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Systemic inflammation is associated with dementia status in the health and retirement study

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Abstract

Background: The prevalence of dementia is expected to increase in the coming decades. The highest burden of this chronic condition will likely be borne by racial/ethnic minorities. Systemic inflammation is associated with dementia. This effect may be modified by race/ethnicity, since racial minorities are more likely to have elevated levels of systemic inflammation due to the accumulation of compounded negative experiences (e.g., discrimination, racism, and marginalization). Our goal was to test baseline systemic inflammation in relation to cognitive function in a racially/ethnically representative cohort of US adults.

Methods: In a cross-sectional analysis of the Health and Retirement Study (2006 and 2008 waves, n=9,983), highly sensitive C-reactive protein (hsCRP) was measured in dried blood spots. Cognitive status (dementia, cognitive impairment non-dementia (CIND), and normal cognition) was measured and categorized using the Langa-Weir classification of a modified telephone interview for cognition scale. We estimated the adjusted associations between hsCRP and cognitive status, using multivariable logistic regression. We stratified models by race/ethnicity to explore race-dependent associations.

Results: Our study prevalence of dementia and CIND is 3.5% and 15.8%, respectively. Similarly, 26.7% of dementia and 30.1% of CIND cases occurred among participants with circulating hsCRP levels above the 75th quartile. We observed a racial and gender gradient in the levels of hsCRP in our cohort. For example, Black females had the highest average concentration of hsCRP (7.53 mg/L, SD =15.1) and Whites males the lowest (3.95 mg/L, SD = 7.42). Among participants with hsCRP >75th we observed higher odds of CIND (OR = 1.45; 95%CI: 1.22, 1.72) with respect to those in the . Similarly, elevated hsCRP >75th was associated with dementia (OR= 1.21; 95%CI: 0.86, 1.69), in comparison to the reference lower quartile. We did not observe a race-dependent relationship between hsCRP and cognitive status.

Conclusions: Systemic inflammation, as represented by high levels of hsCRP, was associated with concurrent cognitive status. Despite racial minorities exhibiting higher levels of hsCRP; in our study, the association between inflammation on cognition did not differ by race. Further studies should explore whether the established relationship is causal, seek larger sample sizes in diverse populations, and examine longitudinal relationships