The Relationship of Dietary Carotenoid and Vitamin A, E, and C Intake With Age-Related Macular Degeneration in a Case-Control Study

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Objective: To evaluate the relationship of dietary carotenoids, vitamin A, alpha-tocopherol, and vitamin C with prevalent age-related macular degeneration (AMD) in the Age-Related Eye Disease Study (AREDS).

Methods: Demographic, lifestyle, and medical characteristics were ascertained on 4519 AREDS participants aged 60 to 80 years at enrollment. Stereoscopic color fundus photographs were used to categorize participants into 4 AMD severity groups and a control group (participants with _15 small drusen). Nutrient intake was estimated from a self-administered semiquantitative food frequency questionnaire at enrollment. Intake values were energy adjusted and classified by quintiles. The relationship between diet and AMD status was assessed using logistic regression analyses.

Results: Dietary lutein/zeaxanthin intake was inversely associated with neovascular AMD (odds ratio [OR], 0.65; 95% confidence interval [CI], 0.45-0.93), geographic atrophy (OR, 0.45; 95% CI, 0.24-0.86), and large or extensive intermediate drusen (OR, 0.73; 95% CI, 0.56- 0.96), comparing the highest vs lowest quintiles of intake, after adjustment for total energy intake and nonnutrient-based covariates. Other nutrients were not independently related to AMD.

Conclusion: Higher dietary intake of lutein/zeaxanthin was independently associated with decreased likelihood of having neovascular AMD, geographic atrophy, and large or extensive intermediate drusen.

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