Association between dietary glycemic index and age-related macular degeneration in nondiabetic participants in the Age-Related Eye Disease Study.

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BACKGROUND: Age-related macular degeneration (AMD) is the major cause of irreversible blindness. AMD appears to share several carbohydrate-related mechanisms and risk factors with diabetes-related diseases, including retinopathy and cardiovascular disease (CVD); however, to date, only one small study has addressed this issue.

OBJECTIVE: The objective was to test the hypothesis that dietary glycemic index (dGI), which has been related to the risk of diabetes and CVD, is associated with the risk and severity of AMD in nondiabetic elderly populations.

DESIGN: Dietary information was obtained from 4099 participants aged 55–80 y (56% women) in the Age-Related Eye Disease Study (AREDS). A total of 8125 eligible eyes at baseline were classified into 1 of 5 AMD groups according to the size and extent of drusen, the presence of geographic atrophy, and neovascular changes. We used a generalized estimating approach to evaluate the relations between dGI and risk and severity of AMD with eyes as the unit of analysis.

RESULTS: Compared with eyes in the first quintile of dGI, eyes in the fourth and fifth quintiles had a significantly or suggestively higher risk of large drusen, geographic atrophy, and neovascularization. The multivariate-adjusted odds ratios (95% CIs) for the highest quintile were 1.42 (1.09, 1.84), 1.78 (0.81, 3.90), and 1.41 (0.95, 2.08), respectively, of which only the odds ratio for large drusen was significant. A significant positive relation between dGI and severity of AMD was also noted (P for trend < 0.001). There was a 49% increase in the risk of advanced AMD (geographic atrophy plus neovascularization) for persons with a dGI higher than the sex median (women: ≥77.9; men: ≥79.3). This result indicated that 20% of prevalent cases of AMD would have been eliminated if the AREDS participants consumed diets with a dGI below the median.

CONCLUSION: The association between dGI and AMD from the AREDS cross-sectional analysis at baseline suggests that a reduction in the dGI, a modifiable risk factor, may provide a means of diminishing the risk of AMD.

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