

Walking Linked to Slower Cognitive Declines

BY SUSAN BIRK

FROM THE ANNUAL MEETING OF THE RADIOLOGICAL SOCIETY OF NORTH AMERICA

CHICAGO – Walking is associated with slower cognitive decline and greater preservation of brain volume in older adults with mild cognitive impairment or Alzheimer’s disease as well as in cognitively healthy older adults, a longitudinal study has shown.

Patients with mild cognitive impairment (MCI) or Alzheimer’s disease (AD) who walked just 5 miles/wk – less than 0.75 mile/day – had significantly less neurodegeneration on three-dimensional volumetric MRI and a more than 50% reduction in cognitive decline and memory loss over 10 years than did sedentary cognitively impaired individuals, reported Cyrus A. Raji, Ph.D., of the University of Pittsburgh.

“Physical activity may be a way to reduce risk [for AD] by strengthening brain structure,” Dr. Raji said in a press briefing at the meeting.

He and his colleagues analyzed the responses of 1,479 participants to questionnaires in the 20-year, ongoing Cardiovascular Health Study–Cognition Study (CHS-CS). In 1989-1990, these subjects completed standardized, self-reported questionnaires of physical activity. Of these subjects, 927 underwent brain MRI in 1992-1994. In 1998-1999, 426 subjects underwent high-resolution, three-dimensional volumetric brain MRI.

The three-dimensional imaging technique’s availability made it possible for Dr. Raji and his colleagues to look at “the brain itself and whether or not conserved brain conferred the reduced risk,” he said. “The way physical activity reduces risk for Alzheimer’s disease, we believe, is that it preserves circulation to the brain, ... and in so doing, it is preserving the health of neurons.”

Researchers divided the 426 subjects into those who were cognitively normal at the time of volumetric MRI (n = 299; mean age, 78 years) and those who were cognitively impaired (n = 127; mean age, 81 years) with either MCI (n = 83) or AD (n = 44).

Among patients with AD or MCI, walking 5 miles/wk preserved brain volume and reduced memory loss over time as patients were developing the disease. The reduction in memory loss that was associated with walking remained stable even after researchers controlled for age, sex, race, education, subclinical stroke, head size, body fat composition, type II diabetes, cardiovascular disease, and hypertension.

Normally aging patients who did not have MCI or AD at the time of volumetric MRI and who walked regularly also showed a significant reduction in brain atrophy over 10 years, compared with their more sedentary counterparts, as well as a 50% reduction in the risk of developing AD over a total of 13 years. The amount of walking needed to preserve brain volume and cognitive func-

tion, as measured by the 30-point Mini-Mental State Exam (MMSE) in these cognitively healthy patients, was slightly greater (6 miles/wk) than that for patients with AD or MCI.

However, according to Dr. Raji, the most exciting finding was the positive effects of physical activity in people who already had AD or MCI at the

time of volumetric MRI. The brain images of these patients revealed “preservation of brain volume in the exact same regions that benefit people with healthy aging, specifically, the prefrontal and temporal cortices,” he said. Furthermore, the amount and magnitude of these effects were even larger than in the normally aging group. ■

VITALS

Major Finding: Among cognitively impaired subjects, cognitive scores on the MMSE declined on average by 1 point over 10 years in persons who walked 5 miles/wk, compared with 5 points in sedentary individuals.

Data Source: Longitudinal study of 426 older adults.

Disclosures: The study was funded by the National Institute of Aging, the American Heart Association, and the RSNA Research & Education Foundation. Dr. Raji had no financial disclosures.

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