



Redmer van Leeuwen

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ELDERLY people who have a high dietary intake of betacarotene, vitamins C and E, and zinc have a reduced risk of developing age-related macular degeneration (AMD), according to a new large-scale epidemiological study.

“This finding is in line with the results of the Age-Related Eye Disease Study, in which high-dose supplementation with the same antioxidants was shown to slow the progression to late AMD,” said Redmer van Leeuwen MD, lead author of the study, in an interview with *EuroTimes*. Dr Leeuwen is from the Department of Ophthalmology at Erasmus Medical Centre in Rotterdam.

The study included 6,780 people from a cohort study of people aged 55 or older living in Rotterdam, the Netherlands. Participants had an eye examination at baseline that included 35 degree fundus photography. Two experienced graders reviewed the transparencies and graded them as having no AMD, early-stage AMD or late-stage AMD.

Participants completed a baseline dietary questionnaire at home that asked about foods and drinks they had consumed at least twice a month during the preceding year. The survey included dietary habits, use of supplements and prescribed diets.

The researchers identified 5,836 people with no AMD in either eye. Of these, a total of 4,170 participants had normal cognitive function, lived independently, had reliable dietary data and gradable fundus transparencies and participated in at least one follow-up examination.

After an average of eight years of follow-up, 560 people (13%) were diagnosed with AMD. Of these, most people had early-stage AMD (518) and some had late-stage AMD (42). The researchers found that increased intake of vitamin E, iron and zinc was associated with a reduced risk of AMD.

After adjusting for known confounders, including smoking status, atherosclerosis and serum total cholesterol, each 1-standard deviation increase in vitamin E intake was associated with an 8% reduction in AMD risk; each 1-standard deviation increase in zinc intake was associated with a 9% reduction in AMD risk.

Although the intake of antioxidants from diet in this study was much lower than the intake from supplements in AREDS, the researchers separately analysed the impact of the four antioxidants (betacarotene, vitamins C and E, and zinc) used in AREDS for comparative purposes. They found that those who had an above-median intake of all four antioxidants had a 35% lower risk of AMD compared with those who had a below-median intake of at least one, after adjusting for known confounders. People with a below-median intake of all four antioxidants showed a trend towards an increased risk of AMD.

Diet rich in antioxidants linked to decreased risk of age-related macular degeneration

Boost E and zinc in the diet

When the nutrients were analysed separately, only vitamin E and zinc were associated with a reduced risk of AMD. Dr Leeuwen proposed that, based on these results, all elderly persons should increase their dietary intake of vitamin E and zinc. He suggested that people with early or unilateral AMD, as defined in AREDS, might wish to consider taking the antioxidant supplement used. Those who smoke should not take supplements containing betacarotene, which has been linked to lung cancer in current and former smokers, and should be strongly advised to stop smoking.

“Because it’s an epidemiological study, we still don’t know whether zinc and vitamin E really helped. We also don’t know how or why these nutrients might help.”

Lee M Jampol MD

Lee M Jampol MD, chairman and professor of ophthalmology at Northwestern University, agreed that dietary recommendations are appropriate, and said that he recommends a diet rich in fruits and vegetables to all of his patients. But he said that only people with category 3 or 4 AMD (intermediate AMD or advanced AMD in one eye) should take the supplements used in the study.

“People in groups 1 and 2 should not be taking the AREDS supplements,” he told *EuroTimes*.

Dr Jampol said that the Rotterdam study was very well performed. “But because it’s an epidemiological study, we still don’t know whether zinc and vitamin E really helped. We also don’t know how or why these nutrients might help.”

Some earlier studies have found a diet rich in antioxidants to be protective against AMD. For example, the Eye Disease Case-Control Study found that people with high blood levels of carotenoids, selenium and vitamins C and E had a marked reduction in the risk of AMD. Not all studies support a link between dietary antioxidants and a reduced risk of AMD, however, including the Beaver Dam Eye Study, the Blue Mountains Eye Study and the third National Health and Nutrition Examination Survey (NHANES).

Studies that have looked at supplement use have also found conflicting results. The Physicians Health Study found no significant reductions in the risk of AMD among men taking vitamin E or multivitamin supplements. By contrast, the Age-Related Eye Disease Study (AREDS) found that a combination of

zinc and antioxidant supplements reduced the risk of progression to advanced AMD in people who had either intermediate AMD or advanced AMD in one eye.

Dr Leeuwen said that future observational studies should look at markers of oxidative stress and the level of antioxidant substances, such as serum levels of vitamin E and superoxide dismutase.

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