Original Investigation
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Association Between Persistent Pain and Memory Decline and Dementia in a Longitudinal Cohort of Elders

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Full Text
Key Points

Question Is persistent pain associated with accelerated cognitive decline in the elderly?

Findings In this longitudinal, population-based cohort study, reporting pain in 2 successive interviews 2 years apart was associated with a statistically significant increase in the rate of memory decline and the probability of dementia over the subsequent 12 years, compared with controls who did not report persistent pain.

Meaning Persistent pain, which may reflect chronic pain, may help identify elders at risk of accelerated cognitive decline.

Abstract

Importance Chronic pain is common among the elderly and is associated with cognitive deficits in cross-sectional studies; the population-level association between chronic pain and longitudinal cognition is unknown.

Objective To determine the population-level association between persistent pain, which may reflect chronic pain, and subsequent cognitive decline.

Design, Setting, and Participants Cohort study with biennial interviews of 10 065 community-dwelling older adults in the nationally representative Health and Retirement Study who were 62 years or older in 2000 and answered pain and cognition questions in both 1998 and 2000. Data analysis was conducted between June 24 and October 31, 2016.

Exposures "Persistent pain," defined as a participant reporting that he or she was often troubled with moderate or severe pain in both the 1998 and 2000 interviews.

Main Outcomes and Measures Coprimary outcomes were composite memory score and dementia probability, estimated by combining neuropsychological test results and informant and proxy interviews, which were tracked from 2000 through 2012. Linear mixed-effects models, with random slope and intercept for each participant, were used to estimate the association of persistent pain with slope of the subsequent cognitive trajectory, adjusting for demographic characteristics and comorbidities measures in 2000 and applying sampling weights to represent the 2000 US population. We hypothesized that persistent pain would predict accelerated memory decline and increased probability of dementia. To quantify the impact of persistent pain on functional independence, we combined our primary results with information on the association between memory and ability to manage medications and finances independently.

Results Of the 10 065 eligible HRS sample members, 60% were female, and median baseline age was 73 years (interquartile range, 67-78 years). At baseline, persistent pain affected 10.9% of participants and was associated with worse depressive symptoms and more limitations in activities of daily living. After covariate adjustment, persistent pain was associated with 9.2% (95% CI, 2.8%-15.0%) more rapid memory decline compared with those without persistent pain. After 10 years, this accelerated memory decline implied a 15.9% higher relative risk of inability to manage medications and an 11.8% higher relative risk of inability to manage finances independently. Adjusted dementia probability increased 7.7% faster (95% CI, 0.55%-14.2%); after 10 years, this translates to an absolute 2.2% increase in dementia probability for those with persistent pain.

Conclusions and Relevance Persistent pain was associated with accelerated memory decline and increased probability of dementia.