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Amyloid Positivity in the Alzheimer/Subcortical-Vascular Spectrum

Sung Hoon Kang, MD, Monica Eunseo Kim, MS, Hyemin Jang, MD, PhD, et al.

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Correspondence
Dr. Na
dukna@naver.com
or Dr. Jang
hmjang57@gmail.com

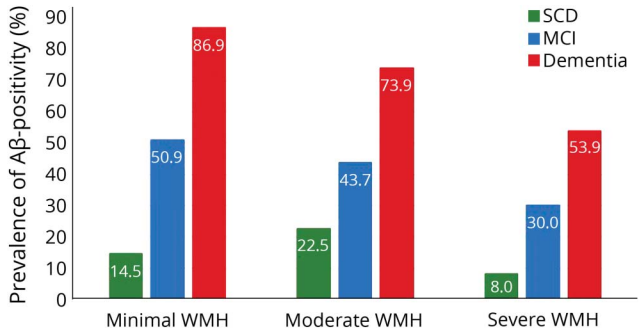
Study Question

What is the frequency of Aβ positivity in a large sample of individuals classified into 9 groups based on the combination of different levels of cognitive impairment and WMH burden? What is the association between Aβ positivity and other features of cerebral small vessel disease burden, including lacunes and microbleeds, in 3 stratified cognitive levels?

What Is Known and What This Paper Adds

Studies of Aβ-positivity often dichotomize participants into those with Alzheimer disease (AD) and those with subcortical vascular cognitive impairment. This investigation's results offer a more fine-grained understanding of how Aβ-positivity rates vary with severity of WMH and cognitive change and provide evidence that AD and cerebral small vessel disease lie on a continuum.

Figure Aβ-Positivity Rates and WMH Burdens



Aβ-positivity rates for participants with 9 groups based on different cognition level and different WMH severities.

Methods

For this cross-sectional study, the investigators analyzed data from individuals with subjective cognitive decline (SCD; n = 294), mild cognitive impairment (MCI; n = 237), or dementia (n = 516) recruited through a memory clinic at the Samsung Medical Center in Seoul. The participants underwent Aβ PET scans and MRI scans. WMH burden was classified as minimal, moderate, or severe. The participants were classified into 9 groups based on the 3 cognition levels and 3 WMH burden levels. Linear trend tests were used to examine how Aβ-positivity rates varied with WMH severity in participants with the same cognitive state and how they varied with cognition states in participants with the same WMH severity level.

Results and Study Limitations

The Aβ-positivity rates were higher for participants with more severe cognitive impairment (i.e., 15.7%, 43.5%, and 76.2% for the SCD, MCI, and dementia groups, respectively) but were lower for participants with greater WMH severities (i.e., 54.5%, 53.9%, and 41.0% for the minimal, moderate, and severe groups, respectively) or greater number of lacunes (i.e., 59.0%, 42.0%, and 23.4% for the 0, 1–3, and >3 groups, respectively). The present study's limitations include its cross-sectional nature, which precludes the establishment of causal relationships; the lack of pathology data; and a focus on Korean participants, which may limit generalizability to people from other ethnic groups.

Study Funding and Competing Interests

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A draft of the short-form article was written by M. Dalefield, a writer with Editage, a division of Cactus Communications. The corresponding author(s) of the full-length article and the journal editors edited and approved the final version.

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