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Study examines link between blood biomarkers and risk of Alzheimer's disease

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A meta-analysis of previously published studies found that the ratio of blood plasma amyloid-β (Aβ) peptides Aβ42:Aβ40 was significantly associated with development of Alzheimer disease and dementia, according to a report published Online First by *Archives of Neurology*.

"Plasma levels of amyloid-β (Aβ) peptides have been a principal focus of the growing literature on blood-based biomarkers, but studies to date have varied in design, assay methods, and sample size, making it difficult to readily interpret the overall data," the authors write as background in the study.

Alain Koyama, S.M., then of Harvard School of Public Health and Brigham and Women's Hospital, Boston, now with the University of California, San Francisco, and colleagues conducted a meta-analysis of 13 previously published studies to examine the association between plasma amyloid-β and development of dementia, Alzheimer disease (AD) and cognitive decline.

The 13 studies included in the analysis had a total of 10,303 participants, and were published between 1995 and 2011. The studies also included measurement of at least one relevant plasma amyloid-β species (Aβ40, Aβ42, or Aβ42: Aβ40 ratio) and reported an effect estimate for dementia, AD or cognitive decline.

The authors found that lower Aβ42: Aβ40 ratios were significantly associated with development of Alzheimer disease and dementia, with

most studies in the analysis reporting similar findings. Plasma levels of Aβ40 and Aβ42 alone, however, were not significantly associated with either outcome.

"In conclusion, despite the limitations of existing research and heterogeneity across the studies considered, this systematic review and meta-analysis suggests that the ratio of plasma Aβ42: Aβ40 may have value in predicting the risk for later development of dementia or AD and merits further investigation."

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