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The longitudinal association of vision impairment with transitions to cognitive impairment and dementia

Joshua R Ehrlich[1] | Bonnielin K Swenor[2,3] | Yunshu Zhou[1] | Kenneth M Langa[1,4]

[1] University of Michigan, Ann Arbor, MI, USA

[2] Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

[3] Wilmer Eye Institute, Johns Hopkins Hospital, Baltimore, MD, USA

[4] Veterans Affairs Center for Clinical Management Research, Ann Arbor, MI, USA

Correspondence
Joshua R Ehrlich, University of Michigan, Ann Arbor, MI, USA
Email: joshre@med.umich.edu

Abstract

Background: Vision impairment (VI) has been identified as a potentially modifiable risk factor for dementia. However, it is not known at what stage of cognitive decline VI exerts an effect. The purpose of this study was to determine whether VI increases the risk of transitions from normal to cognitive impairment no dementia (CIND) and/or from CIND to dementia. These findings may inform understanding of mechanistic processes, as well as the development and implementation of future dementia prevention interventions.

Method: We used longitudinal data including visual acuity and cognitive status from the population-based Aging, Demographics and Memory Study (ADAMS), a sample drawn from the U.S. Health and Retirement Study. The covariate-adjusted associations between VI (binocular distance visual acuity <20/40) and odds of cognitive transitions (normal to CIND, CIND to dementia) were evaluated using a series of multivariable logistic regression models.

Result: A total of 351 ADAMS participants without dementia at baseline were included (49.6% female, mean age 79.3 years, 21.7% with VI). Of these, 92 participants transitioned from normal to CIND and 76 transitioned from CIND to dementia during the course of the study. The odds of a transition from normal to CIND were 2.7 (95% CI 1.0-7.5) times greater among those with VI, whereas the odds of a transition from CIND to dementia were not significantly associated with VI (OR= 0.8, 95% 0.4-1.8).

Conclusion: This study indicates that poor vision is associated with transitions from normal to CIND but not from CIND to dementia, suggesting that the impact of VI is greatest early in the process of cognitive decline.