

The Clinical, Biological, Neuroimaging, And Cognitive Profiles For Plasma Brain-derived Tau In Older Adults: A Population-based Study

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INTRODUCTION	METHODS	RESULTS	CONCLUSIONS	REFERENCES
Plasma brain-derived tau (BD-tau) has emerged as a promising biomarker for Alzheimer's disease (AD)-type neurodegeneration, yet its multimodal profiles and diagnostic performance for dementia remain poorly defined. We characterized the clinical, neuroimaging, biological, and cognitive profiles associated with plasma brain-derived tau (BD-tau), and further, to assess the performance of plasma BD-tau for distinguishing dementia from non-dementia in a community-dwelling older population.	This population-based cross-sectional study included 1,755 rural-dwelling older adults (age ≥60 years; 59.94% women) derived from participants of the baseline examination of MIND-China in 2018. Dementia, Alzheimer's disease (AD), vascular dementia (VaD), and mild cognitive impairment (MCI) were diagnosed following international criteria. Plasma BD-tau concentration was measured using Single molecule array (Simoa) immunoassay technology. Data were analyzed using linear and logistic regression models and receiver operating characteristic analysis.	Diabetes, stroke, and impaired renal function were associated with increased plasma BD-tau, whereas hypertension and hypercholesterolemia were associated with reduced plasma BD-tau (all <i>P</i> <0.05). Plasma BD-tau was associated with neuroimaging markers of brain atrophy and plasma phosphorylated tau(p-tau)217, p-tau181, neurofilament light, total tau, and glial fibrillary acidic protein (all <i>P</i> <0.05). Plasma BD-tau in combination with demographic and clinical factors achieved AUC ranging 0.854-0.920 in discriminating dementia, AD, and vascular dementia from non-dementia.	The profiles of increased plasma BD-tau are characterized by genetic susceptibility to AD, certain clinical conditions (e.g., diabetes, stroke, and impaired kidney function), increased plasma biomarkers for AD, neurodegeneration, and neuroinflammation, and brain atrophy. Plasma BD-tau in combination with demographic and clinical factors show excellent-to-outstanding discrimination between different types of dementia and non-dementia in community-dwelling older adults.	1. Gonzalez-Ortiz F, Turton M, Kac PR, et al. Brain-derived tau: a novel blood-based biomarker for Alzheimer's disease-type neurodegeneration. <i>Brain</i>. 2023;146(3):1152-1165. doi:10.1093/brain/awac407 2. Gonzalez-Ortiz F, Kirsebom BE, Contador J, et al. Plasma brain-derived tau is an amyloid-associated neurodegeneration biomarker in Alzheimer's disease.
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