Associations Between Multimorbidity and Cerebrospinal Fluid Amyloid: A Cross-Sectional Analysis of the European Prevention of Alzheimer's Dementia (EPAD) V500.0 Cohort

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Abstract:

Background: Multimorbidity (the co-occurrence of multiple chronic conditions) is increasingly common, especially among people with dementia. Few neuroimaging studies have explored amyloid biomarkers in people with multimorbidity.

Objective: We aimed to conduct the first study of the association between multimorbidity and cerebrospinal fluid amyloid-β42 (CSF Aβ).

Method: The European Prevention of Alzheimer's Dementia (EPAD) Longitudinal Cohort Study V500.0 dataset includes volunteers aged ≥50 years from 12 sites. Participants undergo detailed phenotyping, including CSF measures and a self-reported medical history. Using logistic and linear regression analyses, we explored the association between multimorbidity and continuous chronic condition count with CSF Aβ positivity (Aβ42 <1000pg/ml) and continuous CSF Aβ concentration. All models were adjusted for age, sex, APOE status, education, and family history of dementia.

Results: Among 447 eligible participants without dementia, the mean (SD) age was 66.6 (6.6) years, 234 (52.3%) were women, and 157 (35.1%) were amyloid positive. With chronic conditions regarded as pseudo-continuous, each additional condition carried a decreased likelihood of amyloid positivity (OR = 0.82, 95% CI: 0.68–0.97; p = 0.026). With CSF Aβ as a continuous variable, each additional condition was associated with an increase of 54.2 pg/ml (95% CI: 9.9–98.5, p = 0.017). Having ≥2 conditions was inversely associated with amyloid positivity (OR 0.59, 95% CI: 0.37–0.95, p = 0.030) compared to one or none.

Conclusion: Our findings suggest that the established association between multimorbidity and dementia may be due to a pathway other than amyloid. However, this cross-sectional study does not allow us to make causal inferences. Longitudinal work is required to confirm the inverse association found.

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