

Is Supplemental-Antioxidant Helpful to Human Health?

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Favorable results of the commercially available antioxidants are mostly from epidemiologic study, animal test (*in vivo*) or *in vitro* study (cell test) skipped clinical studies. Recently 7 large scales clinical studies to attain statistical analysis have been conducted to confirm if the commercial available antioxidants are clinically useful to human health or not.

One of them is cohort study in 1993 using 39,910 doctors in USA and as a result amount of vitamin E intake and rate of ischemic heart disease was opposite correlation. Other study is cohort study in 1993 using 87,245 nurses in USA and as a result amount of vitamin E intake and rate of ischemic heart disease was opposite correlation.

Other Linxian study was cancer therapy by taking β -carotene (15 mg) + Vitamin E (30 mg) + selen (Se, 50 μ g) in 1993 using 29,584 cancer patients (ages between 40-69) in China for 5 years survey and it resulted that slight decrease of cancer risk (RR:0.91, 95%CI:0.84-0.99, $p=0.03$). Se may or may not be effective.

Another ATBC test was lung cancer patients by taking β -carotene (20 mg) + Vitamin E (30 mg) in 1994 using 29,133 male smokers (ages between 50-69) in Finland for 5-8 years survey resulted that rate of lung cancer increased at 18% (95%CI:3-36). The addition of Vitamin E resulted no significant effect on lung cancer rate. Addition of β -carotene increased 8% of total death rate (1-16). The cause of death is lung cancer and Ischemic heart disease.

Another is CARET test for lung cancer patients by taking β -carotene (30 mg) and Vitamin A (25,000IU) in 1996 using 18,314 male smokers and/or asbestos exposure experience in past (ages are not sure) in USA for 4 years survey resulted that rate of lung cancer increased (RR:1.28, 95%CI:1.04-1.57, $p=0.02$) and total death rate increased (1.17, 1.03-1.33) and lung cancer increased (1.46, 1.07-2.00), thus this survey terminated 21 months earlier.

Another is PHS test for cancer patients by taking β -carotene (50 mg) in 1996 using 22,071 male doctors (ages between 40-84) in USA for 12 years survey resulted that rate of total cancer and cardiovascular disease and total death rate was not significant.

Another WHS test for cancer patients by taking β -carotene (50 mg) in 1996 using 39,876 females (ages over 40) for 4.1 years survey in USA. As a result it indicated no significant result of cancer risk, cardiovascular disease and total death were observed.

From these results β -carotene is doubtful its usefulness and usefulness of other antioxidants are not clarified.

These results indicated that more clinical studies were necessary to identify the necessity of antioxidant. The studies are required not only epidemiologic study, *in vivo* or *in vitro* studies, but also clinical studies to attain statistical analysis.

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