation or interpretation of results. Considering the implications for population health, further research is essential, to see if Myint's findings extend to higher plasma levels.

If higher vitamin C levels are directly related to avoidance of stroke, the implications are immense. Following a single dose of vitamin C, plasma levels can reach or exceed 250 μM/L, before declining to baseline. Moreover, people supplementing with liposomal vitamin C formulations can achieve plasma levels in excess of 400 μM/L. Clinical data is not established for these levels, but there is no a priori reason to assume that the reported reduction in stroke risk (17% for each 20 μM/L increase in plasma concentration) is limited to low intakes and plasma levels below 70 μmL. Increasing the plasma ascorbate level from, say, 70 μM/L to 230 μM/L would produce a further predicted reduction in risk of 77%.

Empirical work is urgently needed, to determine whether Myint et al.'s inverse relationship between vitamin C level and incidence of stroke extends to the high levels produced by dynamic flow supplementation. If the relationship holds, sustained high plasma vitamin C could reduce the risk of stroke to negligible levels. Failure to carry out clinical trials of dynamic flow vitamin C supplementation for prevention of stroke and cardiovascular disease could thus mean overlooking a one of the biggest advances in medical treatment since the discovery of penicillin.

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Mercury Causes Autism in One Case

The Federal Government has very quietly acknowledged, for the first time, that mandated vaccination of children can cause autism.

David Kirby of the *Huffington Post* reported that the first of about 4,900 cases, claiming that vaccines containing mercury were responsible for causing normal children to become autistic, had been decided in favor of the plaintiff. The name of the child was unknown because the case had been sealed by the court. However, later information indicated that her name was Hanna Poling. She was represented by Clifford Shoemaker of Shoemaker and Associates of Vienna, VA.

Peter Keisler, US Assistant Attorney General, disclosed that the child's claim, that mercury containing vaccines were the cause of her autism, was reviewed by medical personnel of the Department of Health and Human Services Division of Vaccine Injury Compensation (DVIC) who concluded that compensation was appropriate.

The record is said to show that the child was healthy and developing normally until her 18 month well baby office visit when she received vaccinations against 9 different diseases all at once. Two of them contained thimerosol. Days later she began deteriorating in a cascade of illnesses and, within a few months showed symptoms of autism spectrum disorder (ASD). Response to verbal directions ceased, she no longer said mom and dad, lost relatedness, developed insomnia, screamed incessantly, arched and watched fluorescent light during examination. Dr. Andrew Zimmerman, a leading neurologist at the Kennedy-Kreiger Children's Hospital Neurology Clinic diagnosed "regressive encephalopathy with features consistent with ASD" seven months after her vaccinations.

The written DVIC concession statement said that the child had a pre-existing mitochondrial disorder that was aggravated by her shots on July 19, 2000, which predisposed her to deficits in cellular energy metabolism and manifested as regressive encephalopathy with features of ASD. Although rare in the general population this disorder shows up frequently in autistic children. An article co-authored by Dr. Zimmermann in the *Journal of Child Neurology* states that researchers at the Kennedy-Kreiger Hospital found that 38% of autistic patients had been found to have one marker of this disorder and 47% had another one.

Kirby reports that an informal survey of seven families of children with pending cases revealed that all of the autistic children had markers for this disorder.

It should be noted that children who died from topical applications of thimerosol to umbilical cord infections had little mercury in their fingernails and hair. Those who survived had a lot of it in their fingernails and hair. This indicates that those who are not able to eliminate it from their bodies are most affected by mercury. It is said to burrow into cells and require a lot of glutathione to remove it. It is eliminated mainly through the digestive system. The fact that poor food digestion and bowel problems are often associated with this mitochondrial disorder and the disorder with autistic children is not surprising.

The connection between mercury and brain damage however is far more important. Neurons in cultures are extremely sensitive to mercury. Nanomolar concentrations of mercury, infinitesimally small amounts, kill them. When thimerosol is injected into a small child it quickly disappears because it breaks down to form mercury compounds. Some of the mercury makes its way into the child's brain and causes damage. Female children are less susceptible to this damage than male children because female hormones are protective. This explains why many more boys are afflicted with ASD than girls. The ratio is said to be four to one. What is not much discussed is the

damage which doesn't manifest as ASD. A whole generation of our children have had mercury injected into them in amounts far in excess of what the EPA claims are dangerous if ingested through the mouth. Is there evidence that the children who escaped ASD may also have been damaged? Sadly, the answer is yes.

Unfortunate things have been happening to our boys and young men which have not received the attention that they deserve. They have experienced substantial changes in personality and intellectual capabilities. The January-February 2008 issue of *Harvard* magazine carried an article on "Girl Power" which extolled the capabilities of young women of today and relegated young men to "control group" status. Comments on this article in the March-April 2008 issue of Harvard are illuminating: "What needs research is not the expanded self esteem and confidence of young women, but the depression, dropping out and lethargy of males…the huge disparity in outcomes suggests something bizarre and worth investigating". Also noted was the fact that some classes at Harvard contain 69% of women, a big change from prior years when men predominated.

Nutrition & Mental Health, the International Schizophrenia Foundation's Autumn 2007 newsletter, reports that there have been substantial increases in prescriptions of psychiatric drugs for children between 1995 and 1999. They found a 23% increase in stimulants, a 580% increase in drugs like Prozac, a 300% increase in drugs like the antipsychotic Risperdal and a 4000% increase in mood stabilizers other than Lithium. Only 2 of the most frequently prescribed medications, Luvox and Zoloft, have FDA approval for use in children. Psychiatrists in other countries are bewildered by the pharmacological "Wild West" that the United States is experiencing.

According to the *New York Times* about 1.6 million children and teenagers were given at least two psychiatric drugs in combination, over 500,000 were given three and 160,000 got four or more. There is virtually no scientific evidence justifying these combinations for children although there are a few studies which showed that a combination of two drugs can be marginally better than one for adults. These combinations are given to children at the discretion of a physician, often at the request of courts or school authorities. The pharmaceutical industries' billion dollar marketing machine is undoubtedly responsible for exploiting its opportunity, but how much of that opportunity was provided by the effects of mandated vaccinations? We may never know

Several years ago, Boyd Haley, Ph.D., chairman of the Chemistry Department of the University of Kentucky, stated at a meeting of Doctors for Disaster Preparation, that, at his university, test scores for boys had to be enhanced in order to get sufficient numbers of them into medical and law schools. He ascribed this condition to damage caused by mercury ingested through the mandatory vaccination program. If his analysis is correct, a whole generation of our children have been badly damaged by a Federal Government mandated program and this could have serious consequences for the future of our national defense.

Finally it should be noted that manufacturers of vaccines appear to have avoided liability in these cases. We taxpayers are obliged to pay for the damage done by their products. Who are our supposed servants in Washington serving?

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