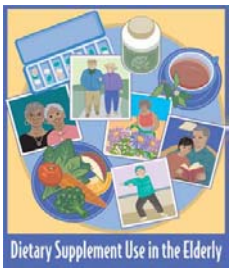

Use of Antioxidants, Vitamins, and Minerals in Age-Related Eye Diseases

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Age-related eye diseases of significant public health impact include lens opacities (cataracts) and age-related macular degeneration (AMD). A number of epidemiologic studies of dietary and serum levels of antioxidant vitamins suggest a protective role of antioxidants for these two ocular conditions. However, results are not consistent among the different studies.

The Age-Related Eye Disease Study (AREDS), a large, randomized, and multicenter controlled clinical trial of antioxidant vitamins C (500mg), E (400 IU), beta-carotene (15 mg), and zinc (80 mg as oxide with 2 mg cupric oxide) enrolled 4,757 patients with varying degree of AMD. Antioxidant vitamins and zinc therapy reduced the risk of developing advanced AMD in participants with intermediate and greater risk of developing AMD by 25 percent.[1] The risk of vision loss of 3 lines or more on the logarithmic visual acuity charts also was reduced by 19 percent for these participants. For participants who developed AMD, the risk of such vision loss was reduced by 25 percent. These therapies had no effect on the progression of lens opacities or cataract surgery[2]. These antioxidants and zinc are now recommended for participants who have at least intermediate risk of developing advanced AMD. At the end of the randomized clinical trial (October 2001), the participants were invited for further follow-up of 5 years to assess any further adverse effects of treatment and for collecting further data on the natural course of these 2 age-related ocular conditions.

The public health impact of the AREDS supplements is enormous. Approximately 8 million people are estimated to be at risk of developing advanced AMD, and if all these people took the AREDS supplements, 300,000 will be saved from developing advanced AMD in the next 5 years.

Further research: Lutein and zeaxanthin, major carotenoids concentrated in the macula, provide protection from oxidative damage induced by either exposure to UV radiation or by incubation with peroxidation initiator.[3] The observational data from epidemiologic studies showed that persons with higher serum levels of individual carotenoids, including lutein/zeaxanthin, beta-carotene, alpha-carotene, and cryptoxanthin, had a statistically significant reduction in the risk of neovascular/exudative AMD.[4] An analysis of dietary histories of participants in the EDCCS demonstrated that persons with a higher intake of lutein had a reduced risk of AMD. There are plans to conduct randomized trials of lutein/zeaxanthin in the future.

References:

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