Higher dietary intake of advanced glycation end products is associated with faster cognitive decline in community dwelling older adults

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Abstract

Background: Dietary-derived advanced glycation end products (AGEs) may contribute to chronic diseases. The goal of this study was to investigate the associations of dietary AGEs (dAGEs) with cognitive decline in older adults.

Method: Non-demented older adults (N = 684) underwent annual testing with 19 cognitive tests summarized as a global cognitive score based on five cognitive domains. We modified a previously validated food frequency questionnaire designed to assess dAGE. The modified questionnaire assessed portion size and frequency of consumption of six food groups (meat, poultry, fish, cheese, spreads and processed foods), as well as the method of their preparation (e.g. grilling, boiling). dAGE was the sum of the scores of the six food groups. Linear mixed-effect models were used to examine the association of baseline dAGE with cognitive decline. All models controlled for age, sex, education, race and BMI.

Result: Average follow-up was 3.0 years. Higher baseline dAGEs was associated with a faster rate of global cognitive decline (Estimate = -0.003 (standard error = 0.001, p-value = 0.015). This association was driven by declines in the episodic memory (-0.004 (0.002, 0.013) and perceptual speed (-0.003 (0.001, 0.049) but not by semantic memory, working memory and visuospatial domains. These associations were not attenuated by controlling for cardiovascular risk factors and diseases, including diabetes. Levels of dAGE of the specific food groups were not associated with cognitive decline.

Conclusion: Higher levels of dietary AGE levels in older adults are associated with faster cognitive decline. These data lend further support for the importance of diet and that its modification may slow or prevent late-life cognitive impairment. Further clinical studies will be needed and the molecular mechanisms underlying these associations will need to be identified.