Dietary Polyphenols and the Risk of Alzheimer's Disease and Related Dementias Among Low-income Black and White Americans

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Objectives: To examine the associations of dietary polyphenols and polyphenol-rich foods/beverages with the risk of Alzheimer's disease and related dementias (ADRD) in a multi-ethnic cohort of predominantly low-income Americans.

Methods: In the Southern Community Cohort Study, we estimated intakes of dietary polyphenols, including total, four major classes–flavonoids, phenolic acids, stilbenes, and lignans–and their subclasses, using a validated food frequency questionnaire and polyphenol databases. Incident ADRD was ascertained via Medicare claims data. Cox model was used to estimate hazard ratios (HRs) and 95% CIs, treating death as a competing risk and adjusting for potential confounders. Restricted cubic splines were used to evaluate potential non-linearity of the associations. Analyses were conducted separately among Blacks, Whites, and other ethnicities. Additional subgroup analyses were conducted by income level, educational attainment, and history of cardiometabolic diseases and depression.

Results: Of 14,500 study participants, we identified 1,402 incident ADRD–830 Blacks, 520 Whites, and 52 of other ethnicities–during a median follow-up of 4.0 years in claims data. The median age was 62.0 years at dietary survey and 73.0 years at ADRD diagnosis. The median intake of total dietary polyphenols differed significantly among Blacks (570 mg/d), Whites (1118 mg/d), and other ethnicities (864 mg/d). Total polyphenol intake was not associated with risk of ADRD among all participants or in any racial/ethnic group. However, intakes of flavanols and theaflavins (subclasses of flavonoids) and tea consumption showed significant linear inverse associations among Blacks (HR [95% CI] for highest vs. lowest quartile = 0.72 [0.57–0.91], p-linearity = 0.015; 0.66 [0.53–0.83], p-linearity = 0.006; and 0.69 [0.55–0.86], p-linearity = 0.005, respectively). Meanwhile, a potential non-linear inverse association was suggested for red wine consumption among Whites (HR [95% CI] for highest vs. lowest quartile = 0.69 [0.48–0.99], p-nonlinearity = 0.047). These associations did not differ in additional subgroup analyses.

Conclusions: Our findings indicate beneficial associations of certain dietary polyphenols and polyphenol-rich tea for the prevention of ADRD among low-income Black Americans.

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